PERFORMANCE QUALITY SAFETY

PQS devices catalogue

Pre-qualified equipment for the Expanded Programme on Immuzination (EPI)

WHO Department of Immunization, Vaccines and Biologicals-Quality, Standards and Safety

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World Health Organization

Preface

The PQS on-line catalogue includes details of all immunization-related products currently pre-qualified by WHO for procurement by United Nations agencies. The catalogue is produced and maintained by the Quality, Safety and Standards group in the Immunization, Vaccine and Biologicals Department of WHO, Geneva. It replaces the old WHO/UNICEF Product Information Sheets (PIS), the last edition of which was published in 2000. Only products included in the PQS catalogue are now recommended to be purchased by UN agencies.

PQS performance specifications and verification protocols have been phased in on a category-by-category basis since 2006. There are many new specifications and the old PIS specifications and test procedures have also been replaced. Once a PQS specification has been published, manufacturers are granted a transition period in which to meet the new standards. Whenever a new product is pre-qualified, a data sheet is published on the PQS website.

This document and the individual product data sheets are available on the internet only at: <http://www.who.int/immunization_standards/catalogue>. There is no hardcopy version. Each edition of the catalogue is date-stamped. It will be updated regularly to ensure that the information it contains is current.

A related catalogue of WHO pre-qualified vaccines will be made available on the internet later in 2011. This will be published and managed in a similar manner. Details will be provided in future catalogue revisions.

Navigation

The catalogue is divided by category as follows:

E001: Cold rooms, freezer rooms and related equipment;

E002: Transport (guideline only);

E003: Refrigerators and freezers;

E004: Insulated containers;

E005: Ice-packs, cool-packs and warm-packs;

E006: Temperature monitoring devices;

E007: Cold chain accessories;

E008: Single-use injection devices;

E009: (not currently used);

E010: Waste management equipment;

E011: Specimen collection equipment;

E012: (not currently used);

E013: Therapeutic injection devices.

Coding

Each section includes details of currently pre-qualified products, a guideline on the choice of equipment in the category and links to relevant supporting documents.

Every product has a unique reference - the PQS product code. This comprises the category reference - e.g. E003 - followed by a number. Breaks in the numerical sequence will appear when an item is dropped from the catalogue. A unique reference is never reassigned to another product.

Feedback

User feedback is an essential component of PQS and the PQS website includes a feedback page. In particular we would like you to tell us how the products in the catalogue perform under field conditions. We will share this information with the manufacturers so that they can improve their products and we will also use it to develop better specifications.

Any general comments and queries can be addressed to: pqsinfo@who.int

Conditions of use

Glossary

The following definitions explain some key terms relevant to equipment specification. The list is not exhaustive: a term is only included where it is not common knowledge and where correct interpretation is essential in order to make an informed choice of equipment. Equipment purchasers are also encouraged to read the relevant PQS specifications and verification protocols.

Autonomy (solar refrigerators): The autonomy of a solar refrigerator measures the ability of the equipment to store vaccine during periods of heavy cloud. It is defined as the maximum number of days during which the refrigerator can continue to maintain a full vaccine load at a temperature between +2°C and +8°C when the photovoltaic panels are not generating electricity.

Cold life, cool life and warm life for cold boxes and vaccine carriers: Cold life applies when fully frozen water-packs are used as the coolant; these will continue to be used for transporting OPV and single antigen freeze-dried (lyophilized) vaccines. Cool life applies when cool water-packs are used and warm life applies when warm water-packs are used to protect freeze-sensitive vaccines in very cold climates.

- *Cold life with frozen water-packs:* Cold life is measured from the moment when the container lid is closed until the temperature of the warmest point in the vaccine storage compartment first reaches +10°C, at a constant ambient temperature of +43°C.
- *Cool life with cool water-packs at +5°C:* Cool life is measured from the moment when the container is closed, until the temperature of the warmest point inside the vaccine storage compartment first reaches +20°C, at a constant ambient temperature of +43°C.
- *Warm life with warm water-packs at +18°C:* Warm life is measured from the moment when the container is closed, until the temperature of the coldest point inside the vaccine storage compartment first reaches 0°C at a constant ambient temperature of -20°C.

EVM: Effective Vaccine Management initiative. This merges the EVSM and Vaccine Management Assessment (VMA) initiatives. The EVM website contains all the EVM resources.

EVSM: Effective Vaccine Store Management initiative. The EVSM assessment process has now been replaced by EVM. However, the EVSM Model Quality Plan is still relevant and is referred to in this document.

Holdover time: The time in hours during which all points in the vaccine compartment of a vaccine refrigerator remain below +10°C, at the maximum ambient temperature of the temperature zone for which the appliance is rated, after the power supply has been disconnected. For vaccine freezers, the holdover time is the time in hours during which the vaccine compartment remains below -5°C.

Primary store: A store which receives some or all of its vaccine directly from a national or international vaccine manufacturer.

Sub-national store: A store which receives vaccine from a primary store or a higher level sub-national store.

Water-pack: Flat plastic container, filled with water, which can be used as a frozen water-pack (ice-pack), a cool water-pack or a warm water-pack.

Water-pack freezing capacity (kg/24 hrs): The maximum weight of water-packs which can be fully frozen, in one batch, during a 24 hour freezing cycle. During this period the temperature of the vaccine storage compartment must remain within the acceptable temperature range of +2°C to +8°C.

Vaccine storage capacity: For a freezer, refrigerator, cold box or vaccine carrier: the actual volume available for the storage of vaccine as stated by the equipment manufacturer or established by physical measurement.

Abbreviations

The following symbols and abbreviations may occur in the section guidelines and in the product data sheets:

--	information not applicable or not available
( )	performance data as reported by manufacturer
[ ]	estimated
++	not tested
<	less than or equal to
>	greater than or equal to
°C	degrees celsius (centigrade)
A	ampere
AC	alternating current
BCG	bacille Calmette-Guérin vaccine (for tuberculosis)
cc	cubic centimetre
CFC	chloro-fluoro-carbon
cm	centimetre
dB(A)	decibels
DC	direct current
DT	diphtheria and tetanus toxoid vaccine
DTP	diphtheria-tetanus-pertussis vaccine

g	grams
G	gauge
GWP	global warming potential (CO_2 = 1.0)
H x W x L	height by width by length (or depth)
HC	hydrocarbon
HDPE	high density polyethylene
HepB	hepatitis B vaccine
HFC	hydro fluorocarbon
Hib	*Haemophilus influenzae* type b vaccine
HIP	high impact polystyrene
hrs.	hours
Hz	hertz (cycles per second)
id	internal diameter
IPV	inactivated polio vaccine
kg	kilograms
km	kilometre
kPa	kilo Pascals (100 kPa = 1 Bar = 14.5 psi)
kVA	kilovolt-ampere
kWh	kilowatt-hours
LDPE	low density polyethylene
LLDPE	linear low density polyethylene
LPG	liquid petroleum gas
LPM	litres per minute
lts or l	litres
m	metre
m^3	cubic metre
max	maximum
min	minimum
ml	millilitre
mm	millimetre
MMR	measles-mumps-rubella vaccine
MR	measles-rubella vaccine
No.	number
od	outer diameter
ODP	ozone depletion potential
OPV	oral polio vaccine
PoA	price on application
psi	pounds per square inch
PVC	polyvinyl chloride plastic
PW	peak watt
RH	relative humidity

RPM	revolutions per minute
TT	tetanus toxoid vaccine
V	volt
VAC	voltage alternating current
VDC	voltage direct current
W	watt
YF	yellow fever vaccine

Product pre-qualification under PQS

PQS performance specifications and verification protocols can be downloaded from the PQS website.

Every item listed in the catalogue has been shown to comply with the relevant PQS performance specification, and has been independently assessed against the companion verification protocols. There are three types of verification:

Type-examination: Some products such as cold rooms and solar power systems are site-specific but are made up of standard manufactured components. These are pre-qualified by a 'type-examination' procedure. A technical expert carries out a detailed assessment against a standard checklist to determine that all the components comply fully with the specification. Type-examination is also used for certain other product types which meet normal industry standards, and are not considered to be programme-critical; for example, temperature data loggers used for temperature monitoring studies.

Type-testing: A product that is programme-critical is generally 'type-tested'. Type-testing also starts with a 'type-examination' procedure. This is followed by standardized laboratory testing to ensure full compliance with the critical performance requirements.

Full Quality Assurance: A few products (for example – cold rooms, solar power systems and event logger type temperature monitoring systems) require quality-assured on-site installation and commissioning if they are to operate successfully. An additional type of verification protocol known as a Quality Assurance (QA) protocol applies to such equipment. A QA protocol is installation-specific and is intended to form part of the contractual agreement with the equipment supplier/installer. QA protocols can be downloaded from the PQS website in Microsoft Word format. This allows purchasers of such equipment to complete the document to suit their own specific needs.

Annual review procedure: Following initial pre-qualification, all listed products must pass an annual review. This process will take account of feedback from purchasing agencies and users. Adverse reports may lead to product modifications, to suspension or, in serious cases, to removal from the catalogue.

How to order products

When you order a product, whether from a UN procurement agency or direct from the manufacturer, you should:

- Give the full PQS product code.
- Give the manufacturer's product code as shown on the product data sheet.
- If product options are available, including spare parts, clearly state the ones that are required.

Guide prices: Where prices are given, they are shown in US dollars and are generally given as indicative Ex-Works (EXW) prices. Where possible these guide

prices will be updated annually; however, before purchasing, you will need to obtain a firm quotation, either from a UN procurement agency, or by direct negotiation with the manufacturer.

Shipping: Shipping costs vary considerably according to destination and are not included within the guide prices. Purchasers should always confirm freight charges with the supplier before placing an order. Estimated freight charges should be included in budgets, and shipping lead times should be included in project plans.

Incoterms: Manufacturers and suppliers offer delivery arrangements based on international standard definitions known as *Incoterms*. As noted above, guide prices in the PQS catalogue are generally quoted EXW. The two tables show who pays the cost of each service item in the delivery chain. A new edition of Incoterms was published in 2010 and is being phased in. Those below refer to the long-established 2000 edition. It is essential to check which version is being used by the supplier.

Incoterms definitions

TERM SERVICE	EXW Ex-Works	FCA Free Carrier	FAS Free Alongside Ship	FOB Free On-Board Vessel	CFR Cost & Freight	CIF Cost Insurance & Freight	CPT Carriage Paid To
	Who Pays	Who Pays	Who Pays	Who Pays	Who Pays	Who Pays	Who Pays
Warehouse storage at point of origin	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Warehouse labour at point of origin	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Export packing	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading at point of origin	Buyer	Seller	Seller	Seller	Seller	Seller	Seller
Inland freight	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Port receiving charges	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Forwarders fee	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Loading on ocean carrier	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller
Ocean/Air freight charges	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller
Charges at foreign Port/Airport	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller
Customs, Duties & Taxes abroad	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer
Delivery charges to final destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer

TERM SERVICE	CIP Carriage & Insurance Paid To	DAF Delivery At Frontier	DES Delivered Ex-Ship	DEQ Delivered Ex-Quay, Duty Unpaid	DDU Delivered Duty Unpaid	DDP Delivered Duty Paid
	Who Pays	Who Pays	Who Pays	Who Pays	Who Pays	Who Pays
Warehouse storage at point of origin	Seller	Seller	Seller	Seller	Seller	Seller
Warehouse labour at point of origin	Seller	Seller	Seller	Seller	Seller	Seller
Export packing	Seller	Seller	Seller	Seller	Seller	Seller
Loading at point of origin	Seller	Seller	Seller	Seller	Seller	Seller
Inland freight	Seller	Seller	Seller	Seller	Seller	Seller
Port receiving charges	Seller	Seller	Seller	Seller	Seller	Seller
Forwarders fee	Seller	Seller	Seller	Seller	Seller	Seller
Loading on ocean carrier	Seller	Seller	Seller	Seller	Seller	Seller
Ocean/Air freight charges	Seller	Seller	Seller	Seller	Seller	Seller
Charges at foreign Port/Airport	Seller	Seller	Buyer	Seller	Seller	Seller
Customs, Duties & Taxes abroad	Buyer	Buyer	Buyer	Buyer	Buyer	Seller
Delivery charges to final destination	Buyer	Buyer	Buyer	Buyer	Seller	Seller

Source: http://www.skymartworldwide.com/incoterms-2009.html

The official Incoterm definitions can be purchased from the International Chamber of Commerce website.

Where to order products

Orders can be placed directly with the manufacturer at the address given on the product data sheet.

Most items can also be purchased through the WHO Contracting and Procurement Service or from UNICEF Supply Division in Copenhagen, Denmark.

Vehicles, motorbikes and power products can be purchased through the Inter-Agency Procurement Services Office (UNDP/IAPSO). UNICEF-SD also supplies vehicles.

Other equipment suppliers include: International Dispensary Association (IDA) in The Netherlands and Médicins Sans Frontières Logistique (MSFL) in France.

Authorization is needed to gain full access to most of these websites.

General information

Vaccine storage and distribution

The following table shows the current WHO guidance on vaccine storage temperatures. Use these recommendations when calculating refrigeration needs.

WHO vaccine storage recommendations

<table>
<tr><th rowspan="3">Vaccine</th><th rowspan="2">Primary</th><th colspan="2">Sub-national</th><th rowspan="2">Health Facility</th><th rowspan="2">Health Post</th></tr>
<tr><th>Province</th><th>District</th></tr>
<tr><td colspan="3">Maximum storage period</td><td colspan="2">Maximum storage period</td></tr>
<tr><td>6-12 months</td><td>3 months</td><td>1 month</td><td>1 month</td><td>According to session plan</td></tr>
<tr><td>OPV</td><td colspan="2">Store at -15°C to -25°C
OPV is the only vaccine that can safely be frozen and unfrozen repeatedly</td><td colspan="3">Store at +2°C to +8°C</td></tr>
<tr><td>BCG</td><td colspan="2" rowspan="8">Store these lyophilized vaccines at +2°C to +8°C.
Under exceptional circumstances they can be temporarily stored at -15°C to -25°C (e.g. if there is a temporary shortage of storage space. Never freeze diluent.</td><td colspan="3" rowspan="8"></td></tr>
<tr><td>Hib lyophilized</td></tr>
<tr><td>JE</td></tr>
<tr><td>Measles</td></tr>
<tr><td>Meningitis</td></tr>
<tr><td>MMR</td></tr>
<tr><td>MR</td></tr>
<tr><td>Yellow Fever</td></tr>
<tr><td>Cholera</td><td colspan="2" rowspan="15"></td><td colspan="3" rowspan="15">Store at +2°C to +8°C</td></tr>
<tr><td>DT/TT/Td</td></tr>
<tr><td>DTP</td></tr>
<tr><td>DTP-HepB</td></tr>
<tr><td>DTP-HepB+Hib lyo</td></tr>
<tr><td>DTP-HepB-Hib liquid</td></tr>
<tr><td>DTP-Hib</td></tr>
<tr><td>Hepatitis B</td></tr>
<tr><td>Hib liquid</td></tr>
<tr><td>HPV</td></tr>
<tr><td>Influenza</td></tr>
<tr><td>IPV</td></tr>
<tr><td>Pneumoccocal</td></tr>
<tr><td>Rabies</td></tr>
<tr><td>Rotavirus</td></tr>
<tr><td colspan="6">Diluent: If diluent is included in the vaccine packaging, store it between +2°C and +8°C. However, if diluent is supplied separately, it can be stored outside the cold chain but must be cooled before use, preferably for a day or for a period of time sufficient to ensure that the vaccine and diluent are both at temperatures between +2°C and +8°C when they are reconstituted. Never freeze diluent.
Note that diluent/adjuvant for some pandemic influenza vaccines must be stored in the cold chain.</td></tr>
</table>

Vaccine distribution guidelines

Frozen water-packs

WHO recommends that OPV and the single antigen freeze-dried (lyophilized) vaccines should be distributed in cold boxes or vaccine carriers, lined with frozen icepacks.

Conditioned ice-packs

Field studies continue to show that vaccine freezing during transport remains one of the principal causes of damage to freeze-sensitive liquid vaccines in the cold chain. The use of 'conditioned' ice-packs has previously been recommended as the way to avoid this risk; however ice-pack conditioning is a time-consuming process and recent cold chain surveys have shown that the practice is difficult to enforce and is widely ignored. Note that the use of cardboard, newspaper or similar material to isolate freeze-sensitive vaccines from fully frozen ice-packs is completely ineffective as a means for preventing vaccine freezing.

Cool water-packs

The only way to eliminate the freezing risk entirely is to transport liquid vaccines, other than OPV, in cold boxes lined with cool water-packs which have been pre-cooled in a refrigerator to a temperature of +2°C to +8°C. Where it is essential to transport OPV, liquid and freeze-dried vaccines in a single carrier, experiments have shown that cool water-packs may safely be used provided the cool life of the carrier is not exceeded. For current guidance on the performance and use of cool water-packs refer to Kartoglu U, Ganivet S, Guichard S, Aiyer V, Bollens P, Maire D, Altay B. *Use of cool water-packs to prevent freezing during vaccine transportation at the country level*. PDA Journal of Pharmaceutical Science and Technology, Vol. 63, No. 1, January–February 2009, 11-26.

Changing over to the use of cool water-packs involves significant changes in practice. In addition there are equipment implications because additional refrigerators will be needed at primary and sub-national level to cool the water-packs in bulk. Consequently it is strongly recommended that the introduction of this method should be preceded by a formal cold chain study based on WHO/IVB/05.01: *WHO Study Protocol for Temperature Monitoring in the Vaccine Cold Chain.* The study design should aim to establish the extent of current problems and also the logistical and financial implications of the changeover to the use of cool water-packs.

Warm water-packs

Field experience in cold climates has shown that it is necessary to protect freeze-sensitive vaccines from exposure to ambient temperatures below 0°C during transport. Unfrozen ice packs, stabilized at a room temperature between 10°C to 24°C, can be used for the transport of freeze-sensitive vaccines for a period not exceeding 8 hours. These vaccines are generally very heat stable and the short time (typically less than 8 hours) that they are subjected to these temperatures will not harm them. For fuller guidance refer to Figure 1.5.4.A of WHO/IVB/04.18. *EVSM Module 2: Model Quality Plan.*

Vaccine vial monitors (VVMs)

The majority of vaccines used in EPI are now supplied with VVMs. Guidance on their use can be found in the document WHO/V&B/02.35 *Getting started with vaccine vial monitors.* Since this was written, VVMs have been shown to be a powerful tool for

managing the use of vaccines generally, and for preventing wastage in routine, outreach and campaign settings. In addition, many studies have shown that VVMs can enable the more heat-stable vaccines to be used safely beyond the cold chain.

Refrigerants and foaming agents

Concerns over depletion of the stratospheric ozone layer have led to a global effort to phase out the production and consumption of chlorofluorocarbons (CFCs). Subsequent concerns over global warming have reinforced the need to remove eliminate these substances because they are also potent greenhouse gases.

Until 1995, the CFCs, R11 and R12, were commonly used as refrigerant gases in compression refrigeration circuits and as foaming agents for the insulation of refrigerators and insulated containers (cold boxes and vaccines carriers).

Under the terms of the Montreal Protocol, the international community has committed itself to the elimination of these gases. The Protocol called for the cessation of CFC consumption as of 1st January 1996 in industrialized nations and from 1st January 2010 in developing nations.

Refrigerants

R12 is commonly replaced with HFC 134a. An increasing number of manufacturers are now using the hydrocarbon R600 (isobutene). Cold room and freezer room manufactures may use a variety of other refrigerants. Until 2010, developing country manufacturers were still allowed to use CFC refrigerants, but many of them had already made the change to more environmentally-benign gases.

In PQS performance specifications permit the use of HFC (hydrofluorocarbon) or HC (hydrocarbon) refrigerants in refrigerators and freezers. This is a change from the situation which applied under PIS, which did not allow the use of hydrocarbons. Hydrocarbons are still not permitted for cold rooms and freezer rooms

The table below gives the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) figures for the gases described above, and in the next section. Equipment which uses cyclopentane foamed insulation and R600 refrigerant is currently the best environmental choice.

ODP and GWP figures for some key gases

Gas	Use	Ozone Depletion Potential (ODP)	Global Warming potential (GWP)[a]
R11	Refrigerant & foaming agent	1.0	4,680[1]
R12	Refrigerant & foaming agent	1.0	10,720[2]
R134a	Refrigerant	0.25	1,410[3]
R600	Refrigerant	0.0	204
Cyclopentane	Foaming agent	0.0	11
R141b	Foaming agent (HCFC)	0.11	700

a. The GWP for CO_2 = 1.0

[1] Source: Inter-governmental Panel on Climate Change (IPCC)

[2] Source: IPCC

[3] Source: IPCC

Foaming agents

R11 is no longer used as a foaming agent by any of the industrialized country manufacturers listed in the PQS catalogue. It is now replaced by cyclopentane in European countries and by R141b in the USA (the use of R141b was banned in Europe as of 1st January 2004 and it will eventually be phased out worldwide in 2030). Because R141b has a much higher Global Warming Potential (GWP) than cyclopentane; the latter is less damaging to the environment when it is released into the atmosphere. Other gases are under investigation as replacements for R141b, including HPC-245fa, HFC-365mfc, HFC-234a, isopentane and n-pentane and various blends.

Managing existing equipment containing CFCs

CFCs have now been phased out worldwide. For this reason, programme managers should ensure that remaining CFC equipment is responsibly managed:

1. Check that tools for the repair of CFC equipment is locally available and that cold chain technicians are trained.
2. Keep an inventory of CFC equipment and where it is installed.
3. Make sure that CFC equipment is decommissioned in a responsible manner at the end of its service life and that the refrigerant is recovered and destroyed.

E001
Cold rooms, freezer rooms and related equipment

All the equipment included in the E001 category is manufactured for a specific application. It then has to be assembled and commissioned on site by a competent installer. The end user must specify clearly what is required, must select or build the space where the equipment will be housed and must provide the necessary electrical power supply, wiring and other services to which the equipment will be connected by the installer.

E001.1 Cold rooms and freezer rooms

A building housing a cold room needs to be accessible to delivery vehicles and in good condition. It must have suitable finishes, adequate ventilation, and the correct electricity supply.

The steps involved in buying and commissioning a cold room are summarised below, together with links to the relevant reference documents.

1. *Establish net vaccine capacity:* It is essential to calculate accurately the net vaccine capacity of the cold room(s) and freezer room(s), taking account of future vaccine introductions. WHO tools are available to help establish the required capacity of the store. DO NOT order on the basis of gross capacity – for example a 40 m³ room – without verifying usable net capacity with the supplier.
2. *Decide location:* Select the spaces(s) in which the equipment is to be installed. WHO/V&B/02.34: *Guideline for establishing or improving primary and intermediate vaccine stores* provides guidance on building selection and preparation.
3. *Shortlist suppliers:* UNICEF Supply Division has long-term purchase agreements with PQS pre-qualified cold room companies. If the room is not being purchased through UNICEF, prepare a tender long list. This should preferably include the pre-qualified companies listed in the PQS catalogue. Establish which companies on the long list are able to provide, install, commission and service cold rooms and freezer rooms at the chosen site. Based on this information, make a short list. Every company on the short list should have a satisfactory arrangement with a competent installation contractor in the country where the equipment is to be installed and must be able to provide a long-term maintenance service.

4. *Prepare and invite tenders:* Prepare tender documentation using the PQS specification E001/CR/FR-01 and verification protocol E001/CR/FR-VP02 templates and invite tenders. If required, invite tenders for a standby generator and voltage regulator at the same time. Specific guidance on specifying and buying generators is given in section E01.2. Guidance on heavy duty voltage regulators is given in E01.3.
5. *Place order:* Receive and evaluate tenders, agree an installation programme, and place an order with the winning supplier.
6. *Prepare the site:* Prepare the space for the cold room in accordance with the supplier's requirements and the guidance link in point 2 above
7. *Supervise:* Supervise the installation and oversee commissioning and user training.
8. *Monitor:* Check the performance of the equipment in use and monitor the effectiveness of the maintenance agreement.
9. *Maintain:* Ensure that the maintenance agreement is renewed after the expiry of the initial contract. Ensure that the temperature monitoring equipment is re-calibrated annually. Refer to the WHO/IVB/04.16-20: *WHO-UNICEF Effective Vaccine Store Management Initiative*, to WHO/V&B/02.31: *User's handbook for vaccine cold rooms and freezer rooms* and to WHO/V&B/02.30: *How to look after a cold room or freezer room: self-assessment tool.*

E001.2 Standby generators

WHO and UNICEF now recommend that all primary vaccine stores should be fitted with a standby generator with automatic start up, regardless of the reliability of the mains power supply – see WHO/IVB/04.16-20: *WHO-UNICEF Effective Vaccine Store Management Initiative*. In addition, consider installing standby generators in the following situations:

- At large intermediate vaccine stores, equipped with cold rooms.
- At other sub-national stores where the mains power supply is sufficiently unreliable to compromise the performance of ice-lined refrigerators, even when they are fitted with voltage regulators.

In all other situations, if power cuts are a chronic problem, review alternative solutions such as ice-lined appliances fitted with voltage regulators, photovoltaic equipment, or equipment which runs on kerosene or bottled gas. The decision to purchase a standby generator should not be taken lightly since it involves an investment of several thousand dollars, together with significant maintenance and training costs.

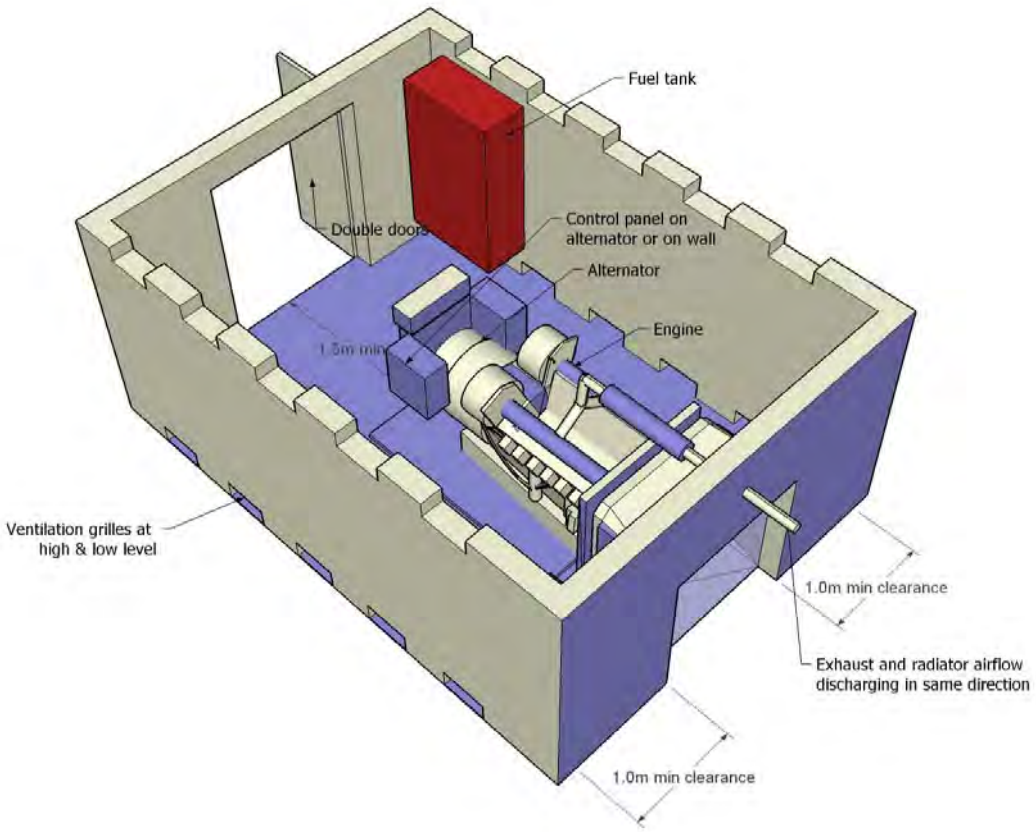
E001.2.1 Specifying the generator

The guidance notes in this section are for background information only. They are intended to be used to brief a professional engineer and/or to communicate with system suppliers and installers. Wherever possible, the generator should be supplied by the cold room/freezer room manufacturer as part of a comprehensive package - see E001.1. In all other cases, seek the advice of a qualified electrical engineer. In situations where an engineer is not available, refer to a reliable technical source such

as *Engineering in Emergencies – A practical guide for relief worker,* available in hardcopy or CD format from RedR [1]

The generator house: The size of a standby generator is determined by the rated load of the equipment to which it is connected. The figure below shows the layout of a typical generator house.

A typical generator house



Adapted from *Engineering in emergencies*

The generator house should have a concrete floor slab. Provide ventilation openings near the bottom of the walls to provide cooling air, with additional openings in the wall nearest the air filter to supply cool air for combustion. In addition, provide ventilation openings along the top of the walls to release accumulated hot air. All ventilation openings should be fitted with mesh grilles to keep out pests. Arrange the exhaust pipe above the cooling air outlet to discharge in the same direction. Keep the exhaust system as short as possible, with the minimum number of bends.

Fuel tanks should ideally be 'bunded'. A bunded tank consists of a tank mounted inside an outer housing large enough to accommodate the total contents of the tank, should it develop a leak. This ensures that fuel spills are contained and cannot get into the drainage system or the ground water.

E001.2.2 Inviting tenders for a generator

Prepare a tender short list. Every company on the short list must have a satisfactory arrangement with a competent installation contractor in the country where the

[1] The information which follows in this section is partly based upon Section 14.3.3 of *Engineering in Emergencies – A practical guide for relief workers*, 1st Edition, Intermediate Technology Publications, 2001.

equipment is to be installed and should be able to provide a long-term maintenance service or training for local technicians.

Tender invitations should include the following information:

1. *Client:* Name of the client.
2. *Location:* Site location.
3. *Delivery/installation date:* Specify the required date for delivery/installation.
4. *Payment arrangements:* Specify currency, payment stages, etc.
5. *Information to be supplied by tenderers:* Price (Incoterm). Full technical details of the proposed equipment including fuel consumption on full load (fuel consumption will be a significant factor in choosing a generator set if anticipated run-times are long – less significant if the generator will be used infrequently). Details of the manufacturer's in-country installation and service network. Manufacturer's infrastructure requirements (e.g. cable connections, etc.). Manufacturer's detailed recommendations for the generator house layout, construction and ventilation.
6. *The supply required:* **Either:** Single phase, 2-wire (phase and neutral), and system voltage, for example 110V, 220V or 240V. **Or:** Three-phase, 4-wire (three-phase and neutral), and system voltage, for example: 380/220V or 415/240V.
7. *Supply frequency:* 50 Hz or 60 Hz.
8. *Connected equipment:* A schedule listing every item of connected equipment, including cold rooms, freezer rooms, refrigerators and freezers. In addition, list all other equipment for which standby power is required, such as computers, printers, and electric lighting. For each item on the list, give the power requirement in kW. In the case of motors (e.g. cold room compressors), give the method of starting, e.g. direct-on-line (DOL). If you cannot find this information, give full details of each item of equipment, including manufacturer and model number, and request the tenderer to obtain the missing data.
9. *Site conditions:* Ambient temperature, humidity and altitude affect generator performance. Give the annual maximum and minimum temperature at the site in degrees centigrade, the maximum and minimum relative humidity in percent and the altitude of the site above sea level in metres.
10. *Mounting method:* Skid mounted. Mobile units are available, but are not appropriate for a fixed installation.
11. *Weather protection:* State whether the generator should be supplied as an open or weather-protected set. Open sets will be housed in a generator house. Weather-protected sets may be mounted outdoors.
12. *Soundproofing:* Soundproofed housings are usually expensive. A locally made masonry enclosure is often cheaper and, in the case of units installed outside, they also provide protection against the weather – see figure above.
13. *Fuel:* Diesel is universal on all but the smallest portable generators. Natural gas might be required in areas with stringent air pollution regulations.
14. *Engine start:* If automatic mains-failure start and/or shut down are needed, this must be clearly stated. Otherwise specify hand and/or electric start, complete with battery (even with electric start, it is useful to have a hand-start facility when the battery is flat or missing).

15. *Engine monitoring facilities:* Over-heating, low oil pressure, battery charging ammeter or indicator. Automatic engine shut-down in the event of over-heating, low oil pressure or broken fan belt. Engine monitoring meters and indicators may be mounted on the control panel – see next item.
16. *Control panel:* Integrated (set-mounted) or free-standing control panel. Integrated control panels must be mounted on anti-vibration mountings. Instrumentation to include: One ammeter per phase. One voltmeter and selector switch (to monitor each phase-phase and phase-neutral voltage). Frequency meter. Hours-run meter.
17. *Fuel tank capacity:* Sufficient to allow a minimum of 72 hours continuous running. Specify that it should be bunded.
18. *Exhaust pipework:* Run length and bends needed to ensure discharge in a safe location.
19. *Spare parts:* **Either:** ensure that the supplier has an effective service network in-country. **Or:** order an adequate supply of spare parts and consumables, sufficient for a minimum of two year's normal operation, as recommended by the set manufacturer.
20. *Installation:* Specify whether the equipment is to be installed and commissioned by the manufacturer's in-country agent (strongly recommended), or by others.
21. *Training:* The manufacturer, or installer, must train vaccine store staff and maintenance technicians in the use of the equipment and must provide comprehensive operating and service manuals in the appropriate language.
22. *Maintenance agreement:* Wherever possible, arrange for the equipment to be maintained by the set manufacturer's in-country service agent. The tender documents should clearly specify the length of the maintenance agreement, the minimum requirements for routine maintenance and the maximum acceptable response time in the event of an emergency – e.g. equipment failure during a power outage.

E001.2.3 Choosing a supplier

The lowest bidder is not always the cheapest when lifetime operating costs are considered. Significant factors which reduce operating costs include:

Local availability of technical expertise and spare parts: Tenderers without a local service network should generally be excluded.

Fuel consumption: A model with low fuel consumption may be cheaper to operate over its whole working life than a model with higher fuel consumption but a lower purchase price.

Revolutions per minute (RPM): Slow running generators with ratings below 1,800 RPM have longer working lives. Models running at 3,000 to 3,600 RPM are found to require more maintenance, have greater fuel consumption and a higher rate of mechanical wear. A cheap high RPM model may be a poorer choice than a more expensive low RPM model.

E001.2.4 Suppliers of standby generators

Inclusion in the following list does not imply any recommendation by the World Health Organization.

The Americas Cummins Power Generation 1400 73rd Avenue. NE Fridley, MN 55432 USA Tel: +1 763 574 5000 Fax: +1 763 574 5282 Email: ask.powergen@cummins.com Web: http://www.cumminsonan.com	Lister Petter Ltd. Long Street, Dursley Gloucestershire GL11 4HS United Kingdom Tel: +44 (0)1453 544 141 Fax: +44 (0)1453 546 732 Email: sales@lister-petter.co.uk Web: webmaster@lister-petter.co.uk
Europe GENELEC SA Z.I. Nord Aranas 62, Rue du Nizerand 69400 Villefranche s/Saone France Tel: +33 (4) 74 62 65 05 Fax:+33 (4) 74 09 07 28 Email: genelec@genelec.tm.fr Web: www.genelec.tm.fr	FG Wilson Ltd. 1 Millennium Way Springvale Business Park Belfast Co. Antrim Northern Ireland BT12 7AL Tel: +44 (0) 28 9049 5000 Fax. +44 (0) 28 2826 1111 Web: http://www.fgwilson.com
** Bruno S.R.L. S.S. 91 Km 0,600 I-8305 Grottaminarda (AV) Italy Tel: +39 0825 421005 Fax: +39 0825 426169 Email: dir@brunogenerators.it Web : www.brunogenerators.it	**Western Pacific** Yanmar Web: http://www.yanmar.co.jp/en
** Coelmo S.R.L. Agglomerato Industriale ASI I-80011 Accera (NA) Italy Tel:+39 081 8039 731 Fax :+ 39 081 8039 724 Email: lgiordano@coelmo.it Web: www.coelmo.it	

** Currently have a long-term purchase agreement (LTA) with UNICEF-SD

E001.3 Voltage regulators for larger vaccine stores

Fluctuations in the electricity supply can cause the premature failure of motors, compressors and other electrical and electronic components. Fortunately, fluctuations can be controlled effectively, and damage can be avoided, by installing a *voltage regulator* on the power line which supplies the equipment. In addition, a *surge protection* device is recommended to prevent damage in the event of lightning induced spikes on the supply line. *Lightning protection* should also be included in areas where lightning is common.

Wherever voltage fluctuations exceed ±7%of the rated voltage at the supply point, WHO recommends that refrigeration equipment should be connected to the mains supply via a voltage regulator. This applies to cold rooms, freezer rooms, vaccine refrigerators and vaccine and icepack freezers at any level in the cold chain. Associated electronic temperature monitoring equipment and computers should also be connected to a voltage-regulated circuit; this type of equipment is particularly sensitive to voltage fluctuations and to lightning-induced power surges.

There are various types of *surge protector*. Some can only survive a limited number of surge events; with this type of equipment it is essential to stock an adequate stock of replacement components and to know how to replace them in the event of a failure.

It is generally good practise to ensure that refrigeration equipment and temperature monitoring/computers are supplied by separate dedicated supplies with separate voltage regulators. This ensures that the load variation of the refrigeration equipment does not adversely affect the electronic equipment, and allows the most appropriate type of voltage regulator to be chosen for each of the two load types.

Finally, the cost and design life of available equipment varies widely, with a design life of up to 50 years possible for highly critical applications. Large vaccine stores can hold hundreds of thousands dollars worth of vaccine and the cost of loosing this inventory needs to be taken into account when choosing a voltage regulator and/or surge protector - it may be economically justifiable to install a more expensive system because it is more reliable and longer lasting.

E001.3.1 Types of regulator

The chosen voltage regulator must be able to cope with the full range of voltage fluctuations found at the vaccine store site. Within the parameters outlined above, it must also be affordable.

Servo-mechanical voltage regulators provide a reliable and economical method of stabilising mains voltage range variations of up to 50%. They use a proven technology that combines electro-mechanical components with electronic sensing and control to give a continuous, smooth and very stable output voltage. Servo-mechanical voltage regulators have some moving parts which, depending on the application, will require a small amount of low-level maintenance after a long period of time.

This technology is the most suitable one for primary vaccine stores and for larger sub-national stores. A disadvantage of the technology is its slow response time to voltage changes, but this is not considered to be a major drawback for cold store equipment. Another disadvantage is that it may be less reliable than tap-changing, particularly if the equipment is not properly maintained.

Electronic voltage regulators: A solid-state continuous acting electronic voltage regulator provides a better alternative for applications requiring extremely fast correction speed, or applications located in hostile climatic conditions. A problem with cheaper models of this type of equipment is that they often incorporate a cooling fan. These may clog up in dusty conditions. Alternatives which rely entirely on convection cooling are available, but they are typically more expensive than servo-mechanical devices.

Tap-changing voltage regulators and conditioners: There are a number of different tap-changing regulators on the market and some are more reliable than others. A common type, used by many manufacturers, incorporates electronic tap-changing techniques. This type is prone to failure due to switching stresses. The more reliable devices use relays.

For less sensitive equipment, where the output voltage only needs to be maintained within broad limits, a tap-changing solution is acceptable. All tap-changing regulators produce voltage jumps at the moment of tap-changing; fortunately refrigeration and air-conditioning units can accept these jumps. Tap-changing regulators may be unsuitable for loads such as sensitive monitoring equipment because they can cause graphic distortion or data loss. If ignored, this will eventually shorten the life of the connected equipment, or cause expensive damage.

Tap-changing regulators are an appropriate choice for stabilizing the supply to individual refrigerators or freezers in small sub-national stores and at service point level. As an example, one widely used unit can control output voltages between -8% to +9% when the input voltage varies between -34% to +26%. These units should always include a time delay cut out to protect against high/low voltage damage to refrigeration compressors. High capacity tap-changing units are available for cold rooms, but are typically more expensive than equivalent servo-mechanical units.

E001.3.2 When to install a voltage regulator

Voltage regulators are strongly recommended whenever new vaccine refrigeration equipment is being installed, particularly where a problem exists with the electricity supply to the site. If existing vaccine cold room motors, compressors, relays and other related electric equipment suffer frequent failure; this is a good indication that the stability of the mains supply is poor.

If the area surrounding the vaccine store is under development, there is a risk that the development of the electricity supply will not match growing demand. This can lead to an unstable, unreliable or fluctuating electricity supply. In such situations it is prudent to install voltage regulation equipment as a precautionary measure.

E001.3.3 Inviting tenders for a voltage regulator

Prepare a tender short list and provide bidders with the following information::

1. *Rated mains supply:* **Either:** Single phase, 2-wire (phase and neutral), and system voltage, for example 110V, 220V or 240V. **Or:** Three-phase, 4-wire (three-phase and neutral), and system voltage, for example: 380/220V or 415/240V.
2. *Supply frequency:* 50 Hz or 60 Hz.
3. *Measured voltage and frequency fluctuations:* A qualified electrical engineer should be asked to obtain these measurements, which should be taken at frequent intervals over a period of at least a week. Allow for all potential loads and allow also for seasonal load variations.
4. *Electrical storm activity:* Indicate the frequency and intensity of electrical storms.
5. *Connected equipment:* Provide a schedule listing every item of connected equipment, including cold rooms, freezer rooms, refrigerators and freezers. In addition, list all other equipment for which voltage regulation and surge protection is required, such as computers, printers, and electric lighting. For each item on the list, give the power requirement in kW. In the case of motors (e.g. cold room compressors), give the method of starting, e.g. direct-on-line (DOL). If you cannot find this information, give full details of each item of equipment, including manufacturer and model number, and request the tenderer to obtain the missing data.
6. *Site conditions:* Peak ambient temperature and humidity may affect equipment performance. Give the annual maximum temperature at the site in degrees centigrade together with the maximum relative humidity in percent.
7. *Generator:* If there is a standby generator, provide full details of the unit, including make, model, kVA rating, start method (manual or automatic mains-failure) and stop method (manual or mains-resumption).

E001.3.4 Suppliers of voltage regulators

Inclusion in the following list does not imply recommendation by the World Health Organization.

The Americas Eaton (was Best Power) 8609 Six Forks Road Raleigh, NC 27615 U.S.A. Tel: +1 919 872 3020 Email: powerquality@eaton.com Web: www.bestpower.com	Advance Electronics Ltd Advance Park Wrexham LL14 3YR United Kingdom Tel: +44 (0)1978 821000 Fax: +44 (0)1978 821 000 Email: sales@aelgroup.co.uk Web: www.aelgroup.co.uk
Europe Claude Lyons Ltd. Brook Road Waltham Cross Hertfordshire EN8 7LR United Kingdom Tel: +44 (0) 1992 768 888 Fax: +44 (0) 1992 788 000 Email: info@claudelyons.co.uk Web: www.claudelyons.co.uk	Watford Control Instruments Ltd. 5 Godwin Road Corby, Northants NN17 4DS United Kingdom Telephone: 44 (1536) 401345 Fax: 44 (1536) 401164 Email: sales@watfordcontrol.co.uk Web: www.watfordcontrol.co.uk

E001 data sheets follow

E001: Cold rooms and freezer rooms

PQS code:	**E001/001**
Description:	Cold rooms and Freezer rooms
Manufactured in:	Finland
Company:	Porkka Finland Oy
Address:	Soisalmentie 2 FI-15860 Hollola Finland
Telephone:	+358 20 5555 - 12
Email:	petri.hiilloste@huurre.com; gordonmacbride@porkka.co.uk
Web address:	www.porkka.fi

Specifications

Temperature zones: Hot Temperate Cold

ENCLOSURE CONSTRUCTION OPTIONS

Cold room sizes:	10 to 40 m3	**Freezer room sizes:**	10 to 40m3
Wall&ceiling panel finish	Polyester coated steel	**Panel insulation material:**	Polyurethane high density
Floor panel finish	Glassfiber re-enforced anti-slip plywood	**Panel thickness options:**	100mm (standard); 150mm (option)
Mounting options:	Wall	**Panel jointing system:**	Cam-lock jointing
Shelving system:	Adjustable shelves only	**Shelving material:**	Plastic

EQUIPMENT OPTIONS

Refrige. units options:	- Monoblock - Split system -	**Refrigerant:**	R-404a
Duty sharing:	- Timed changeover - Manual changeover -	**Foaming agent:**	N-Penthane
Plume guard:	Yes	**Cold climate protection:**	Yes
Door seal heater:	Yes	**Auto-defrost:**	Yes
Pressure valve:	Yes	**Floor panel heater:**	Yes
Voltage regulator:	Yes	**Strip curtain:**	Yes
Voltage options:	Yes	**IEC 60335:**	Yes
Cut-out system:	Yes	**Surge protection:**	Yes

TEMPERATURE MONITORING & ALARM OPTIONS:

Temperature recording:	- Dial thermometer - 7-day pen recorder - Event logger -	**Alarm system:**	Yes

Comments:

Quality standard:	- ISO 9001 - ISO 13485 -	**ISO 14001:**	Yes
Supplied regions:	All	**Installation service:**	- Advisory service - Installer network -
Warranty period:	*1 year*	**Maintenance service:**	*- Advisory service - Maintenance network -*
Current PQS status:	*pre-qualified*	**Prequalification date:**	*17 Aug 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E001: Cold rooms and freezer rooms

PQS code:	**E001/002**
Description:	Cold rooms and freezer rooms
Manufactured in:	France
Company:	Zhendre Froid & Climatisation
Address:	122 Avenue des Pyrénées – B.P. 82 33883 Villenave d'Ornon France
Telephone:	+ 33 (0)5 56 87 71 22
Email:	fthiercelin@zhendre.com
Web address:	www.zhendre.com

Specifications

Temperature zones: Hot Temperate Cold

ENCLOSURE CONSTRUCTION OPTIONS

Cold room sizes:	10 to 40 m3	**Freezer room sizes:**	10 to 40m3
Wall&ceiling panel finish	Galvanized steel 5/10 Iceberg white powedered-coated	**Panel insulation material:**	Polyurethane high density
Floor panel finish	Phenolic resin	**Panel thickness options:**	100 mm
Mounting options:	Wall Wall split	**Panel jointing system:**	cam-lock, 2 polyethylene joints onto the 4 edges of each panel
Shelving system:	Adjustable shelves only	**Shelving material:**	Steel

EQUIPMENT OPTIONS

Refrige. units options:	- Monoblock - Split system -	**Refrigerant:**	R404a
Duty sharing:	- Manual changeover -	**Foaming agent:**	Polyurethane high density
Plume guard:	Yes	**Cold climate protection:**	Yes
Door seal heater:	Yes	**Auto-defrost:**	Yes
Pressure valve:	Yes	**Floor panel heater:**	No
Voltage regulator:	No	**Strip curtain:**	Yes
Voltage options:	Yes	**IEC 60335:**	Yes
Cut-out system:	Yes	**Surge protection:**	Yes

TEMPERATURE MONITORING & ALARM OPTIONS:

Temperature recording:	- Dial thermometer -	**Alarm system:**	Yes

Comments:

Quality standard:	- ISO 9001 -	**ISO 14001:**	Yes
Supplied regions:	All regions	**Installation service:**	- Advisory service - Installer network -
Warranty period:	*1 year*	**Maintenance service:**	*- Advisory service - Maintenance network -*
Current PQS status:	*pre-qualified*	**Prequalification date:**	*20 Apr 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 08.06.2011

E002
Transport

Immunization programmes require vehicles to distribute vaccine, supplies and equipment, to carry out supervision and maintenance operations and to provide outreach immunization services. Sections E002.4 and E002.5 briefly cover the purchase of motorcycles, and cars, light vans and light four-wheel drive vehicles. The specification and purchase of refrigerated vehicles for transporting vaccine is described in more detail in section E002.6.

E002.1 Sources of information

There is a huge literature on fleet operation in developed economies, together with commercial software tools to assist with day-to-day management. Useful material also exists on fleet management in the developing world. The following are some key advisory organizations:

1. Fleet Forum is a Geneva-based private/public partnership of organisations involved in humanitarian fleet management. The partners operate a combined global fleet in excess of 60,000 vehicles, with an estimated annual operating cost of $800 million. The organization holds annual meetings and hosts a website containing free downloadable resources. These include the Concern Worldwide *Transport Manual*, together with related annexes and standard transport management forms, and the International Federation of Red Cross and Red Crescent Societies' *Fleet Manual*.
2. Riders for Health focuses specifically on the management and use of motorcycles and other vehicles in the health sector. It has a support centre based in the UK with current field programmes in sub-Saharan Africa. It operates the Riders International Academy for Vehicle Management in Harare, Zimbabwe which gives courses in fleet management, driving, motorcycle riding and maintenance..
3. Transaid based in the UK, is a spin-off from Save the Children. It provides transport management consultancy and tools, focussed particularly on Africa. Their *Transport Management Manual,* 2001 is available by request.
4. USAID Deliver project provides resources on supply chain management, including a useful self-learning guide on Transport Management[1].

E002.2 Purchasing

Programmes can benefit from large scale central purchasing by buying in bulk direct from the manufacturer, or through one of the UN procurement agencies. In this way, savings of 20-25% can be achieved compared with purchasing from a dealer. The two principal UN sources are:

[1] USAID DELIVER. *Transport Management Self-Learning Guide for Local Transport Managers of Public Health Services*. 2010

IAPSO supplies a wide range of vehicles to all the UN agencies. These are listed in the UNOPS on-line catalogue.

UNICEF Supply Division also procures vehicles. These are listed in the UNICEF on-line catalogue.

Another advantage of large scale purchasing is that bulk-bought vehicles can be supplied without the unnecessary extra features demanded by the retail sector. This further reduces the initial cost and simplifies maintenance.

There are eight basic rules for a cost-effective vehicle purchasing cycle:

1. Only buy the vehicles you need and can afford to operate.
2. Choose and use the right vehicle for the job.
3. Choose from a standardized range of field-proven vehicles.
4. Negotiate effectively with your supplier.
5. Avoid buying from dealers.
6. Establish an optimal life cycle for each vehicle type and do not exceed it.
7. Maintain the vehicles well. This way you will obtain the maximum resale value when they are sold.
8. Ensure that adequate funding is available to operate and maintain vehicles and to replace them at the end of their economic life.

E002.3 Buyers' guide to motorcycles

Motorcycles provide independent mobility for health workers and supervisors. Around eight of them can be purchased and operated for the same cost as a four-wheel drive vehicle. Other advantages over four wheeled vehicles are that they are:

- inexpensive to purchase and maintain;
- manoeuvrable on steep or difficult terrain;
- suitable for use on narrow tracks, providing convenient access to places that are hard to reach;
- small enough to be stored securely inside a building;
- can be carried inside larger vehicles or on trains.

However they do have certain disadvantages over four-wheeled transport:

- they are less robust;
- the rider is more vulnerable – it is essential that users receive training in safe riding techniques and are provided with, and required to wear, crash helmets and protective clothing;
- use for unauthorized purposes can be difficult to control.

E002.3.1 Select the right machine for the job

Motorcycles can be classified into five categories with acceptable uses and loads as set out in the table below.

Motorcycle category >>	Category 1	Category 2	Category 3	Category 4	Category 5
Engine size (cc)	<50	50-90	90-110	110-150	150-250
Good roads, short distances	yes	yes	yes	yes	yes
Rough roads & terrain, short distances	no	no	yes	yes	yes
Good roads, long distances	no	no	yes	yes	yes
Rough roads & terrain, long distances	no	no	no	yes	yes
Number of people	1	1	2	2	2

Motorcycle category >>	Category 1	Category 2	Category 3	Category 4	Category 5
Vaccine carrier	yes	yes	yes	yes	yes
Short-range cold box	no	yes	yes	yes	yes
Long-range cold box	no	no	no	yes	yes

E002.3.2 Two-stroke or four-stroke?

Lightweight machines include models with two-stroke and four-stroke engines. Although two stoke motorcycles are cheaper to purchase and are mechanically simpler, they are more expensive to run and they produce much higher levels of harmful emissions. Wherever possible, select a four stroke model.

E002.4 Buyers' guide to general purpose vehicles

This section briefly covers the procurement of passenger cars, light vans and light four-wheel drive vehicles. Refer to the resources in Section E002.1 for more guidance.

Before an order is placed, consider the following:

- Would it be more cost-effective to share a vehicle with another programme, or to outsource the transport task to a private company or government agency?
- Is the proposed vehicle adequate for the intended task, but not over-specified?
- Is the life-cycle cost of the proposed vehicle the lowest available?[2]
- Is there a strong local sales and servicing network for the proposed model?
- Does the vehicle conform to the programme's fleet standardization policy?

E002.5 Buyers' guide to refrigerated vehicles

In most settings refrigerated vehicles should only be considered for bulk vaccine distribution from the primary store out to the sub-national stores. This arrangement can make efficient use of resources, particularly in countries with large populations and/or where distances between the primary and sub-national stores are substantial. Typically a number of stores are grouped into a series of delivery rounds. Sometimes these may take several days to complete which means that vehicle reliability is extremely important.

E002.5.1 Pre-conditions

Only operate refrigerated vehicles when the following circumstances apply:

- The programme is large enough to justify the purchase of at least two vehicles – relying on one only is likely to lead to delivery failures when the vehicle is out of service.
- Available servicing facilities can provide high quality planned maintenance both for the vehicle and for the refrigeration unit.
- A well-managed and well-funded replacement policy is in place so that vehicles are routinely replaced when they reach the end of their economic life.
- Well-trained drivers are available.
- Road surfaces on the proposed routes are good.
- Security is good – there is little risk that expensive vehicles and vaccines will be stolen or hijacked.

[2] Data on life-cycle costs is not readily available. Therefore fleet operators should establish a system to collect information on the running and maintenance costs of individual vehicles so that they can use these data as a basis for future purchasing decisions.

- The necessary infrastructure is in place to allow the vehicle to operate (see E002.5.3 below).
- Effective parallel arrangements are in place to distribute bundled immunization supplies (syringes and safety boxes) because transporting these supplies with the vaccine, in the refrigerated vehicle, may not be economic[3].

E002.5.2 Specifying the vehicle

Before ordering a vehicle, identify the drop-off points and plan and optimize the delivery routes. Establish as precisely as possible the total volume of vaccine that will be transported on each delivery round – this determines the required size of the vehicle. If the volume is impractically large, go back and change the rounds. The aim should be to ensure that the vehicle is well utilized; to achieve this, it may be necessary to share the vehicle with another programme. There is no point in procuring an expensive asset which is only used three or four times a year.

The checklist below outlines the vehicle features that need to be specified:

1. *Base vehicle:* Choose a good quality diesel powered model of a type that is widely used in the country, and for which there is a good servicing infrastructure and free availability of spare parts. The fuel tank capacity must comfortably cover the maximum distance between refuelling points – spare fuel should never be carried in the refrigerated compartment.
2. *Insulated body:* The insulated body must be suitable for the climatic conditions that exist in the country. It should be painted white to reflect sunlight. Unless vaccine is transported on pallets, specify a single insulated access door in the rear or side of the body – double doors loose large amounts of cooled air when they are opened during stops. Door openings must also be fitted internally with a clear plastic flexible strip curtain. This limits the loss of cold air when the door is open. The floor of the insulated compartment should be supplied with a 'T-floor' which is designed to allow air to flow freely below the load. Alternatively, the vaccine can be stacked on pallets, which serve the same function.
3. *Refrigeration equipment for van-based units:* Small van-based units are sometimes used for short range deliveries. The refrigeration equipment on this type of vehicle is generally powered directly by the vehicle's engine. Models with belt-driven compressors and models with generator-driven compressors are available. Generator-driven models are preferred, and should be supplied with a power lead. This allows the refrigeration unit to be connected to a single-phase mains electricity supply at stopover points when the vehicle engine is switched.
4. *Refrigeration equipment for truck based units:* The refrigeration equipment on larger truck-based units should be independently diesel powered with automatic start-up and shut-down and a separate fuel tank with a capacity sufficient to operate under full load for a minimum of 24 hours. Preferably the unit should have an electric standby motor capable of running on a three phase power supply appropriate to the country of use[4] (380/415 volt 50/60 Hz or 220 volt 50/60 Hz). The three phase electrical lead to the standby motor should be fitted with an industry-standard waterproof IEC 309-5 pin plug. Ensure that the lead is long enough to reach all the standby power outlets along the delivery route. Although electric standby is not essential, diesel units are noisy and this discourages

[3] It is possible to specify a two compartment vehicle with one part refrigerated and the other at ambient temperature.

[4] Single phase standby units are also available, but they are only suitable for the small refrigeration units used on light trucks and vans.

drivers from staying in the vehicle overnight during stopovers. In addition, the standby unit provides backup, if the diesel engine fails.

5. *Refrigerant:* The refrigerant must comply with the Montreal Protocol.

6. *Sleeper cab for truck-based units:* For security and vaccine safety reasons the driver and/or crew should always stay with the vehicle if the delivery route requires overnight stops. There should be a full sleeper safety cab with adequate heating and/or cooling to provide acceptable year-round comfort. The cab should have one or two bunks, depending on whether the vehicle is manned by one or two people.

7. *Temperature control:* The refrigeration unit must maintain the interior of the insulated body at a temperature between +2°C and +8°C at any point in the operating cycle between fully loaded with vaccine and empty. The specified temperature range must be maintained 24 hours per day, when operating both on diesel and electric power, and in all ambient temperature conditions found in the country of use. In cold climates it is essential that the refrigeration unit can maintain the operating temperature range during winter conditions. This facility can be provided by a 'hot gas' unit.

8. *Temperature monitoring:* Accurate and reliable temperature control and an effective temperature alarm system is a critical requirement to ensure the security of the cold chain. A summary of European regulations can be found at www.transcan.co.uk. Effective air temperature monitoring requires at least two permanently fixed sensors in the insulated body. One should be positioned below the cooling unit to measure return air temperature, and the other on the ceiling about three quarters of the way down the length of the compartment. In the case of a cooling unit which does not use forced air, the air temperature should be measured above and below the load, to take into account the likely vertical temperature gradients. Sensors must be connected to a suitable recording instrument, permanently mounted in the vehicle cab. The current European standard for such devices is EN12830:1999: Temperature recorders for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream. Tests, performance and suitability.
   The temperature monitoring device should be supplied with a traceable certificate of calibration which must be renewed annually. The certificate should be valid for the range of temperatures that the device normally measures. Temperature recordings must be dated and should be stored for a minimum of three years in accordance with the recommendations in WHO/IVB/04.16-20: WHO-UNICEF Effective Vaccine Store Management Initiative – Modules 1-4. In addition to the temperature recorder, the cab should be fitted with an instantaneous digital temperature display and a visual and sound alarm system. The sounder should trigger in the event of any malfunction of the refrigeration unit or any departure from the specified operating temperature range.

9. *Driver monitoring:* Truck-based units should preferably be fitted with an automatic tachograph to ensure that maximum permitted driving periods are not exceeded.

10. *Safety and security equipment:* The vehicle cab, the doors to the refrigerated body and all fuel caps should be fitted with security deadlocks and there should be a good quality vehicle alarm system. In countries where the relevant infrastructure exists, consider installing a vehicle tracking device.

11. *Spare parts:* Ensure that there is an in-country dealer network which holds a stock of spare parts for the vehicle and the refrigeration unit. If in doubt, ensure that adequate spare parts are supplied at the time of purchase.

12. *Workshop and operating manuals:* Workshop and operating manuals for the vehicle and for the refrigeration unit should be supplied in the appropriate language.
13. *Communications:* The vehicle must be fitted with an on-board radio or the driver must have a mobile phone. It is essential that the crew is able to report progress and to communicate in the event of breakdown or accident.
14. *Vaccine packing:* Consider how the vaccine is to be stacked and secured to prevent load movement during the journey. One approach is to purchase stackable plastic delivery crates. These should have lids and should nest together when they are empty so that they can be kept in the vehicle out of the way after each drop-off. Loads must be packed so that chilled air can flow freely throughout the compartment.

E002.5.3 Preparing the infrastructure

The following infrastructure must be in place before refrigerated vehicles are used:

1. *Parking:* Arrange adequate secure parking at each of the drop-off points.
2. *Access:* Adapt access at drop-off points as necessary to suit the chosen vehicle(s).
3. *Standby power supplies:* For single-phase units provide a weatherproof single-phase electrical outlet at every drop-off point. to suit the type of plug supplied with the vehicle. For three-phase units, provide a suitably positioned IEC 309-5 three phase power socket at all overnight stops. Preferably there should be a socket at every drop-off point.
4. *Contingency planning:* Make firm arrangements with commercial and other organizations that can offer standby power or emergency refrigeration at points along each delivery route.

E002.5.4 Buying the vehicle

Refrigerated vehicles are built to order. Using the checklist outlined above, prepare a clearly worded specification and allow plenty of time for the procurement process. Typically the delivery lead time will be up to six months after an order is placed. Assuming that a formal tendering exercise will be needed under government procurement rules, allow at least nine months for the complete operation.

No data sheets for this section

E003
Refrigerators and freezers

The PQS specifications require better temperature control than was previously the case. These changes are mainly intended to reduce the risk of accidental freezing of vaccines stored in refrigerators and to eliminate the need for thermostat adjustment on electric compression cycle appliances. These and other changes from the earlier PIS specifications are detailed below.

E003.1 Refrigerator and freezer technologies

Refrigerators and freezers can operate on electricity or on heat derived from the burning a liquid fuel or gas.

Electricity may be supplied from the mains, from an electric generator or from renewable energy sources; typically solar power supplied from a photovoltaic array (with or without storage batteries). Most electric refrigerators are vapour-compression cycle units, of which the ice lined refrigerator (ILR) is a special type..

Absorption cycle refrigerators use heat to produce refrigeration. Most absorption units burn LP gas or kerosene. Some operate with electric resistance heating and combination units can use fuel or electricity in the same refrigerator.

The table below summarizes the advantages and disadvantages of each refrigeration technology and energy source**.**

Refrigeration options

Refrigeration cycle and energy source	Thermostatic control	Routine maintenance	Overall cost	Other remarks
Compression cycle with reliable electricity	Good	Very little required.	Low	Voltage regulator required when voltage varies widely.
Compression cycle ILR with intermittent electricity	Good	Very little required.	Low	Voltage regulator required when voltage varies widely.
Solar electricity/ direct drive compression cycle	Good	Routine solar module maintenance. .	Medium	Requires an established solar service network and good solar site evaluation.
Solar electricity/ battery powered compression cycle	Good	Routine battery and solar module maintenance.	High	Requires an established solar service network and good solar site evaluation. Essential to plan for and provide funding

Refrigeration cycle and energy source	Thermostatic control	Routine maintenance	Overall cost	Other remarks
				for battery replacement.
Absorption cycle/ electric	Good	Little required	Medium	Requires frequent replacement of heating element when voltage varies widely, unless a voltage regulator is used. Consumes significantly more electricity than compression cycle equivalents.
Absorption cycle/ LP gas	Partial	Little required	Medium	Pilot flame can cause excessive cooling in low ambient temperatures.
Absorption cycle/ kerosene	None*	Frequent cleaning and adjustment of wick and flue	High	Kerosene needs to be filtered before use.

No thermostat control. Wick must be manually adjusted day and night to control internal temperature when external temperatures vary or when icepacks are being frozen.

E003.2 PQS compression refrigerators and freezers

Compression refrigerators and freezers are powered by electricity; they cannot operate on gas or kerosene. The electrical supply may come from the mains, a generator or from a renewable energy source such as solar power, with or without a battery pack. Their great advantage is that they provide powerful and efficient cooling – approximately four times more than an absorption cycle unit for the same amount of electrical energy. In addition, compression units have better temperature control in most conditions and less refrigerator maintenance is required.

All new PQS pre-qualified compression refrigerators listed in the data sheets in this section have vaccine storage compartments that are designed not to freeze. In addition they now have non-adjustable thermometers and this new technology should eliminate accidental freezing due to improper adjustment.

Low-energy chest freezers: These units are used to store OPV in bulk. Typically they are used in smaller primary stores, where a freezer room is not justified, and at intermediate level. They can also be used to freeze water-packs and/or to store frozen icepacks.
WARNING: A freezer containing vaccine should never be used to freeze water-packs at the same time.

Rapid water-pack freezers: There are two types of rapid icepack freezer; front loading upright units and chest freezers with fast freeze sections – the fast-freeze section is used to freeze the icepacks and the remainder of the cabinet is used to store them when frozen. These units are particularly useful when large quantities of icepacks are needed in a short time.

E003.2.1 Compression refrigerators and freezers

These are standard refrigerators that have been tested to ensure that acceptable vaccine storage temperatures between +2°C and +8°C are maintained in the vaccine storage areas. No freezing is accepted. If power is interrupted, these refrigerators will remain below +10°C for at least 4 hours.

E003.2.2 Ice-lined refrigerators (ILR)

ILRs can maintain acceptable temperatures below +10°C on as little as 8 hours of electricity per 24 hours, day after day. Ice-lined refrigerators are the best choice wherever there is at least 8 hours electricity a day, but no standby power supply.

Cooling during power cuts is maintained by an internal lining surrounding the vaccine storage compartment. The lining is made up of ice or cold water-filled compartments or frozen icepacks. When the electricity supply fails, this ice or cold water store keeps the vaccine cool for at least 20 hours. When the power is restored, the compressor runs until the lining is re-frozen or re-cooled.

One new ILR-like product (E003/013) makes novel use of chilled water and ice combined. This refrigerator can operate on fewer hours of power per day and provides up to 7 days of acceptable temperature control without electricity, when fully charged. Temperature control is inherently stable and potentially extends the reach of the ILR approach to areas with as little as 24 hours of power per week or an average of 4 hours per day.

WARNING: During the re-freezing process, some areas of an ILR can fall below 0°C – for example, the bottom of the compartment. For this reason freeze-sensitive vaccines should NEVER be stored within 150 mm of the base of these models. Always respect the manufacturer's storage limit lines inside the cabinet, indicating the extent of the hazardous zone and always use the vaccine storage baskets provided by the manufacturer.

In order to avoid the freezing problem, some programmes adjust the thermostats on older ILRs so that the water-filled lining remains liquid. This strategy reduces the appliance's cold-life but does eliminate the freezing risk. It should be adopted only after a carefully conducted study using data loggers to monitor vaccine temperature in the cold chain. Refer to: WHO/IVB/05.01: *WHO Study Protocol for Temperature Monitoring in the Vaccine Cold Chain.*

E003.2.3 Solar refrigerators and freezers

Solar powered vaccine refrigeration systems are now widely used. They are sometimes the only available solution in areas where no reliable conventional energy supply is available. WHO, PATH and others have conducted several in depth reviews of solar vaccine refrigeration programmes launched in Africa, the Americas and in South-East Asia. These have shown that:

- The technology can be reliable and improve the quality of the vaccine cold chain when compared with the use of absorption refrigerators.
- The 10 year life cycle cost of solar direct drive systems is estimated to be equal or lower than gas-powered refrigeration systems in settings where bottled gas is readily available and its supply is reliable.
- The 10 year life cycle cost of solar battery powered systems remains relatively high in comparison with gas-powered refrigeration systems. Maintenance and replacement of batteries and regulators remains the major problem. On average, replacement is necessary after five years and these systems are often located in remote isolated areas.
- Solar modules must be physically secure because theft of solar modules is a growing problem.
- It is essential to ensure that a qualified servicing network is in place to install the systems and provide long-term system maintenance. Replacement of parts such as batteries, battery charge regulators and refrigerator components must be anticipated and fully funded.

Both direct-drive and battery powered models currently provide vaccine storage at +2° The flow chart under section E003.3 provides guidance on when to select solar refrigeration. It is essential to ensure that there is adequate sunlight throughout the year at all the proposed sites and a solar site evaluation must be conducted before the equipment is ordered.

There are now two types of solar refrigeration. The first type consists of a compression-cycle refrigerator and/or freezer powered by a battery pack which is charged by a photovoltaic array. The second type is a compression-cycle refrigerator directly driven by the solar array. No batteries are needed to operate the compressor. At present, solar direct drive units only work as refrigerators and cannot make ice.

Field reports indicated that battery-powered solar refrigeration systems can sometimes achieve a 10+ year service life. This is only possible if the installation is properly planned, correctly designed, competently installed and then supported by a regular maintenance program with adequate, ongoing funding.

Solar refrigeration is now a mature technology that can be used with confidence provided certain fundamental conditions are met. These conditions are:

1. *Maintenance and repair:* All solar equipment requires maintenance or it will fail, especially power systems with a battery. Plan for maintenance; provide adequate funding in advance and carry out the work in a timely manner.

   Only install solar refrigerators at sites which can consistently be reached by a qualified service network throughout the year and in a reasonable time.

2. *Equipment selection:* Only purchase equipment (refrigerators, batteries and solar modules) that has been pre-qualified under PQS and which is suitable for the climatic conditions at the selected site(s). Do not commit to a purchase until the solar site evaluation has been completed.
3. *Solar direct drive installations:* Pay close attention to the warning given below.
4. *Solar site evaluation:* Subject to condition 1, the system supplier/installer must carry out a site evaluation and must confirm in writing that:
   - The refrigerator can be located in a level, secure and safe position out of direct sunlight and moisture.
   - The proposed site has sufficient solar radiation throughout the year to power the chosen equipment (verified by officially-sourced regional multi-year weather data) and that system performance will not be compromised as a result of persistent dust storms, fog, air pollution or other more localized atmospheric effects.
   - The system autonomy (amount of energy stored for periods of low solar radiation) has been assessed and is matched to the site specific autonomy requirement as determined by specification PQS E003 PV01.
   - The site for the solar array is not shaded by trees, vegetation, poles, cables, adjoining structures or buildings. Even something as small as an overhanging cable can seriously affect the efficiency of some solar modules.
   - There is a suitable place to mount the solar array so that it cannot easily be vandalized, stolen, or accidentally damaged.
   - Safe access can be provided to clean and maintain the solar array. Note: this is especially important where snow or dust storms are common.
   - Details are specified for any roof strengthening required and clear guidance is provided on the installation of access ladders and/or safety ropes.

- All cable lengths are estimated as accurately as possible in advance.
- if batteries are used, advice is provided on a suitable and secure location for a battery enclosure (a locking, ventilated box) close to the vaccine refrigerator/freezer

ONLY proceed if all of these conditions can be met.

5. *Site preparation:* The solar site evaluation may show that preparatory building works are required to make the site safe and suitable. If this is so, make arrangements to carry out this work before the equipment is delivered.
6. *Servicing network:* There must be a competent, trained and affordable solar servicing network in the country. This service network must offer installation and long-term support with a reliable supply of spare parts for the refrigerator, the solar array and battery system (if used).
7. *Installation:* It is essential that the equipment be installed, and commissioned in accordance with the relevant PQS Quality Assurance protocol: PQS PV01.2 *Solar power system for compression-cycle refrigerator or combined refrigerator/water-pack freezer*.
8. *User training:* Users must be trained in the operation and maintenance of the system. They should also be provided with clear instructions on whom to inform in case of system failure.

WARNING: The freezer compartments of PQS pre-qualified solar refrigerators are not suitable for storing or freezing vaccines. Freezer compartments should only be used to freeze water-packs.

WARNING: Some single compressor solar refrigerators may not be able to freeze icepacks when the ambient temperature is permanently below +15°C to +20°C. If you plan to use a solar refrigerator in a mountainous area, or an area where the ambient temperature is permanently or seasonally low, you should select a system with two independent compressors or a model that has shown good performance at low temperatures.

WARNING: The photovoltaic panels and battery packs which power the vaccine refrigerator must be used for this purpose alone. If there is a need for additional photovoltaic power on the site – for example for health facility lighting, for small-scale laboratory equipment and the like – this must be supplied from a separate system. If other equipment is supplied from the refrigerator battery pack, its use may be difficult to control and this will drain power and could compromise the vaccine.

SOLAR DIRECT DRIVE WARNING: PQS pre-qualified equipment may only be used within the limits stated on the relevant PQS sheet. Manufacturers are required to nominate a solar array size at the time of testing. The output from that solar array is used to determine the performance of the refrigerators. Only the nominated array size that is stated on the PQS sheet, or a larger array, may safely be used.

The solar direct drive refrigerators listed in this catalogue are laboratory tested over a specific ambient temperature range using a specific diurnal power cycle

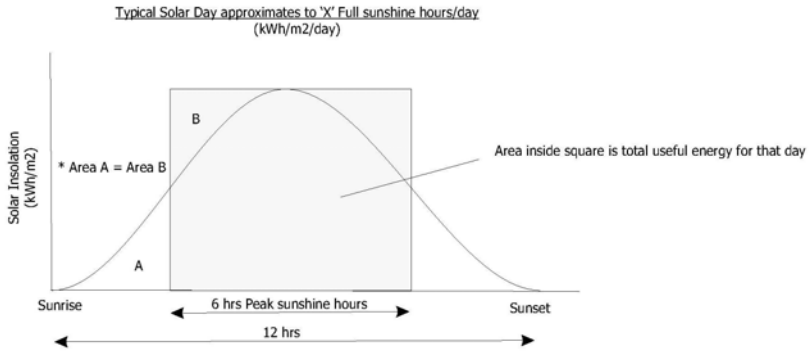
Establishing the correct size of the photovoltaic array for a solar direct drive refrigerator installation **cannot** be done by the purchasing agency. Both ambient temperature and solar power interact in complex ways and correct site-specific sizing requires a high level of technical expertise. The diagrams below illustrate this point.

Any changes to array size **must always** be done by the photovoltaic power system supplier working closely with the manufacturer of the direct drive refrigerator and checked and approved by WHO.

The diagram below illustrates a typical power curve for a solar refrigerator with

batteries. In this example, all the solar energy under the curve is useful energy and can be used to charge the battery pack; the shaded area approximates this useful energy, and the curve represents the varying sunshine levels over the whole day.

Typical power curve for solar refrigerator with batteries



Typically solar energy is expressed as Peak Sunshine Hours often ranging from 3.5 hrs to 6 hrs in the tropics. The units for this are kWh/m²/day. So although there may be 12 hours of 'daylight' the energy from all of this is the same as 6 hours of midday sunshine.

This approximation is so commonly used for solar refrigerators with batteries that it may be confusing when considering a direct drive solar refrigerator.

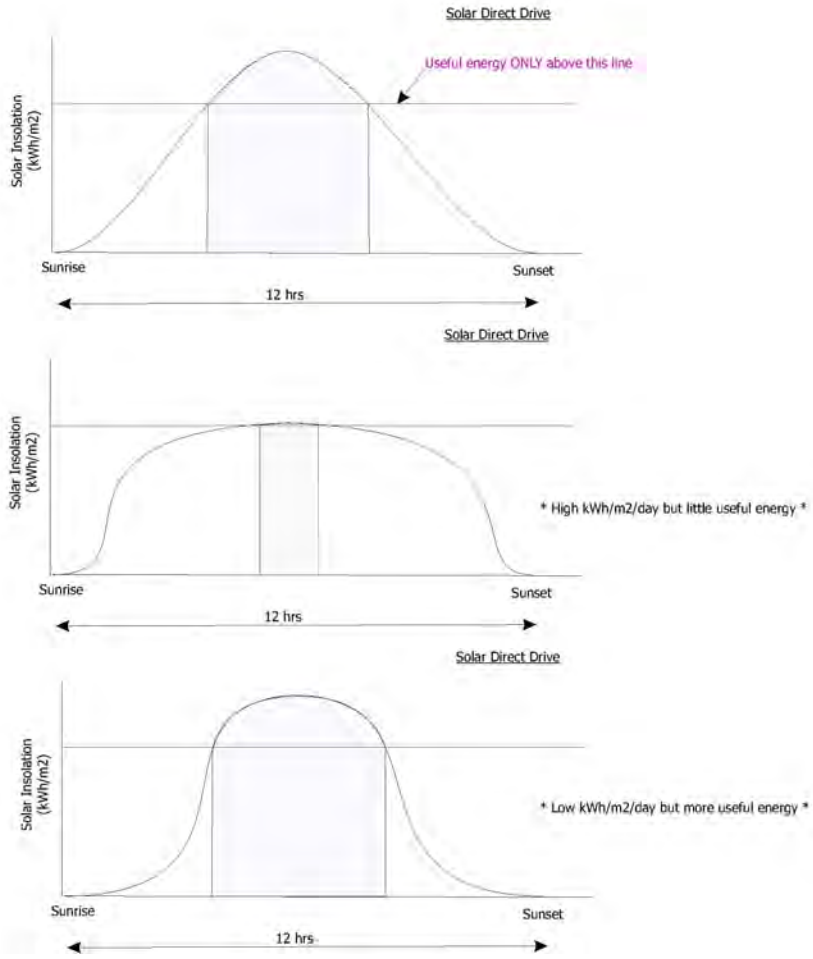
With a direct drive unit, a certain minimum power is needed to start the compressor motor. The three diagrams below illustrate how a direct drive refrigerator can only operate when the available power from the solar panels is above the horizontal line which represents this starting load – this is usually a shorter period than for a battery operated unit. Below this minimum power threshold, the refrigerator cannot operate.

In the second example, although solar energy is well distributed over most of the day, only a tiny fraction exceeds the required minimum threshold. In this case a significantly larger solar panel would be needed to power the refrigerator.

In addition, because the power output of the solar panel and the performance of the refrigerator are both affected by ambient temperature[1], there are many complex interactions which have to be considered in the overall design for a particular site.

[1] Power output reduces as the temperature of the photovoltaic panel increases. Some solar direct drive units do not reliably maintain +2℃ to +8℃ at lower room temperatures.

Power curves for solar direct drive



Source: True Energy Ltd

E003.3 PQS absorption refrigerators and freezers

Absorption refrigerators and water-pack freezers do not perform as well as their compressor-driven equivalents. They may require constant attention to ensure adequate performance for the vaccine cold chain. There is no justification for selecting absorption equipment which runs on electricity alone.

Absorption refrigerators are driven by heat, either from an electric element, a gas flame or a kerosene wick burner. Some models combine an electrical element with either gas or kerosene which allows alternative energy sources to be used. The temperature inside an electric or gas unit is controlled automatically by a thermostat. Although the height of the gas flame is controlled by a thermostat device, the minimum 'pilot' flame can still generate storage temperatures low enough to damage freeze-sensitive vaccines when the outside ambient temperature falls below +20°C.

Kerosene units have no thermostat; instead the temperature is controlled manually by adjusting the wick of the kerosene burner up or down.

Models that combine vaccine storage with water-pack freezing within the same insulated chamber do not control temperatures or freeze water-packs as well as models that have separate freezing and vaccine storage areas. Separate systems consisting of a refrigerator and a freezer use more fuel, but can freeze the greatest

quantities of icepacks and they do provide more reliable temperature control for vaccines.

WARNING: LP gas refrigerator pilot lights can freeze vaccines when used in cooler temperatures.

WARNING: Kerosene refrigerators have no automatic temperature control requiring vigilant attention in order to provide acceptable vaccine storage temperatures and avoid freezing. They require regular maintenance, including filtering the fuel.

WARNING: Incorrect use of kerosene refrigerators can lead to fire hazards and explosions. It is absolutely essential that the manufacturer's instructions are strictly followed. Users must receive adequate training before they are allowed to operate these refrigerators.

WARNING: Absorption refrigerators must always stand firm and level otherwise they will not operate correctly.

WARNING: Operating costs can be higher with absorption refrigeration than with most other options.

E003.4 Domestic refrigerators and freezers

WARNING: Domestic compression refrigerators and freezers should never be used to store vaccines unless they have been tested against the relevant PQS verification protocol and found to be satisfactory for the setting in which they are intended to be used.

E003.4.1 Domestic refrigerators

Many countries purchase locally manufactured standard front-opening domestic refrigerators for storing EPI vaccines. This has procurement and maintenance advantages, but a number of serious performance shortcomings can compromise the cold chain and cause loss of vaccine.

WARNING: *'Multi-flow' models:* Models of this type are completely unsuitable because they are known to freeze vaccine. Multi-flow units always have a double door freezer/refrigerator combination with the freezer compartment at the top. The refrigerator compartment is cooled with sub-zero air ducted down from the freezing compartment. They have two controls: a thermostat that controls the temperature in the freezer and a 'Thermo' control that adjusts the volume of freezing air that enters the refrigerator cabinet. If vaccine is placed in this air stream, it will freeze.

WARNING: *Single door models with internal freezer compartments:* These models may be adequate for use in moderate climates where there is a permanent electricity supply. However, they do have some serious disadvantages.

- Temperatures often fall below freezing in the zone close to the freezing compartment and/or at the bottom.
- Cabinets and doors are usually poorly insulated and are not designed to maintain the temperature range recommended for vaccine storage. Doors are fitted with shelves as well as egg and butter compartments and food drawers may be located at or near the bottom. These subsidiary storage areas are convenient to use, but are totally unsuitable for vaccines.
- Temperatures quickly rise above +8°C when the electricity fails, and during water-pack freezing.
- Non-tropicalized models will not operate well in high ambient temperatures.

E003.4.2 Domestic freezers

When icepack freezing capacity alone is required, domestic freezers have advantages when compared to PQS prequalified equipment: they usually cost less to purchase, can be procured locally without foreign currency, are delivered more quickly, spares are stocked nationally or even locally, and technical expertise is more readily available. In addition, domestic freezers located in non-health service facilities such as restaurants, shops, etc., can be used to supply ice for outreach, mobile sessions and mass immunization activities.

E003.5 Choosing a refrigerator or freezer

When you choose a refrigerator or freezer, consider the following points (see glossary for definitions):

1. **Temperature zone:** Assess climate-specific and location-specific factors:

- *Climate:* Identify the appropriate temperature zone by checking the mean maximum temperature during the hottest month and the mean minimum during the coldest month. Bear in mind that some parts of the country – for example, mountain regions – may require equipment with a different temperature rating than other parts[2].

- *Setting*: Choose potential appliance types to suit the setting using the table below. There are two factors to consider.

  - The mean maximum temperature in the hottest month in the area where the appliance will be located. Ignore air-conditioning because it is very likely to be off at weekends and during power cuts and cold chain equipment is often located in store rooms and the like .

  - The lowest winter temperature in the room where the appliance will be located. In cold climates, the winter temperature inside a health facility can drop below freezing – for example, where heating is absent, unreliable, or is turned off at night and/or at weekends. In such cases, choose equipment that is able to operate at low ambient temperatures. Currently there are no models available with active low-temperature protection which can operate at temperatures below +5°C.

Temperature zone selection

Appliance type LTR = Low Ambient Temperature rating	Mean maximum temperature in hottest month			Lowest winter room temperature	
	<= +27°C	<= +32°C	+32°C	>= +10°C to +25°C	< +10°C
Hot zone			X	X	
Temperate zone		X		X	
Moderate zone	X			X	
Hot zone + LAT			X		X
Temperate zone + LAT		X			X
Moderate zone + LAT	X				X

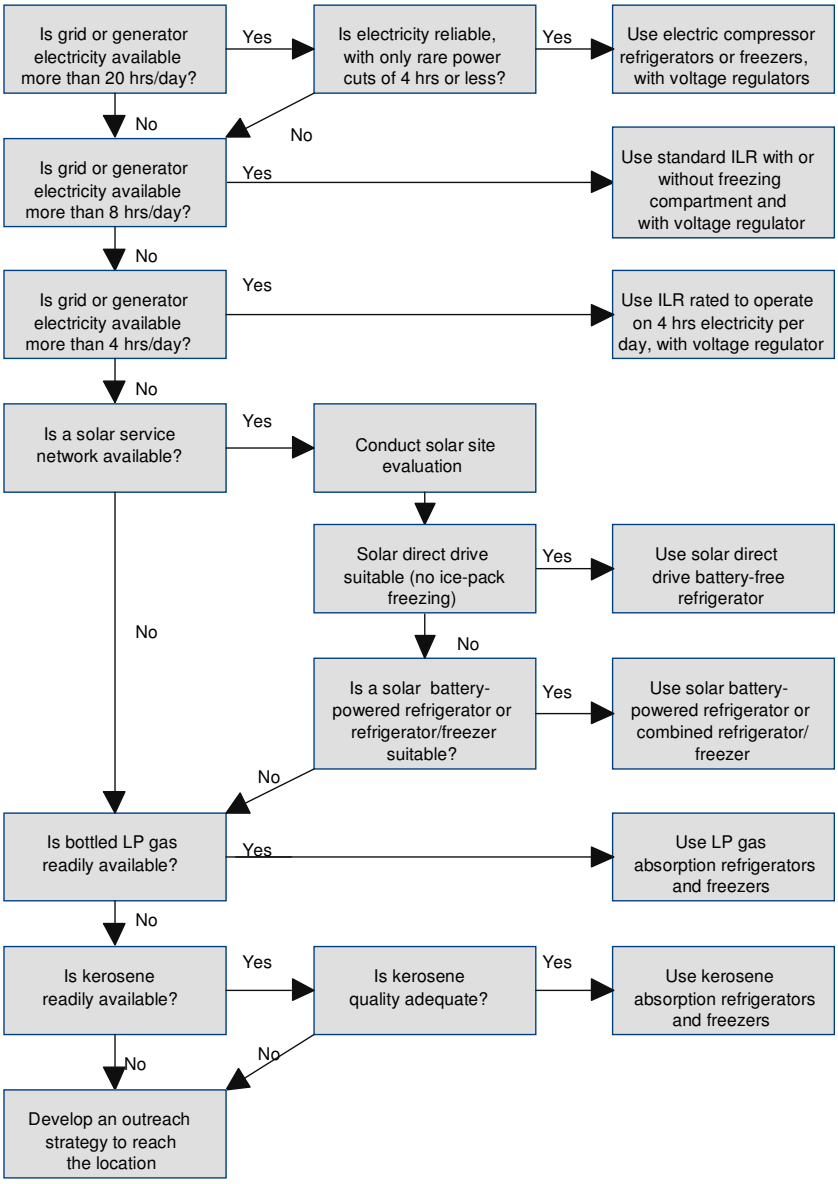
[2] City-level climate data are available at: http://www.weatherbase.com or www.wolframalpha.com

2. **Vaccine storage capacity:** In each setting – primary store, sub-national store or health facility – assess how much vaccine must be stored at +2°C to +8°C and how much at -20°C.

3. **Water-pack freezing capacity:** If icepacks are required assess how many water-packs need to be frozen per 24 hours in each setting. Choose rapid icepack freezers when large quantities of frozen icepacks need to be frozen quickly. Once frozen, the icepacks can be stored in any locally available chest freezer with low power consumption. If high throughput is not a major concern, chest freezers can be used on their own. Where cold water-packs are used, lower cost, locally available refrigerators are perfectly adequate, so long as they are never used to store vaccine.

4. **Energy source:** Continuous refrigeration is required for vaccine storage and this requires a reliable source of power. In each setting, assess which power sources are available and which type of refrigeration is most suitable. The available sources are mains electricity, generator produced electricity, renewable energy (e.g. solar electricity), bottled gas or kerosene. Solar, gas and kerosene are currently the only alternatives where mains electricity absent, or is available for less than eight hours per day. The flowchart below outlines the decision process:

Selecting a suitable energy source



5. **Associated supplies:** Make sure you order the necessary associated supplies at the same time as the refrigerator or freezer. These include:

   - *Spare parts:* The data sheets in this section list the spare parts recommended for the first five years' use. To avoid shortages later, order these spares with the equipment. Before purchasing equipment check that repair facilities and spare parts are available, whether from a competent local service agent, or in-house.

   - *Voltage regulator:* Unless mains electricity is highly reliable, order a voltage regulator for all mains or generator powered equipment – see section E001.

   - *Temperature monitoring equipment:* PQS specifications require all vaccine refrigerators and freezers, whatever the power source, to be supplied with an

external reading thermometer. In addition, for reliable continuous temperature monitoring, every vaccine refrigerator should preferably be equipped with a 30-day electronic refrigerator temperature logger. See section E006. Alternatively, use a freeze indicator device to detect freezing temperatures. Note that freeze indicators need to be replaced each time an alarm is triggered and refrigerator temperature logger will need to be replaced approximately every two years when the battery runs out. Ensure that adequate recurrent funding is available to purchase these consumable items in future years.

- *Manuals:* Order user and service manuals in the appropriate language.

6. **Training:** Ensure that users and maintenance technicians are properly trained to use the specific equipment that you order. All photovoltaic systems require on-site installation by a competent technician specifically trained in solar installation work. It is also essential that adequate servicing facilities are available after the equipment has been installed. The importance of training is often underestimated and under-budgeted. A cold chain with good equipment, but inadequately trained staff, can seriously hamper an immunization programme.

7. **Cost:** Select the best available refrigerator from the point of view of reliable temperature control and low maintenance. Do not buy solely on the basis of purchase cost. This can lead to expensive loss of vaccine and/or higher lifetime costs due to greater running and maintenance costs. Remember that, at any one time, a refrigerator may be storing vaccine worth several times the cost of the equipment. For example, a 100 litre refrigerator filled with pentavalent vaccine could be storing vaccine worth $30-40,000. Over a 10 year life, with three-monthly deliveries, the total value of vaccine passing through the appliance could amount to more than one million dollars.

E003.6 PQS specification changes

The new PQS specifications have introduced a number of technical changes. The following are the most significant.

E003.6.1 General

PQS now allows the appliance to be either a refrigerator only or a combined refrigerator/water-pack freezer.

E003.6.2 Temperature control

Temperature range: The acceptable temperature range for storing vaccine has been changed and now is +2°C to +8°C (previously 0°C and +8°C). Negative temperatures will not be accepted.

Also changed is a new allowance for limited transient excursions outside this range within the following limits:

- No excursion must exceed +20°C.
- No excursion must reach 0°C.

For refrigerator testing the cumulative effect of any excursions within the above range will be assessed by calculating the mean kinetic temperature (MKT), a calculation method to account for the impact of both temperature excursions and the amount of time of each temperature excursion. This is measured over the 5 day period of day/night tests.

Temperature control in refrigerators: Only non-adjustable thermostats are now permitted in compression refrigerators. These must be factory-set to prevent freezing in any part of the refrigerator. Incorrect thermostat adjustment is a common

cause of vaccine freezing and the new electronic thermostats eliminate the need to change the setting.

E003.6.3 Temperature zones

Hot zone: Hot zone appliances must operate at a steady +43°C ambient temperature and over a+43°C/+25°C day/night cycling temperature range. Hot zone equipment may be used in a moderate and/or temperate zone.

Temperate zone: Temperate zone appliances must operate at a steady +32°C ambient temperature and over a+32°C/+15°C day/night cycling temperature range (unchanged). Temperate zone equipment may be used in a moderate zone.

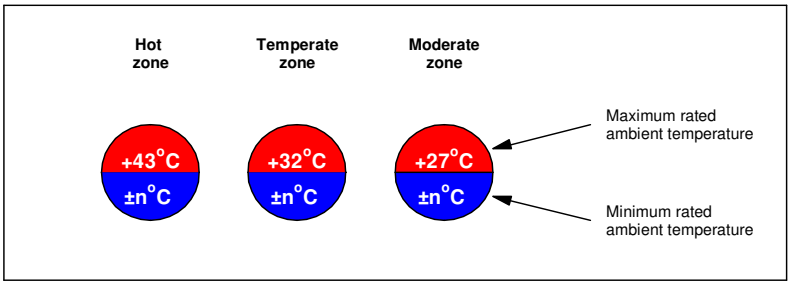
Moderate zone: There is a new category of 'moderate zone' appliances which must operate at a steady +27°C ambient temperature and over a+27°C/+10°C day/night cycling temperature range.

Minimum rated ambient temperature: Note that the previous cold zone (+32°C/-5°C) category has been omitted. Instead, all hot, temperate and moderate zone refrigerators or combined refrigerator/water-pack freezers are tested to determine their *minimum rated ambient temperature***.** The lowest possible rating is an ambient temperature of -10°C and appliances without an active low temperature protection features cannot be rated below +5°C.

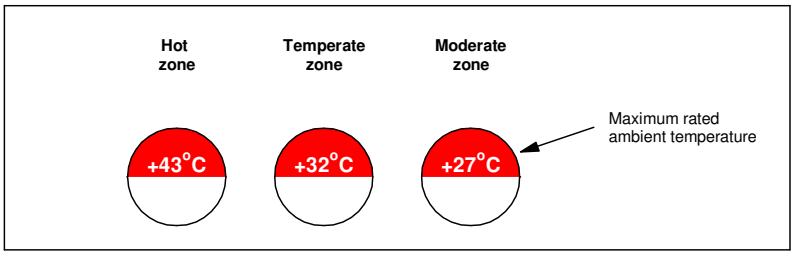
E003.6.4 Refrigerator temperature zone symbols

New symbols have been introduced to identify six general combinations of temperature zone and low temperature protection. For refrigerators, the upper semi-circle shows the maximum rated ambient temperature. If exposed to temperatures above this, the equipment will not maintain the vaccine at +2°C to +8°C. The lower semi-circle shows the minimum rated ambient operating temperature established by testing. If the equipment is exposed to temperatures below this figure, the vaccine will be at risk of freezing. The freezer symbols have a blank lower semi circle because minimum rated ambient temperature is not relevant.

Temperature zone symbols for vaccine refrigerators



Temperature zone symbols for vaccine freezers



E003.7 Future developments

A number of interesting new developments are being pursued by WHO and its partners.

Solar direct drive refrigerators which can also freeze water-packs may become available.

Eutectic packs (phase change materials) that freeze at positive temperatures (e.g. +5°C) may be used instead of an ice-lining to prevent vaccine freezing. This technology will provide more cooling capacity than a lining consisting of unfrozen cool water-packs.

Countries that wish to use locally made domestic vapour-compression refrigerators and freezers are now encouraged to laboratory test these products against the relevant PQS standards. This will help to identify potential problems before deployment takes place.

E003 data sheets follow

E003: Refrigerators and freezers

PQS code:	**E003/001**
Type of appliance:	Solar powered refrigerator and freezer
Manufacturer's reference:	TCW 2000 DC
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+ 5°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Solar charged battery
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	91 x 127 x 78 cm
Appliance tested at:	43°C	**Holdover time:**	13 hours 35 mn
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	76 L	**Storage capacity:**	30 L
Gross volume:	118 L	**Gross volume:**	42 L
		Waterpack freezing capacity:	2.4 kg in 16 hours 52 mn
		Waterpack storage capacity:	26 x 0.6 L
Energy consumption, stable running (kWh/24 hours):	0.58 KWh / 24 h	**Energy consumption during freezing:**	0.99 kWh/24h
Energy consumption, cool down test (kWh/24 hours):	1.23 kWh/24h		
Accessories:	4 baskets 24 water-packs - 0.6 L 4 Keys Documentation	**Spare parts:**	Compressor Danfoss BD35F E.Box BD35F Electronic thermostat TCW/DC Sensor for e-thermostat Electronic control panel Fan compressor Voltage regulator 12 v Fuse 15A Main switch DC
Shipping volume:	1.05 m3	**Shipping weight:**	125 kg
Price year	2009	**Incoterms**	EXW
Price	1-39 units: 2193€	40-99 units: 2083€	>100 units: 1979€
Comments:	Solar power system not included - contact manufacturer Power source: battery 12/24V DC		
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	A65440 - February 2009	**Verification laboratory:**	Intertek UK
Current PQS status:	*pre-qualified*	**Prequalification date:**	*17 Mar 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/002**
Type of appliance:	Vaccine/water-packs freezer
Manufacturer's reference:	HBD-116
Manufactured in:	China; People's Republic of
Company:	Haier Medical and Laboratory Products Co., Ltd
Address:	Room 703D, Brand Building, Haier Industry Park, No. 1 Haier Road, 266101 Qingdao, China; People's Republic of
Telephone:	+86-532-88937169
Email:	*xiaozh@haier.com*
Web address:	*http://www.haiermedical.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	N/A
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	82 x 67 x 63 cm
Appliance tested at:	43°C	**Holdover time:**	2 hours 29 mn
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	none	**Storage capacity:**	92 L
Gross volume:	none	**Gross volume:**	121 L
		Waterpack freezing capacity:	12 kg / 24 h
		Waterpack storage capacity:	204 x 0.4 L
Energy consumption, stable running (kWh/24 hours):	0.38 KWh / 24 h	**Energy consumption during freezing:**	3.77 kWh/24h
Energy consumption, cool down test (kWh/24 hours):			
Accessories:	Instruction manual Keys Tray	**Spare parts:**	Compressor Danfoss Thermostat Starter starter relay Baskets (2)
Shipping volume:	0.5 m3	**Shipping weight:**	79 kg
Price year	2009	**Incoterms**	EXW
Price	1-99 units: 410US$	100-199 units: 398US$	>200 units: 368US$
Comments:			
Quality standard:	- ISO 13485 - ISO 14001 -		
Verification report:	WB-09-145	**Verification laboratory:**	CHEARI
Current PQS status:	*pre-qualified*	**Prequalification date:**	*24 Sep 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/003**
Type of appliance:	Vaccine/water-packs freezer
Manufacturer's reference:	HBD-286
Manufactured in:	China; People's Republic of
Company:	Haier Medical and Laboratory Products Co., Ltd
Address:	Room 703D, Brand Building, Haier Industry Park, No. 1 Haier Road, 266101 Qingdao, China; People's Republic of
Telephone:	+86-532-88937169
Email:	*xiaozh@haier.com*
Web address:	*http://www.haiermedical.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	N/A
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	80 x 124 x 63 cm
Appliance tested at:	43°C	**Holdover time:**	4 hours 9 mn

REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	---	**Storage capacity:**	224 L
Gross volume:	---	**Gross volume:**	298 L
		Waterpack freezing capacity:	16.8 kg / 24 hours
		Waterpack storage capacity:	495 x 0.4 L
Energy consumption, stable running (kWh/24 hours):	4.36 KWh / 24 h	**Energy consumption during freezing:**	---
Energy consumption, cool down test (kWh/24 hours):	3.77 kWh/24h		

Accessories:	Instruction manual Keys Tray	**Spare parts:**	Compressor danfoss Thermostat Starter Starter relay Baskets (3)
Shipping volume:	0.88 m3	**Shipping weight:**	79 kg
Price year	2009	**Incoterms**	EXW
Price	1-99 units: 521 US$	100-199 units: 498 US$	>200 units: 468 US$
Comments:			
Quality standard:	- ISO 13485 - ISO 14001 - Other -		
Verification report:	WB-09-145	**Verification laboratory:**	CHEARI
Current PQS status:	*pre-qualified*	**Prequalification date:**	*24 Sep 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/004**
Type of appliance:	Water-packs freezer
Manufacturer's reference:	TFW 800
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	N/A
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	180.5 x 60 x 70.5 cm
Appliance tested at:	43°C	**Holdover time:**	N/A
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	none	**Storage capacity:**	none
Gross volume:	none	**Gross volume:**	247 L
		Waterpack freezing capacity:	36 kg/24 h (60 x 0.6L)
		Waterpack storage capacity:	179 x 0.6 L
Energy consumption, stable running (kWh/24 hours):	3.35 KWh/24 h	**Energy consumption during freezing:**	6.35 KWh/24h
Energy consumption, cool down test (kWh/24 hours):	3.98 KWh/24 h		
Accessories:	Temperature zone indicator	**Spare parts:**	Thermostat (2) Compressor
Shipping volume:	1.208 m3	**Shipping weight:**	143 kg
Price year	2009	**Incoterms**	EXW
Price	1-39 units: 2042 €	40-99 units: 1941 €	>100 units: 1845 €
Comments:			
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	A65808	**Verification laboratory:**	Intertek UK
Current PQS status:	*pre-qualified*	**Prequalification date:**	*29 Sep 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/005**
Type of appliance:	Ice-lined refrigerator
Manufacturer's reference:	HBC-70
Manufactured in:	China; People's Republic of
Company:	Haier Medical and Laboratory Products Co., Ltd
Address:	Room 703D, Brand Building, Haier Industry Park, No. 1 Haier Road, 266101 Qingdao, China; People's Republic of
Telephone:	+86-532-88937169
Email:	*xiaozh@haier.com*
Web address:	*http://www.haiermedical.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+5°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	81.8 x 67.3 x 66.3 cm
Appliance tested at:	43°C	**Holdover time:**	27 hours 18 mn

REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	45 L	**Storage capacity:**	none
Gross volume:	71 L	**Gross volume:**	none
		Waterpack freezing capacity:	N/A
		Waterpack storage capacity:	N/A
Energy consumption, stable running (kWh/24 hours):	0.64 kWh/24h	**Energy consumption during freezing:**	N/A
Energy consumption, cool down test (kWh/24 hours):	2.4 kWh/24h		

Accessories:	Instruction manual Keys Tray	**Spare parts:**	Thermostat Compressor
Shipping volume:	0.56 m3	**Shipping weight:**	64 kg
Price year	2009	**Incoterms**	EXW
Price	1-99 units: 510 US$	100-199 units: 488 US$	>200 units: 468 US$
Comments:	Energy consumption intermittent power to be provided		
Quality standard:	- ISO 13485 - ISO 14001 - Other -		
Verification report:	WB-09-848	**Verification laboratory:**	CHEARI
Current PQS status:	*pre-qualified*	**Prequalification date:**	*10 Oct 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/006**
Type of appliance:	Ice-lined refrigerator
Manufacturer's reference:	HBC-200
Manufactured in:	China; People's Republic of
Company:	Haier Medical and Laboratory Products Co., Ltd
Address:	Room 703D, Brand Building, Haier Industry Park, No. 1 Haier Road, 266101 Qingdao, China; People's Republic of
Telephone:	+86-532-88937169
Email:	*xiaozh@haier.com*
Web address:	*http://www.haiermedical.com*

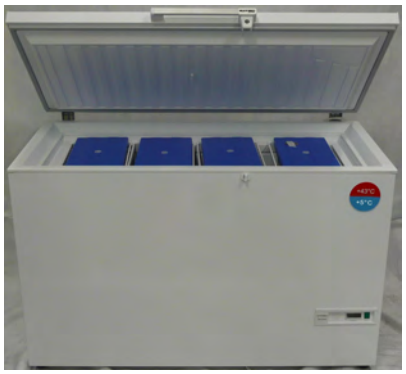
Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+5°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	81.8 x 124.3 x 63 cm
Appliance tested at:	43°C	**Holdover time:**	31 hours 23 mn

REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	90 L	**Storage capacity:**	none
Gross volume:	198 L	**Gross volume:**	none
		Waterpack freezing capacity:	none
		Waterpack storage capacity:	none
Energy consumption, stable running (kWh/24 hours):	1.34 kWh/24h	**Energy consumption during freezing:**	none
Energy consumption, cool down test (kWh/24 hours):	4.01 kWh/24h		

Accessories:	Instruction manual Keys Tray	**Spare parts:**	Thermostat Compressor
Shipping volume:	0.91 m3	**Shipping weight:**	108 kg
Price year	2009	**Incoterms**	EXW
Price	1-99 units: 688 US$	100-199 units: 648 US$	>200 units: 588 US$
Comments:	Energy consumption intermittent power to be provided		
Quality standard:	- ISO 13485 - ISO 14001 - Other -		
Verification report:	WB-09-847	**Verification laboratory:**	CHEARI
Current PQS status:	*pre-qualified*	**Prequalification date:**	*10 Oct 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.



E003: Refrigerators and freezers

PQS code:	**E003/007**
Type of appliance:	Ice-lined refrigerator
Manufacturer's reference:	MK 304
Manufactured in:	Denmark
Company:	Vestfrost Solutions
Address:	A/S Vestfrost Falkevej 12 DK-6705 Esbjerg Ø Denmark
Telephone:	+45 7914 2510; +45 7914 2248
Email:	*js@vestfrostsolutions.com; bjn@vestfrostsolutions.com*
Web address:	*http://vestfrostsolutions.com/*

Specifications

Climate zone:	Multi-zone	**Min rated ambient temp:**	+5°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	84 x 69 x 126 cm
Appliance tested at:	43°C 32°C	**Holdover time:**	25 hours 66 mn
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	105 L	**Storage capacity:**	none
Gross volume:	218 L	**Gross volume:**	none
		Waterpack freezing capacity:	N/A
		Waterpack storage capacity:	N/A
Energy consumption, stable running (kWh/24 hours):	3.2 kWh/24h	**Energy consumption during freezing:**	N/A
Energy consumption, cool down test (kWh/24 hours):	5.10 kWh/24h		
Accessories:	7 baskets Temperature controler Key Instruction manual Plywood packing	**Spare parts:**	Thermostat Compressor
Shipping volume:	1.02 m3	**Shipping weight:**	126 kg
Price year	2009	**Incoterms**	FCA
Price	1-99 units: 744 €	100-199 units: 732 €	>200 units: 722 €
Comments:	Data 32°C to be provided		
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	300-KLAB-09-142	**Verification laboratory:**	Danish Technological Institute
Current PQS status:	*pre-qualified*	**Prequalification date:**	*25 Nov 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/008**
Type of appliance:	Two modes vaccine refrigerator or icepack freezer
Manufacturer's reference:	TCW 3000 DC
Manufactured in:	Belgium
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+10°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Solar charged battery
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	90.5 x 126 x 82.5 cm
Appliance tested at:	43°C	**Holdover time:**	23.4 hours
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	109.5 L	**Storage capacity:**	109.5 L
Gross volume:	204 L	**Gross volume:**	204 L
		Waterpack freezing capacity:	2.4 kg in 34 hours
		Waterpack storage capacity:	48 L (80 x 0.6L)
Energy consumption, stable running (kWh/24 hours):	1.01 kWh/24h	**Energy consumption during freezing:**	2.35 kWh/24h
Energy consumption, cool down test (kWh/24 hours):	2.15 kWh/24h		
Accessories:	5 baskets - 36 x 0.6 L water-packs - Keys - Instructions	**Spare parts:**	Compressor Danfoss BD80F; E-Box BD80F; Electronic thermostat TCW/DC; Sensor for electronic thermostat; Control panel electronic; Fan; compressor; Voltage regulator 12V; Fuse 15A; Main switch DC
Shipping volume:	1.05 m3	**Shipping weight:**	125 kg
Price year	2010	**Incoterms**	EXW
Price	1-39 units: 2219 €	40-99 units: 2109 €	>100 units: 2004 €
Comments:	Two modes appliance: it works either as a refrigerator or water-pack freezer; power source 12/24V for solar powered battery - does not include the solar power system		
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	A65440b and A65440c	**Verification laboratory:**	Intertek UK
Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Dec 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/009**
Type of appliance:	Refrigerator Solar direct drive, ancillary battery
Manufacturer's reference:	MKS 044
Manufactured in:	Denmark
Company:	Vestfrost Solutions
Address:	A/S Vestfrost Falkevej 12 DK-6705 Esbjerg Ø Denmark
Telephone:	+45 7914 2510; +45 7914 2248
Email:	*js@vestfrostsolutions.com; bjn@vestfrostsolutions.com*
Web address:	*http://vestfrostsolutions.com/*

Specifications

Climate zone:	T (temperate 32°C)	**Min rated ambient temp:**	+20°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Solar direct drive with ancillary battery
Refrigerant:	R600a	**Ext dimensions (HxLxD)**	87.6 x 72.7 x 69.7 cm
Appliance tested at:	32°C	**Holdover time:**	114 hours

SOLAR DIRECT DRIVE REFRIGERATOR AND/OR		**FREEZER**	
Vaccine storage capacity:	19.5 L	**Storage capacity:**	none
Gross volume:	48 L	**Gross volume:**	none
Energy consumption, stable running (kWh/24 hours):	0.51 kWh/24h	**Waterpack freezing capacity:**	N/A
Energy consumption, cool down test (kWh/24 hours):	1.50 kWh/24h	**Waterpack storage capacity:**	N/A
Autonomy as per WHO/PQS protocols	147 hours	**Energy consumption during freezing:**	N/A
Warning !	*for solar direct drive, the correct sizing of solar panel array is complexe and therefore need to be agreed with the appliance manufacturer as well as the solar panel supplier.*		

Accessories:	3 baskets Self regulating temperature control External electronic temperature reading Locking lid with keys Instructions Plywood packing	**Spare parts:**	Thermostat Danfoss Compressor Danfoss E-box danfoss
Shipping volume:	0.65 m3	**Shipping weight:**	88 kg
Price year	2010	**Incoterms**	FCA
Price	1-99 units: 1116 €	100-199 units: 1094 €	200 or more units: 1075 €
Comments:	Energy requirements: nominal 12 Vdc solar electric array. Minimum power 160 Watts at solar radiation reference period 6.0 kWh/m2/day		
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	300-KLAB-09-213	**Verification laboratory:**	Danish Technological Institute
Current PQS status:	*pre-qualified*	**Prequalification date:**	*18 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/010**
Type of appliance:	Combined ice-lined refrigerator-waterpack freezer
Manufacturer's reference:	MKF 074
Manufactured in:	Denmark
Company:	Vestfrost Solutions
Address:	A/S Vestfrost Falkevej 12 DK-6705 Esbjerg Ø Denmark
Telephone:	+45 7914 2510; +45 7914 2248
Email:	*js@vestfrostsolutions.com; bjn@vestfrostsolutions.com*
Web address:	*http://vestfrostsolutions.com/*

Specifications

Climate zone:	T (temperate 32°C)	**Min rated ambient temp:**	+5°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	84 x 70 x 72 cm
Appliance tested at:	32°C	**Holdover time:**	52 hours 54 mn
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	16 L	**Storage capacity:**	9 x 0.6L water-packs
Gross volume:	54 L	**Gross volume:**	10 L
		Waterpack freezing capacity:	1.6 kg/h
		Waterpack storage capacity:	9 x 0.6L
Energy consumption, stable running (kWh/24 hours):	3.46 kWh/24h	**Energy consumption during freezing:**	
Energy consumption, cool down test (kWh/24 hours):	3.18 kWh/24h		
Accessories:	2 baskets Self regulating temperature control External temperature reading Locking lid with keys Instructions Plywood packing	**Spare parts:**	Thermostat Compressor
Shipping volume:	0.65 m3	**Shipping weight:**	90 kg
Price year	2009	**Incoterms**	FCA
Price	1-99 units: 699 €	100-199 units: 693 €	200 or more units: 687 €
Comments:			
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	300-KLAB-09-214	**Verification laboratory:**	Danish Technological Institute
Current PQS status:	*pre-qualified*	**Prequalification date:**	*14 Jul 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/011**
Type of appliance:	Icelined refrigerator
Manufacturer's reference:	MK 204
Manufactured in:	Denmark
Company:	Vestfrost Solutions
Address:	A/S Vestfrost Falkevej 12 DK-6705 Esbjerg Ø Denmark
Telephone:	+45 7914 2510; +45 7914 2248
Email:	*js@vestfrostsolutions.com; bjn@vestfrostsolutions.com*
Web address:	*http://vestfrostsolutions.com/*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+10°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	84 x 70 x 92 cm
Appliance tested at:	43°C	**Holdover time:**	20.1 hours

REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	75 L	**Storage capacity:**	none
Gross volume:	136 L	**Gross volume:**	none
		Waterpack freezing capacity:	N/A
		Waterpack storage capacity:	N/A
Energy consumption, stable running (kWh/24 hours):	1.89 kWh/24h	**Energy consumption during freezing:**	N/A
Energy consumption, cool down test (kWh/24 hours):	3.58 kWh/24h		

Accessories:	5 baskets Self regulating temperature control External electronic temperature reading Locking lid with keys Instructions Plywood packing	**Spare parts:**	Thermostat Compressor
Shipping volume:	0.752 m3	**Shipping weight:**	102 kg
Price year	2009	**Incoterms**	FCA
Price	1-99 units: 639 €	100-199 units: 631 €	200 or more units: 622 €
Comments:			
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	300-KLAB-09-141	**Verification laboratory:**	Danish Technological Institute
Current PQS status:	*pre-qualified*	**Prequalification date:**	*14 Jul 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/012**
Type of appliance:	Icelined refrigerator
Manufacturer's reference:	MK 404
Manufactured in:	Denmark
Company:	Vestfrost Solutions
Address:	A/S Vestfrost Falkevej 12 DK-6705 Esbjerg Ø Denmark
Telephone:	+45 7914 2510; +45 7914 2248
Email:	*js@vestfrostsolutions.com; bjn@vestfrostsolutions.com*
Web address:	*http://vestfrostsolutions.com/*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+25°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	84 x 70 x 156 cm
Appliance tested at:	43°C	**Holdover time:**	23.23 hours

REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	135 L	**Storage capacity:**	none
Gross volume:	240 L	**Gross volume:**	none
		Waterpack freezing capacity:	none
		Waterpack storage capacity:	none
Energy consumption, stable running (kWh/24 hours):	3.08 kWh/24h	**Energy consumption during freezing:**	none
Energy consumption, cool down test (kWh/24 hours):	6.37 kWh/24h		

Accessories:	7 Baskets Self regulating temperature control External temperature reading Locking lid with keys Instructions Plywood packing	**Spare parts:**	Thermostat Compressor
Shipping volume:	1.264 m3	**Shipping weight:**	
Price year	2009	**Incoterms**	FCA
Price	1-99 units: 867 €	100-199 units: 854 €	200 or more units: 842 €
Comments:			
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	300-KLAB-10-122	**Verification laboratory:**	Danish Technological Institute
Current PQS status:	*pre-qualified*	**Prequalification date:**	*14 Jul 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/013**
Type of appliance:	Ice-lined refrigerator
Manufacturer's reference:	BLF 100 AC
Manufactured in:	United Kingdom
Company:	True Energy
Address:	Pendre Enterprise Park Tywyn LL36 9LW, UK
Telephone:	+44 (0) 1654 712 713
Email:	*ian.tansley@trueenergy.com*
Web address:	*www.trueenergy.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+10°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	200 x 89 x 76 cm
Appliance tested at:	43°C	**Holdover time:**	97 hours
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	103 Litres	**Storage capacity:**	none
Gross volume:	125 Litres	**Gross volume:**	none
		Waterpack freezing capacity:	N/A
		Waterpack storage capacity:	N/A
Energy consumption, stable running (kWh/24 hours):	8 kWh/24h*	**Energy consumption during freezing:**	N/A
Energy consumption, cool down test (kWh/24 hours):	7.9 kWh/24h**		
Accessories:	2 padlocks 3 shelves Fluid for filling Drawers Waterpacks	**Spare parts:**	Thermostat Compressor
Shipping volume:	1.5 m3	**Shipping weight:**	145 kg
Price year	2010	**Incoterms**	EXW
Price	1-49 units: 2,981 US$	50-99 units: 2,832 US$	100 or more units: 2,683 US$
Comments:	Unit uses SureChill technology. * Results is as per PQS protocol - unit was partially charged. If fully charged, manufacturer's data show holdover at 247 hours (>10days) at 43°C and 14 days at 32°C. **Unit requires only 4 hours electricity per 24 hours at 43°C Test report on full performance to follow.		
Quality standard:	- ISO 9001:2008 -		
Verification report:	A66336	**Verification laboratory:**	Intertek UK
Current PQS status:	*pre-qualified*	**Prequalification date:**	*01 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E003: Refrigerators and freezers

PQS code:	**E003/014**
Type of appliance:	Ice-lined refrigerator/freezer
Manufacturer's reference:	TCW 2000 AC
Manufactured in:	Belgium
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+15 °C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz Electric Mains 115/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	90 x 127 x 78 cm
Appliance tested at:	43°C	**Holdover time:**	39.4 hours
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	60 L	**Storage capacity:**	12 L
Gross volume:	99 L	**Gross volume:**	43 L
		Waterpack freezing capacity:	2.4 kg in 5.6 hours
		Waterpack storage capacity:	12 L (20 x 0.6L)
Energy consumption, stable running (kWh/24 hours):	1.87 kWh/24h	**Energy consumption during freezing:**	1.95 kWh/h
Energy consumption, cool down test (kWh/24 hours):	4.34 kWh/24h		
Accessories:	4 baskets 24 waterpacks 0.6L 4 keys Documentation	**Spare parts:**	Electronic Thermostat TCW 2000; Drier; Fan; Compressor; Starting capacitor
Shipping volume:	1.05 m3	**Shipping weight:**	125 kg
Price year	2011	**Incoterms**	EXW
Price	1-39 units: 2109 €	40-99 units: 2003 €	100 or more units: 1904 €
Comments:	Electricity source for 115V-60Hz is optional		
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	A65998	**Verification laboratory:**	Intertek UK
Current PQS status:	*pre-qualified*	**Prequalification date:**	*14 Dec 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 03.02.2011

E003: Refrigerators and freezers

PQS code:	**E003/015**
Type of appliance:	Ice-lined refrigerator
Manufacturer's reference:	HBC 340
Manufactured in:	China; People's Republic of
Company:	Haier Medical and Laboratory Products Co., Ltd
Address:	Room 703D, Brand Building, Haier Industry Park, No. 1 Haier Road, 266101 Qingdao, China; People's Republic of
Telephone:	+86-532-88937169
Email:	*xiaozh@haier.com*
Web address:	*http://www.haiermedical.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+10C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	164.4 x 65 x 84.6 cm
Appliance tested at:	43°C	**Holdover time:**	34 hours 47 mn

REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	200 L	**Storage capacity:**	N/A
Gross volume:	340 L	**Gross volume:**	N/A
		Waterpack freezing capacity:	N/A
		Waterpack storage capacity:	N/A
Energy consumption, stable running (kWh/24 hours):	2.73 kWh/24h	**Energy consumption during freezing:**	N/A
Energy consumption, cool down test (kWh/24 hours):	4.32 kwh/24h		

Accessories:	Instruction manual, set of keys, tray	**Spare parts:**	Thermostat Compressor
Shipping volume:	1.42 m3	**Shipping weight:**	165 kg
Price year	2010	**Incoterms**	FCA
Price	1-99 units: 1,196 US$	100-199 units: 1,178 US$	More than 200 units: 1,162 US$
Comments:	MRAT will be tested at +5°C		
Quality standard:	- ISO 13485 - ISO 14001 - Other -		
Verification report:	WB-11-079	**Verification laboratory:**	CHEARI
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 Mar 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 07.03.2011

E003: Refrigerators and freezers

PQS code:	**E003/016**
Type of appliance:	Solar powered refrigerator and freezer
Manufacturer's reference:	PS65i
Manufactured in:	United Kingdom
Company:	True Energy
Address:	Pendre Enterprise Park Tywyn LL36 9LW, UK
Telephone:	+44 (0) 1654 712 713
Email:	*ian.tansley@trueenergy.com*
Web address:	*www.trueenergy.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+10°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Solar charged battery
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	116 x 60 x 84 cm
Appliance tested at:	43°C	**Holdover time:**	4 hours 24 mn
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	37.5 Litres	**Storage capacity:**	16 x 0.6 Litres
Gross volume:	61.0 Litres	**Gross volume:**	24 Litres
		Waterpack freezing capacity:	2.4 kg/24h
		Waterpack storage capacity:	16 x 0.6L
Energy consumption, stable running (kWh/24 hours):	0.63 kWh/24h	**Energy consumption during freezing:**	0.90 kWh/24h
Energy consumption, cool down test (kWh/24 hours):	0.81 kWh/24h		
Accessories:	stand Shelves, drawers, waterpacks	**Spare parts:**	Compressor Compressor Controller Thermostat (incl sensor) Condensor fan Fuse
Shipping volume:	0.66 m3	**Shipping weight:**	90 kg
Price year	2011	**Incoterms**	EXW
Price	1-49: 2,800 US$ per unit	50 - 99: 2,660 US$	100 and more: 2,520 US$
Comments:	Energy consumption at 32°C: 0.32kWh/24h Energy consumption at 27°C: 0.25 kWh/24h Note that price does not include the solar system		
Quality standard:	- ISO 9001:2008 -		
Verification report:	A66053 Sept 2010	**Verification laboratory:**	Intertek UK
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 Mar 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 07.03.2011

E003: Refrigerators and freezers

PQS code:	**E003/017**
Type of appliance:	Ice-lined refrigerator
Manufacturer's reference:	TCW 3000 AC
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+15°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Electric Mains 220-240V 50/60Hz Electric Mains 115/60Hz
Refrigerant:	R134a	**Ext dimensions (HxLxD)**	91 x 127 x 78 cm
Appliance tested at:	43°C	**Holdover time:**	53 hours 10 min
REFRIGERATOR		**FREEZER**	
Vaccine storage capacity:	150 Litres	**Storage capacity:**	------
Gross volume:	204 Litres	**Gross volume:**	------
		Waterpack freezing capacity:	------
		Waterpack storage capacity:	------
Energy consumption, stable running (kWh/24 hours):	1.37 kWh/24h	**Energy consumption during freezing:**	------
Energy consumption, cool down test (kWh/24 hours):	1.32 kWh/24h		
Accessories:	5 baskets 36 waterpacks of 0.6 litre 2 keys documentation	**Spare parts:**	Compressor Electronic thermostat TCW3000 Fan compressor Drier 13,5G R134A Starting capacitor 80 uf Starting relay
Shipping volume:	1.071 m3	**Shipping weight:**	125 kgs
Price year	2011	**Incoterms**	EXW
Price	1-39 units: 2,201 €	40-99 units: 2,091 €	More than 100 units: 1,987 €
Comments:	Power source option: 115V 60Hz		
Quality standard:	- ISO 9001:2008 - ISO 14001 - Other -		
Verification report:	WHO-11-015	**Verification laboratory:**	CEMAFROID GIE
Current PQS status:	*pre-qualified*	**Prequalification date:**	*09 May 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 10.05.2011

E003: Refrigerators and freezers

PQS code:	**E003/018**
Type of appliance:	Solar Powered refrigerator
Manufacturer's reference:	HBC 60
Manufactured in:	China; People's Republic of
Company:	Haier Medical and Laboratory Products Co., Ltd
Address:	Room 703D, Brand Building, Haier Industry Park, No. 1 Haier Road, 266101 Qingdao, China; People's Republic of
Telephone:	+86-532-88937169
Email:	*xiaozh@haier.com*
Web address:	*http://www.haiermedical.com*

Specifications

Climate zone:	H (hot 43°C)	**Min rated ambient temp:**	+25°C
Fuel and cycle type:	Electric - compression	**Energy source:**	Solar direct drive
Refrigerant:	R600a	**Ext dimensions (HxLxD)**	67.0 x 63.0 x 84.7 cm
Appliance tested at:	43°C	**Holdover time:**	25 hours

SOLAR DIRECT DRIVE REFRIGERATOR AND/OR		**FREEZER**	
Vaccine storage capacity:	21 L	**Storage capacity:**	N/A
Gross volume:	57 L	**Gross volume:**	n/A
Energy consumption, stable running (kWh/24 hours):	1.82 kWh/24h	**Waterpack freezing capacity:**	N/A
Energy consumption, cool down test (kWh/24 hours):	1.72 kWh/24h	**Waterpack storage capacity:**	N/A
Autonomy as per WHO/PQS protocols	More than 72 hours	**Energy consumption during freezing:**	N/A
Warning !	*for solar direct drive, the correct sizing of solar panel array is complexe and therefore need to be agreed with the appliance manufacturer as well as the solar panel supplier.*		

Accessories:	2 vaccine storage baskets Manual key tray	**Spare parts:**	Thermostat CompressorDanfoss BD35K + E-box
Shipping volume:	0.49m3	**Shipping weight:**	73 kg
Price year	2011	**Incoterms**	FCA
Price	1-99 units: 1,436 USD	100-199 units: 1,408 USD	200 & more: 1,380 USD
Comments:	Does not include solar system; Energy requirements: nominal 12 V DC solar electric array. Minimum power 180 watts at solar radiation reference period 6.0 kwh/m2/day		
Quality standard:	- ISO 13485 - ISO 14001 - Other -		
Verification report:	WB-11-097	**Verification laboratory:**	CHEARI
Current PQS status:	*pre-qualified*	**Prequalification date:**	*30 May 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 31.05.2011

E004
Insulated containers

This section covers cold boxes, vaccine carriers and other insulated containers used for the transport of vaccines.

E004.1 Choosing a cold box or vaccine carrier

Consider the following points when choosing equipment:

1. **Vaccine storage capacity:** Vaccine storage capacity is given on the individual product data sheets. The quantity and type of vaccine that needs to be transported depends upon the use to which the cold box or vaccine carrier is being put. For example:
   - *Large scale routine distribution:* In most countries, distributions from primary to sub-national store, and between sub-national stores, generally require a number of cold boxes. For this purpose it is good practice to separate OPV and the single antigen lyophilized vaccines from the freeze-sensitive and multi-valent vaccines. The former can safely be packed with frozen icepacks. The latter should preferably be packed with cool water-packs so as to eliminate the risk of freezing during transport. Freeze indicators will also be needed where the ambient temperatures may drop below 0^{o}C.
   - *Small scale routine distribution:* A single cold box is typically used to transport vaccine from a sub-national store to a health facility. When all the vaccines have to be packed in a single cold box, cool water-packs should be used.
   - *Routine outreach:* Vaccine carrier will be packed with a mix of vaccines, and possibly supplements, appropriate to the local schedule.
   - *Campaigns:* A limited range of vaccines and/or supplements will be distributed between the primary and sub-national stores and the same limited range will be taken on outreach.
2. **Cold/warm life:** Three types of cold/warm life are given on the product data sheets.
   - Cold life with frozen icepacks.
   - Cool life with cool water-packs.
   - Warm life with warm water-packs

   All three tests are carried out with the lid closed. To take account of cold box opening and transport delays, double the estimated cold/warm life requirement. For example; if a proposed activity is estimated to require a 24 hour cold life, purchase equipment that has a 48 hour cold life.
3. **Weight**: The maximum acceptable fully loaded weight depends upon how the box will be transported: by vehicle; by pack animal; by bicycle or by hand. For health and safety reasons a worker should not be asked to lift a load greater than 25 kgs and female workers may find this excessive. Larger cold boxes require two people to lift them.

4. **Durability**: Consider the conditions to which the cold box or vaccine carrier will be exposed. For example, durability is more important than weight for a box transported by vehicles over rough roads, so, it should have a good rating in the drop test. The reverse applies to hand-carried boxes where weight and carrying comfort is more important. The durability of vaccine carriers is only partly represented by the 'robustness' rating obtained during laboratory drop tests. Vaccine carriers are either constructed with a hard plastic exterior, or with a soft canvas/PVC bag around the insulated walls. Experience has shown that the soft, canvas type carriers do not last long. They are liable to tear and the catches and straps tend to break away. A warning about their short working life is included in the data sheets. Back-pack vaccine carriers are now available and these have ergonomic advantages.
5. **Foaming agent**: Products which use cyclopentane as the insulation foaming agent are environmentally preferable to products that use R141b. Vaccine carriers with inflatable liners are also available and these have no environmental impact. Products containing CFCs are no longer acceptable under PQS.
6. **Water-packs**: Before placing an order, check that water-packs are included. If they are not included, select water-packs that will fit the chosen box and order them at the same time. The product data sheets specify how many water-packs are required. Always order two sets so that one set can be frozen, or cooled, while the other set is in use.
7. **Water-pack standardization:** Wherever possible, try to purchase cold boxes and vaccine carriers which use just one size of water-pack and use these across the entire programme. This simplifies distribution management and prevents the use of water-packs which are not designed to fit the available cold boxes and vaccine carriers.

Cost: Insulated boxes are bulky and shipping costs can often represent a high proportion of the total delivered price. Consider both the purchase (EXW) price and the shipping cost before making a final decision. Choose a product that fulfils programme requirements at the lowest cost.

E004.2 Cool water-packs and warm water-packs

Refer to the vaccine distribution guidelines in the General information section for advice on the use of cool and warm water-packs. When used correctly, cool water-packs completely eliminate the risk of freezing freeze-sensitive vaccines. Correctly used, they do not cause a significant loss of potency due to heat exposure.

E004.3 Keeping vaccines cool during immunization sessions

Since 1997 vaccine carriers have been supplied with a foam pad insert. This serves as a temporary lid to keep vaccines cool whilst at the same time providing a surface to hold and protect vaccine vials during immunization sessions. The insert is a simple piece of soft foam, minimum 30 mm thickness, which fits tightly inside the "neck" of the carrier on top of the icepacks, and below the lid.

The old practice of removing an icepack from the carrier and placing the reconstituted vial in the hole moulded into its surface is no longer recommended. This practice been has shown to cause a significant loss of potency.

E004.4 Calculating requirements

To calculate the quantity of vaccine that must be transported, use data on vaccine volume per dose taken from Table 7 of WHO/IVB/05.23. *Guideline on the international packaging and shipping of vaccines* or use the EVM Assistant tool which can be downloaded from the EVM website at:
http://www.who.int/immunization_delivery/systems_policy/logistics/en/index6.html

E004.5 Future developments

Field trials of large capacity insulated containers are underway. The vaccine storage capacity of these units is many times that of the largest current cold boxes. The units are either pallet-based or wheeled and they offer the possibility of simpler and more secure transport for large quantities of vaccine from primary to sub-national level.

There is an increasing need for larger capacity products at this point in the supply chain now that vaccine volumes are increasing dramatically. If the trails are successful, WHO will develop a suitable PQS specification.

E004 data sheets follow

E004: Insulated containers

PQS code:	E004/001
Description:	Vaccine carrier 3L
Manufacturer's reference:	Coldpack antifreeze 7lt D
Manufactured in:	France
Company:	Coldpack SA
Address:	15 avenue du Président Allende 94400 Vitry sur Seine FRANCE
Telephone:	+ 33 1 53 14 11 15 (FR); +1 866 586 0800 (US)
Email:	*alehideux@alexdist.com*
Web address:	*http://www.coldpack.com/*

Specifications

Vaccine storage capacity:	3 Litres	**Lid type and fixing**	Gripping strips
weight fully loaded:	7.775 kg	**External materials:**	Woven polyester 600D
Weight empty:	1.24 kg	**Internal lining material:**	Aluminum bag
External dimensions: (LxW H cm)	38.0 x 27.0 x 26.0 cm	**Insulation materials:**	Airliner®
Internal dimensions: (LxWxH cm)	33.7 x 19.1 x 20.3 cm	**Insulation thickness:**	34 mm
Vaccine storage dimensions:	33.7 x 19.1 x 5.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	3.218 Litres	**Model coolant-pack**	0.4 L 0.6 L 8x0.6L+2x0.4L
Cold life at +43°C:	31 hours 18 mn	**Number coolantpacks required:**	10 units
Warm life at -20°C:	---	**Coolantpacks supplied:**	No
Cool life at +43°C:	---		

Minimum order:	90 units	**Incoterms:**	EXW
Pieces per carton:	90 units per pallet	**Price base year:**	2011
Weight per carton (kg):	2.1 kg per unit	**Prices:**	1 backpack kit: 50.00 USD
Volume per carton (m3):	1.672 m3		Replenishment: 6.70 USD

Test report reference:	CPS 140907	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-		

Comments:	The antifreeze backpack comes as a kit comprising 1 foldable backpack, 3 coldpack Airliner®, 1 T-Zone tray, 1 manual air pump, 1 aluminum bag, 1 valve protection clip, 1 assembly guidelines and 1 Thermometer Grid indicating the user the number of icepacks required based on ambient temperature. Icepacks do not need to be conditioned, they must be loaded as fully frozen in this carrier; the system is designed to prevent freezing temperatures in the vaccine compartment. Replenishment kit: 10 airliners + 1 pump: 42€

Current PQS status:	*pre-qualified*	**Prequalification date:**	*23 Mar 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/002
Description:	Vaccine Carrier LR 3L
Manufacturer's reference:	RCW4
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Vaccine storage capacity:	3 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	7.3 kg	**External materials:**	Polyethylene
Weight empty:	3.1 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	36.2 x 28.3 x 29.9 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	26.0 x 15.6 x 18.6 cm	**Insulation thickness:**	23 - 27 mm
Vaccine storage dimensions:	21.1 x 10.9 x 15.7 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	3.61 Litres	**Model coolant-pack**	6x0.3L + 1x0.6L
Cold life at +43°C:	30.3 hours	**Number coolantpacks required:**	7 units
Warm life at -20°C:	12.9 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	6.7 hours		
Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2010
Weight per carton (kg):	4.2 kg	**Prices:**	1-39 units: 210 €
Volume per carton (m3):	0.035 m3		40-99 units: 200 €
			100 or more units: 190 €
Test report reference:	A65524a	**Laboratory:**	Intertek UK
Quality standard:	-ISO 9001:2008-Other-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/003
Description:	Cold Box SR 6L
Manufacturer's reference:	RCW8
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Vaccine storage capacity:	6 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	16.4 kg	**External materials:**	Polyethylene
Weight empty:	6.8 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	58.8 x 28.8 x 43.7 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	46.0 x 18.0 x 24.5 cm	**Insulation thickness:**	50 - 60 mm
Vaccine storage dimensions:	32.6 x 10.7 x 20.2 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	7.05 Litres	**Model coolant-pack**	10 x 0.6L + 2 x 0.3L
Cold life at +43°C:	57.9 hours	**Number coolantpacks required:**	12 units
Warm life at -20°C:	21.6 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	12.0 hours		
Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2010
Weight per carton (kg):	10 kg	**Prices:**	1-39 units: 245 €
Volume per carton (m3):	0.089 m3		40-99 units: 233 €
			100 or more units: 222 €
Test report reference:	A65524b	**Laboratory:**	Intertek UK
Quality standard:	-ISO 9001:2008-Other-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/004
Description:	Cold Box LR 7L
Manufacturer's reference:	RCW12
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Vaccine storage capacity:	7 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	23.3 kg	**External materials:**	Polyethylene
Weight empty:	11.7 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	55.0 X 47.5 X 49.9 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	34.0 x 26.0 x 27.0 cm	**Insulation thickness:**	90 - 105 mm
Vaccine storage dimensions:	25.1 x 17.6 x 20.9 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	9.23 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	114.9 hours	**Number coolantpacks required:**	14 units
Warm life at -20°C:	40.9 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	26.4 hours		
Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2010
Weight per carton (kg):	15 kg	**Prices:**	1-39 units: 473 €
Volume per carton (m3):	0.148 m3		40-99 units: 448 €
			100 or more units: 427 €
Test report reference:	A65524c	**Laboratory:**	Intertek UK
Quality standard:	-ISO 9001:2008-Other-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/005
Description:	Cold Box LR 20L
Manufacturer's reference:	RCW25
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Vaccine storage capacity:	20 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	38.9 kg	**External materials:**	Polyethylene
Weight empty:	15.9 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	71.0 x 55.0 x 49.9 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	49.6 x 33.4 x 26.4 cm	**Insulation thickness:**	90 - 105 mm
Vaccine storage dimensions:	40.6 x 25.2 x 20.2 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	20.66 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	134.6 hours	**Number coolantpacks required:**	24 units
Warm life at -20°C:	49.5 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	34.4 hours		
Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2010
Weight per carton (kg):	25 kg	**Prices:**	1-39 units: 600 €
Volume per carton (m3):	0.236 m3		40-99 units: 570 €
			100 or more units: 543 €
Test report reference:	A65524d	**Laboratory:**	Intertek UK
Quality standard:	-ISO 9001:2008-Other-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/006
Description:	Vaccine carrier LR 1.6L
Manufacturer's reference:	Jialihengye LCB-8A
Manufactured in:	China; People's Republic of
Company:	Beijing Jialihengye International Trading Co Ltd.
Address:	Room 703, No. 4 Building Zhubang 2000 Business Centre, 97 Balizhuangxili Chaoyang District, Beijing, 100025, China; People's Republic of
Telephone:	+86 10-85869118 ext. 3019
Email:	*lihuayangsf@yahoo.com*
Web address:	*www.bjjlhy.com.cn/*

Specifications

Vaccine storage capacity:	1.6 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	5.36 kg	**External materials:**	Polypropylene
Weight empty:	1.94 kg	**Internal lining material:**	Polypropylene
External dimensions: (LxW H cm)	34.0 x 23.4 x 27.4 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	23.5 x 14.5 x 17.0 cm	**Insulation thickness:**	38 mm
Vaccine storage dimensions:	16.0 x 6.6 x 17 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	1.795 Litre	**Model coolant-pack**	0.4 L
Cold life at +43°C:	38 hours 14 mn	**Number coolantpacks required:**	6 units
Warm life at -20°C:	12 hours 2 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	6 hours 1 mn		
Minimum order:	10 units	**Incoterms:**	EXW
Pieces per carton:	10 units	**Price base year:**	2009
Weight per carton (kg):	25 kg	**Prices:**	10 or more units: 9.85 €
Volume per carton (m3):	0.22m3		

Test report reference:	S09EEC02411/KGT/JT	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*24 Nov 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/007
Description:	Vaccine Carrier SR 0.8L
Manufacturer's reference:	ADVC-24
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	0.8 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	2.18 kg	**External materials:**	Polyethylene
Weight empty:	1.34 kg	**Internal lining material:**	Polystyrene
External dimensions: (LxW H cm)	25 x 18 x 21 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	17.3 x 10.3 x 12.1 cm	**Insulation thickness:**	32-36 mm
Vaccine storage dimensions:	17.3 x 10.3 x 4.5 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	0.80 Litre	**Model coolant-pack**	0.4 L
Cold life at +43°C:	20 hours 16 mn	**Number coolantpacks required:**	2 units
Warm life at -20°C:	7 hours 55 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	3 hours 53 mn		
Minimum order:	12 units	**Incoterms:**	EXW
Pieces per carton:	12 units	**Price base year:**	2009
Weight per carton (kg):	21 kg	**Prices:**	9.00 USD per unit
Volume per carton (m3):	0.15 m3		
Test report reference:	S09EEC01924/AT/JT	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/008
Description:	Vaccine Carrier LR 1.35 L
Manufacturer's reference:	AVC-44
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	1.35 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	4.36 kg	**External materials:**	Polyethylene
Weight empty:	2.22 kg	**Internal lining material:**	Polystyrene
External dimensions: (LxW H cm)	24.0 x 24.0 x 30.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	9.90 x 9.90 x 16.50 cm	**Insulation thickness:**	35-40 mm
Vaccine storage dimensions:	9.0 x 9.1 x 16.5 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	1.351 Litre	**Model coolant-pack**	0.4 L
Cold life at +43°C:	40 hours 02 mn	**Number coolantpacks required:**	4 units
Warm life at -20°C:	15 hours 52 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	07 hours 48 mn		

Minimum order:	8 units	**Incoterms:**	EXW
Pieces per carton:	8 units	**Price base year:**	2009
Weight per carton (kg):	21 kg	**Prices:**	12.50 USD per unit
Volume per carton (m3):	0.18 m3		

Test report reference:	S09EEC01925/AT/JT	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/009
Description:	Vaccine Carrier LR 2.5 L
Manufacturer's reference:	AVC-46
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	2.5 Litres	**Lid type and fixing**	Removable lid
weight fully loaded:	6.36 kg	**External materials:**	Polyethylene
Weight empty:	2.98 kg	**Internal lining material:**	Polystyrene
External dimensions: (LxW H cm)	27.0 x 27.0 x 32.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	12.2 x 12.2 x 19.0 cm	**Insulation thickness:**	32-35 mm
Vaccine storage dimensions:	11.38 x 11.38 x 19.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	2.460 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	50 hours 12 mn	**Number coolantpacks required:**	4 units
Warm life at -20°C:	15 hours 57 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	09 hours 47 mn		

Minimum order:	4 units	**Incoterms:**	EXW
Pieces per carton:	4 units	**Price base year:**	2009
Weight per carton (kg):	14 kg	**Prices:**	16 USD per unit
Volume per carton (m3):	0.11 m3		

Test report reference:	719164356EEC09/KGT	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/010
Description:	Cold box LR 23 L
Manufacturer's reference:	AICB-444L
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Vaccine storage capacity:	18 Litres	**Lid type and fixing**	Removable lid
weight fully loaded:	48.87 kg	**External materials:**	Polyethylene
Weight empty:	19.93 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	76.1 x 61.1 x 51.3 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	52.0 x 37.0 x 28.2 cm	**Insulation thickness:**	100 mm
Vaccine storage dimensions:	44.8 x 30.0 x 16.7 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	22.45 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	140 hours	**Number coolantpacks required:**	44 units
Warm life at -20°C:	51 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	25 hours		

Minimum order:	10 units	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	50 kg	**Prices:**	10 or more units: 135 USD
Volume per carton (m3):	0.24 m3		

Test report reference:	719171845/EEC10	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/011
Description:	Vaccine Carrier SR 0.9 L
Manufacturer's reference:	AIDVC-24
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Vaccine storage capacity:	0.9 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	2.27 kg	**External materials:**	Polyethylene
Weight empty:	1.31 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	25.0 x 18.0 x 21.4 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	16.5 x 10.0 x 12.0 cm	**Insulation thickness:**	32 mm
Vaccine storage dimensions:	16.5 x 10.0 x 5.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	0.825 Litre	**Model coolant-pack**	0.4 L
Cold life at +43°C:	21 hours 30 mn	**Number coolantpacks required:**	2 units
Warm life at -20°C:	8 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	4 hours 30 mn		

Minimum order:	24 units	**Incoterms:**	EXW
Pieces per carton:	12 units	**Price base year:**	2009
Weight per carton (kg):	30 kg	**Prices:**	24 or more units: 8.75 US$
Volume per carton (m3):	0.12 m3		

Test report reference:	719164808-EEC09/01	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/012
Description:	Vaccine Carrier LR 1.3 L
Manufacturer's reference:	AIVC-44
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Vaccine storage capacity:	1.6 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	4.33 kg	**External materials:**	Polyethylene
Weight empty:	1.93 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	25.0 x 25.0 x 30.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	9.96 x 9.96 x 16.7 cm	**Insulation thickness:**	35 mm
Vaccine storage dimensions:	9.0 x 9.0 x 16.7 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	1.353 Liter	**Model coolant-pack**	0.4 L
Cold life at +43°C:	39 hours	**Number coolantpacks required:**	4 units
Warm life at -20°C:	13 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	6 hours 20 mn		

Minimum order:	24 units	**Incoterms:**	EXW
Pieces per carton:	4 units	**Price base year:**	2009
Weight per carton (kg):	17.32 kg	**Prices:**	24 or more units: 12.75 US$
Volume per carton (m3):	0.075 m3		

Test report reference:	719164808-EEC09/02	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/013
Description:	Cold Box LR 23L
Manufacturer's reference:	RCB-444L 23
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Vaccine storage capacity:	23 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	38 kg	**External materials:**	Polyethylene
Weight empty:	17 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	77.4 x 61.6 x 53.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	52.8 x 38.2 x 28.2 cm	**Insulation thickness:**	111 mm
Vaccine storage dimensions:	45.0 x 30.0 x 17.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	22.95 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	130 hours 08 mn	**Number coolantpacks required:**	44 units
Warm life at -20°C:	20 hours 25 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	26 hours 57 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	23 kg	**Prices:**	1 or more units: 94 US$
Volume per carton (m3):	0.27 m3		

Test report reference:	WHO 10-001	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-Other-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*11 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/014
Description:	Cold box LR 18L
Manufacturer's reference:	ACB-444L
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	18 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	46.14 kg	**External materials:**	Polyethylene
Weight empty:	21.34 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	77.0 x 61.0 x 51.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	53.0 x 36.1 x 30.8 cm	**Insulation thickness:**	100 mm
Vaccine storage dimensions:	45.0 x 29.4 x 16.4 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	22 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	147 hours 14 mn	**Number coolantpacks required:**	44 units
Warm life at -20°C:	52 hours 03 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	30 hours 39 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	25 kg	**Prices:**	145 USD per unit
Volume per carton (m3):	0.27 m3		

Test report reference:	719154911-EEC09	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*13 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/015
Description:	Cold box LR 18L
Manufacturer's reference:	ACB-503L
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	18 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	45.86 kg	**External materials:**	Polyethylene
Weight empty:	21.78 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	77.0 x 61.0 x 51.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	53.0 x 37.5 x 30.5 cm	**Insulation thickness:**	100 mm
Vaccine storage dimensions:	45.5 x 30.5 x 16.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	22.50 Litres	**Model coolant-pack**	0.3 L
Cold life at +43°C:	126 hours 32 mn	**Number coolantpacks required:**	50 units
Warm life at -20°C:	44 hours 48 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	28 hours 05 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	25.5 kg	**Prices:**	145 USD per unit
Volume per carton (m3):	0.27 m3		

Test report reference:	719154910-EEC09	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*13 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/016
Description:	Cold Box SR 16L
Manufacturer's reference:	ACB 324SS
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	16 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	34.42 kg	**External materials:**	Polyethylene
Weight empty:	14.3 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	65 x 65 x 34.7 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	47.8 x 48.1 x 22.5 cm	**Insulation thickness:**	65 mm
Vaccine storage dimensions:	40.1 x 40.6 x 12.78 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	21 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	80 hours 19 mn	**Number coolantpacks required:**	32 units
Warm life at -20°C:	27 hours 44 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	18 hours 44 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	18 kg	**Prices:**	110 USD per unit
Volume per carton (m3):	0.17 m3		

Test report reference:	719154907-EEC09 DT 18 May 2010	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Jul 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/017
Description:	Cold Box SR 16L
Manufacturer's reference:	ACB 246LS
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	16 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	35 kg	**External materials:**	Polyethylene
Weight empty:	14.50 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	64.5 x 64.0 x 35.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	48.0 x 47.9 x 22.6 cm	**Insulation thickness:**	65 mm
Vaccine storage dimensions:	39.9 x 39.6 x 14.5 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	23 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	93 hours 33 mn	**Number coolantpacks required:**	24 units
Warm life at -20°C:	31 hours 22 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	20 hours 42 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	18 kg	**Prices:**	110 USD per unit
Volume per carton (m3):	0.17 m3		

Test report reference:	719154909-EEC09	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Jul 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/018
Description:	Cold Box LR 12L
Manufacturer's reference:	CB-12-CF
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Vaccine storage capacity:	12 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	45 kg	**External materials:**	Polyethylene
Weight empty:	20.4 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	61 x 60 x 56 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	34 x 33 x 34.8 cm	**Insulation thickness:**	110 mm
Vaccine storage dimensions:	30 x 22 x 21 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	13.86 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	156 hours	**Number coolantpacks required:**	42 units
Warm life at -20°C:	53 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	33 hours		
Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	25 kg	**Prices:**	110 USD per unit
Volume per carton (m3):	0.22 m3		
Test report reference:	719169974-EEC10	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/019
Description:	Cold Box SR 7L
Manufacturer's reference:	CB-55-CF
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Vaccine storage capacity:	7 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	23 kg	**External materials:**	Polyethylene
Weight empty:	8.7 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	49 x 44 x 39.5 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	35 x 28.5 x 27 cm	**Insulation thickness:**	55 mm
Vaccine storage dimensions:	28 x 21 x 16.5 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	9.7 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	89 hours	**Number coolantpacks required:**	24 units
Warm life at -20°C:	31 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	20 hours		
Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	12 kg	**Prices:**	100 USD per unit
Volume per carton (m3):	0.09 m3		
Test report reference:	719164472EEC09	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/020
Description:	Vaccine carrier LR 2.6L
Manufacturer's reference:	BK-VC 2.6-CF
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Vaccine storage capacity:	2.6 Litres	**Lid type and fixing**	Removable lid
weight fully loaded:	4.5 kg	**External materials:**	Polyethylene
Weight empty:	1.9 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	26 x 26 x 32 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	19 x 19 x 22.5 cm	**Insulation thickness:**	40 mm
Vaccine storage dimensions:	11.5 x 11.5 x 19.5 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	2.579 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	43 hours	**Number coolantpacks required:**	4 units
Warm life at -20°C:	18 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	7 hours		
Minimum order:	8 units	**Incoterms:**	EXW
Pieces per carton:	4 units	**Price base year:**	2009
Weight per carton (kg):	12 kg	**Prices:**	8 or more units: 18 US$
Volume per carton (m3):	0.11 m3		

Test report reference:	S08EEC01362/AT/JT	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/021
Description:	Vaccine carrier LR 1.7L
Manufacturer's reference:	BK-VC 1.7-CF
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Vaccine storage capacity:	1.7 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	4 kg	**External materials:**	Polyethylene
Weight empty:	1.6 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	26 x 25 x 28.5 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	17 x 17 x 18.5 cm	**Insulation thickness:**	40 mm
Vaccine storage dimensions:	10 x 10 x 17 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	1.7 Litre	**Model coolant-pack**	0.4 L
Cold life at +43°C:	38 hours	**Number coolantpacks required:**	4 units
Warm life at -20°C:	13 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	6 hours		
Minimum order:	8 units	**Incoterms:**	EXW
Pieces per carton:	8 units	**Price base year:**	2009
Weight per carton (kg):	20 kg	**Prices:**	8 or more units: 12 USD
Volume per carton (m3):	0.17 m3		
Test report reference:	719171438EEC10	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/022
Description:	Vaccine carrier SR 0.9L
Manufacturer's reference:	VDC-24-CF
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Vaccine storage capacity:	0.9 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	2.2 kg	**External materials:**	Polyethylene
Weight empty:	1 kg	**Internal lining material:**	Polypropylene
External dimensions: (LxW H cm)	22.5 x 16 x 25 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	13 x 10 x 16.5 cm	**Insulation thickness:**	28 mm
Vaccine storage dimensions:	6 x 10 x 16.5 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	0.99 Litre	**Model coolant-pack**	0.4 L
Cold life at +43°C:	20 hours	**Number coolantpacks required:**	2 units
Warm life at -20°C:	6 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	3 hours		
Minimum order:	12 units	**Incoterms:**	EXW
Pieces per carton:	12 units	**Price base year:**	2009
Weight per carton (kg):	12 kg	**Prices:**	9.00 USD per unit
Volume per carton (m3):	0.12 m3		

Test report reference:	719169972-EEC10/01	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/023
Description:	Cold box LR 6L
Manufacturer's reference:	ACB-264SL
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	6 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	25.4 kg	**External materials:**	Polyethylene
Weight empty:	12.82 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	62.40 x 50.20 x 42.60 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	40.30 x 28.20 x 21.10 cm	**Insulation thickness:**	100 mm
Vaccine storage dimensions:	33.00 x 21.20 x 16.60 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	12 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	132 hours 18 mn	**Number coolantpacks required:**	26 units
Warm life at -20°C:	48 hours 41 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	29 hours 47 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	16 kg	**Prices:**	105 USD per unit
Volume per carton (m3):	0.16 m3		

Test report reference:	719154908-EEC09 TUV SUD	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*13 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/024
Description:	Cold Box LR 18L
Manufacturer's reference:	ACB-316L
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Vaccine storage capacity:	18 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	47.86 kg	**External materials:**	Polyethylene
Weight empty:	20.78 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	77.00 x 61.80 x 51.30 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	52.90 x 37.50 x 30.00 cm	**Insulation thickness:**	100 mm
Vaccine storage dimensions:	44.20 x 29.30 x 18.30 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	24 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	145 hours 51 mn	**Number coolantpacks required:**	31 units
Warm life at -20°C:	57 hours 42 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	34 hours 35 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	25 kg	**Prices:**	145 USD per unit
Volume per carton (m3):	0.27 m3		

Test report reference:	719154912-EEC09	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*28 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/025
Description:	Cold Box LR 20L
Manufacturer's reference:	CB-20-CF
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Vaccine storage capacity:	20 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	49.5 kg	**External materials:**	Polyethylene
Weight empty:	22 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	79.5 x 56.2 x 56.5 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	53.0 x 30.0 x 32.0 cm	**Insulation thickness:**	110 mm
Vaccine storage dimensions:	53.0 x 23.0 x 20.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	24.38 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	138 hours	**Number coolantpacks required:**	39 units
Warm life at -20°C:	46 hours	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	31 hours		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	27 kg	**Prices:**	160 USD per unit
Volume per carton (m3):	0.26 m3		

Test report reference:	719184761-EEC10	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*28 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/026
Description:	Cold box SR 16L
Manufacturer's reference:	RCB246LS
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Vaccine storage capacity:	16 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	34.8 kg	**External materials:**	Polyethylene
Weight empty:	14.2 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	65.00 x 65.00 x 37.00 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	48.00 x 48.00 x 21.00 cm	**Insulation thickness:**	65 to 115 mm
Vaccine storage dimensions:	40.00 x 40.00 x 11.00 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	17.60 Litres	**Model coolant-pack**	0.6 L
Cold life at +43°C:	73 hours 32 mn	**Number coolantpacks required:**	24 units
Warm life at -20°C:	19 hours 26 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	26 hours 06 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	28 kg	**Prices:**	1 or more units: 100 US$
Volume per carton (m3):	0.17 m3		

Test report reference:	WHO 10-011	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-Other-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*01 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/027
Description:	Cold box SR 15L
Manufacturer's reference:	RCB324SS
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Vaccine storage capacity:	15 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	31.8 kg	**External materials:**	Polyethylene
Weight empty:	14 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	65.00 x 65.00 x 37.00 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	48.00 x 48.00 x 20.00 cm	**Insulation thickness:**	65 to 115 mm
Vaccine storage dimensions:	41.00 x 41.00 x 9.00	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	15.13 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	53 hours 36 mn	**Number coolantpacks required:**	32 units
Warm life at -20°C:	16 hours 23 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	21 hours 03 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	26 kg	**Prices:**	1 or more units: 100 US$
Volume per carton (m3):	0.17 m3		

Test report reference:	WHO 10-009	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-Other-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*01 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/028
Description:	Vaccine carrier SR 0.9L
Manufacturer's reference:	BBVC-23
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Vaccine storage capacity:	0.9 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	2.4 kg	**External materials:**	Polyethylene
Weight empty:	1.3 kg	**Internal lining material:**	Polystyrene
External dimensions: (LxW H cm)	24.6 x 18.0 x 21.5 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	17.4 x 10.5 x 12.0 cm	**Insulation thickness:**	35 to 45 mm
Vaccine storage dimensions:	17.4 x 10.5 x 5.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	0.9135 Litre	**Model coolant-pack**	0.3 L
Cold life at +43°C:	17 hours 50 mn	**Number coolantpacks required:**	2 units
Warm life at -20°C:	4 hours 26 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	4 hours 32 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	2.5 kg	**Prices:**	1 or more units: 8.7 US$
Volume per carton (m3):	0.012 m3		

Test report reference:	WHO 10-007	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-Other-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*13 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/029
Description:	Vaccine carrier LR 1.5L
Manufacturer's reference:	BCVC-43
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Vaccine storage capacity:	1.5 Litre	**Lid type and fixing**	Removable lid
weight fully loaded:	4.9 kg	**External materials:**	Polyethylene
Weight empty:	2.6 kg	**Internal lining material:**	Polystyrene
External dimensions: (LxW H cm)	28.0 x 28.0 x 31.5 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	16.5 x 16.5 x 20.0 cm	**Insulation thickness:**	45 to 105 mm
Vaccine storage dimensions:	9.5 x 9.5 x 17.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	1.534 Litre	**Model coolant-pack**	0.3 L
Cold life at +43°C:	41 hours 2 mn	**Number coolantpacks required:**	4 units
Warm life at -20°C:	15 hours 43 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	9 hours 30 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2009
Weight per carton (kg):	5 kg	**Prices:**	1 or more units: 12.7 US$
Volume per carton (m3):	0.025 m3		

Test report reference:	WHO 10-008	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-Other-		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*13 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/030
Description:	Cold Box SR 8L
Manufacturer's reference:	AICB-243s
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Vaccine storage capacity:	8 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	22.41 kg	**External materials:**	Polyethylene
Weight empty:	11.57 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	54.4 x 44.5 x 42.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	34.6 x 28.0 x 24.0 cm	**Insulation thickness:**	65 mm
Vaccine storage dimensions:	27.0 x 20.4 x 15.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	8.262 Litres	**Model coolant-pack**	0.3 L
Cold life at +43°C:	84 hours 7 mn	**Number coolantpacks required:**	24 units
Warm life at -20°C:	27 hours 51 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	17 hours 1 mn		
Minimum order:	10 units	**Incoterms:**	EXW
Pieces per carton:	1 unit	**Price base year:**	2010
Weight per carton (kg):	23 kg	**Prices:**	10 or more units: 130 US$
Volume per carton (m3):	0.101 m3		
Test report reference:	719184756-EEC10	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*27 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/031
Description:	Cold Box LR 18 L
Manufacturer's reference:	AICB 503L
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Vaccine storage capacity:	18 Litres	**Lid type and fixing**	Fixed hinges
weight fully loaded:	48.02 kg	**External materials:**	Polyethylene
Weight empty:	19.73 kg	**Internal lining material:**	Polyethylene
External dimensions: (LxW H cm)	76.5 x 61.2 x 51.5 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	51.8 x 37.0 x 27.7 cm	**Insulation thickness:**	100 mm
Vaccine storage dimensions:	45.5 x 31.0 x 16.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	22.56 Litres	**Model coolant-pack**	0.3 L
Cold life at +43°C:	128 hours 16 mn	**Number coolantpacks required:**	50 units
Warm life at -20°C:	50 hours 4 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	31 hours 8 mn		

Minimum order:	1 unit	**Incoterms:**	EXW
Pieces per carton:	10 units	**Price base year:**	2010
Weight per carton (kg):	50 kg	**Prices:**	10 or more units: 135 US$
Volume per carton (m3):	0.24 m3		

Test report reference:	719180700-EEC10	**Laboratory:**	TUV SUD PSB Pte Ltd
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*27 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E004: Insulated containers

PQS code:	E004/032
Description:	Vaccine carrier LR 2.6L
Manufacturer's reference:	Gio'Style VC 2.6L
Manufactured in:	Italy
Company:	Gio'Style Lifestyle S.p.A
Address:	Via Battaina 393/C 24059 Urgnano (Bg) Italy
Telephone:	+39 0354188501
Email:	*stefano.petro@giostyle.com*
Web address:	*www.giostyle.com/*

Specifications

Vaccine storage capacity:	2.6 Litres	**Lid type and fixing**	Removable lid
weight fully loaded:	6.5 kg	**External materials:**	Polypropylene
Weight empty:	1.8 kg	**Internal lining material:**	Polypropylene
External dimensions: (LxW H cm)	29.0 x 24.0 x 32.0 cm	**Insulation materials:**	Polyurethane
Internal dimensions: (LxWxH cm)	22.0 x 18.0 x 24.0 cm	**Insulation thickness:**	25 - 35 mm
Vaccine storage dimensions:	14.5 x 11.5 x 16.0 cm	**Type of coolantpacks required:**	water-packs
Vaccine storage gross volume:	2.67 Litres	**Model coolant-pack**	0.4 L
Cold life at +43°C:	41 hours 29 mn	**Number coolantpacks required:**	8 units
Warm life at -20°C:	11 hours 36 mn	**Coolantpacks supplied:**	Yes
Cool life at +43°C:	12 hours 10 mn		
Minimum order:	8 units	**Incoterms:**	EXW
Pieces per carton:	8 units	**Price base year:**	2011
Weight per carton (kg):	18.5 kg	**Prices:**	8 or more units: 25.90 US$
Volume per carton (m3):	0.18 m3		
Test report reference:	WHO-10-003	**Laboratory:**	CEMAFROID GIE
Quality standard:	-ISO 9001:2008-		
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*20 Jan 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E005
Water-packs

This section covers water-packs which are used as the temperature control medium in the insulated containers described in Section E004.

E005.1 Choosing water-packs

The water-packs listed in the E005 product data sheets are all suitable for use in the transport of vaccines. They can all be used as conventional frozen icepacks, as cool water-packs or as warm water-packs in cold climates. When selecting water-packs for a programme, consider the following points:

- PQS allows three standard water-packs sizes - 0.3 litre, 0.4 litre and 0.6 litre. Make sure you order the correct size for each type of cold box or vaccine carrier. Try to select cold boxes and vaccine carriers which use just one size of water-pack.
- Most cold boxes and vaccine carriers are supplied with a single set of water-packs. It is good practice to order an extra set so that one set can be frozen or cooled while the other set is in use. The additional set also covers the inevitable losses that occur over the lifetime of the box.
- DO NOT purchase pre-filled water-packs. These often contain an additive, which may lower the freezing point to below 0°C. Their use can endanger freeze-sensitive vaccines.

E005.2 Future developments

WHO will continue to review the use of eutectic-based coolant products which change phase above 0°C. At present the simplicity and low transport costs associated with water-based products which are filled in-country are considered to outweigh the possible performance benefits of eutectics.

E005 data sheets follow

E005: Coolant packs for insulated containers

PQS code:	**E005/001**
Description:	Water-pack 0.6L
Manufacturer's reference:	Dometic WP 0.6L
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Nominal capacity (Liter):	0.6 L	**Weight empty (g):**	79 g
Rated water content (Liter)	0.58 L	**Weight filled (g):**	655 g
External dimensions (mm):	190 x 120 x 35 mm		

Minimum order:	1 unit	**Pieces per carton:**	24 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	1-39 sets of 24 units: 34 €	**Volume per carton (m3):**	*0.025 m3*
	40-99 sets of 24 units: 32 €	**Weight per carton (kg):**	*3 kg*
	100 or more sets of 24 units: 31 €		
Test report:	A65899b	**Verification laboratory:**	Intertek India
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Dec 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/002**
Description:	Water-pack 0.3L
Manufacturer's reference:	Dometic WP 0.3L
Manufactured in:	Luxembourg
Company:	Dometic Group SARL
Address:	17 Op der Hei L-9809 Hosingen Luxembourg
Telephone:	+ 35 2 92 07 311
Email:	*medical.systems@dometic.lu*
Web address:	*www.dometic.lu*

Specifications

Nominal capacity (Liter):	0.3 L	**Weight empty (g):**	69 g
Rated water content (Liter)	0.35 L	**Weight filled (g):**	418 g
External dimensions (mm):	170 x 120 x 25 mm		

Minimum order:	1 unit	**Pieces per carton:**	40 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	1-39 sets of 40 units: 45 €	**Volume per carton (m3):**	*0.025 m3*
	40-99 sets of 40 units: 42 €	**Weight per carton (kg):**	*3 kg*
	100 or more sets: 41 €		
Test report:	A65899a	**Verification laboratory:**	Intertek India
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/003**
Description:	Water-pack 0.4L
Manufacturer's reference:	Dengke WP 0.4L
Manufactured in:	China; People's Republic of
Company:	Beijing Jialihengye International Trading Co Ltd.
Address:	Room 703, No. 4 Building Zhubang 2000 Business Centre, 97 Balizhuangxili Chaoyang District, Beijing, 100025, China; People's Republic of
Telephone:	+86 10-85869118 ext. 3019
Email:	*lihuayangsf@yahoo.com*
Web address:	*www.bjjlhy.com.cn/*

Specifications

Nominal capacity (Liter):	0.40 L	**Weight empty (g):**	65 g
Rated water content (Liter)	0.36 L	**Weight filled (g):**	422 g
External dimensions (mm):	162.5 x 95.0 x 34.5 mm		

Minimum order:	50,000 units	**Pieces per carton:**	168 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	100 - 999 units: 0.459 USD	**Volume per carton (m3):**	*0.1 m3*
	1000 or more units: 0.429 USD	**Weight per carton (kg):**	*12.374 kg per 168*

Test report:	S09EEC01621/AT/JT	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/004**
Description:	Water-pack 0.3 L
Manufacturer's reference:	AIP-3
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Nominal capacity (Liter):	0.3 L	**Weight empty (g):**	76 g
Rated water content (Liter)	0.35 L	**Weight filled (g):**	363 g
External dimensions (mm):	160 x 91 x 34 mm		

Minimum order:	240 units	**Pieces per carton:**	240 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	0.40 USD per unit	**Volume per carton (m3):**	*0.16 m3*
		Weight per carton (kg):	*22 kg*

Test report:	S09EEC02224/AT/JT	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/005**
Description:	Water-pack 0.4 L
Manufacturer's reference:	AIP-4
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Nominal capacity (Liter):	0.4 L	**Weight empty (g):**	78 g
Rated water content (Liter)	0.35 L	**Weight filled (g):**	432 g
External dimensions (mm):	164 x 95 x 34 mm		

Minimum order:	230 units	**Pieces per carton:**	230 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	0.45 USD per unit	**Volume per carton (m3):**	*0.16 m3*
		Weight per carton (kg):	*21 kg*

Test report:	S09EEC02224/ATJT	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/006**
Description:	Water-pack 0.6L
Manufacturer's reference:	AIP-6
Manufactured in:	India
Company:	AOV International
Address:	C-22/25, Sector-57 NOIDA-201301 Uttar Pradesh (U.P.), India
Telephone:	+91 9811314308
Email:	*aov@airtelmail.in; aov@vsnl.com*
Web address:	*http://www.aovinternational.com*

Specifications

Nominal capacity (Liter):	0.6 L	**Weight empty (g):**	110 g
Rated water content (Liter)	0.55 L	**Weight filled (g):**	664 g
External dimensions (mm):	190 x 119 x 35 mm		

Minimum order:	150 units	**Pieces per carton:**	150 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	0.60 USD per unit	**Volume per carton (m3):**	*0.16 m3*
		Weight per carton (kg):	*20 kg*

Test report:	EEC09/719162291	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Apr 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/007**
Description:	Water-pack 0.3L
Manufacturer's reference:	AIIP-03
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Nominal capacity (Liter):	0.3 L	**Weight empty (g):**	77 g
Rated water content (Liter)	0.29 L	**Weight filled (g):**	363 g
External dimensions (mm):	161 x 89 x 31.5 mm		

Minimum order:	100 units	**Pieces per carton:**	100 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	100 units or more: 0.45 USD	**Volume per carton (m3):**	*0.045 m3*
		Weight per carton (kg):	*8 kg*

Test report:	719164810EEC09/03	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/008**
Description:	Water-pack 0.4L
Manufacturer's reference:	AIIP-0.4
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

Specifications

Nominal capacity (Liter):	0.4 L	**Weight empty (g):**	77 g
Rated water content (Liter)	0.35 L	**Weight filled (g):**	428 g
External dimensions (mm):	163.25 x 95.6 x 34.35 mm		

Minimum order:	100 units	**Pieces per carton:**	100 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	100 units or more: 0.50 USD	**Volume per carton (m3):**	*0.054 m3*
		Weight per carton (kg):	*8 kg*

Test report:	719164808EEC09/02	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/009**
Description:	Water-pack 0.6 L
Manufacturer's reference:	AIIP-06
Manufactured in:	India
Company:	Apex International
Address:	G47, Sector 39 Noida 201301 India
Telephone:	+91-120-2574851
Email:	*apexint07@gmail.com*
Web address:	*http://www.apex-international.org/*

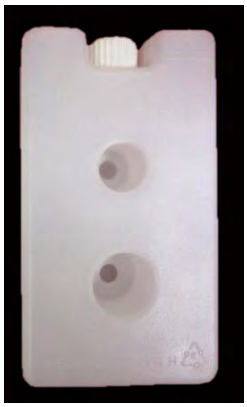
Specifications

Nominal capacity (Liter):	0.6 L	**Weight empty (g):**	111 g
Rated water content (Liter)	0.56 L	**Weight filled (g):**	666 g
External dimensions (mm):	189.55 x 121.20 x 34.34 mm		

Minimum order:	100 units	**Pieces per carton:**	100 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	100 units or more: 0.65 USD	**Volume per carton (m3):**	*0.079 m3*
		Weight per carton (kg):	*11.5 kg*

Test report:	719164808EEC09/01	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 May 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.



E005: Coolant packs for insulated containers

PQS code:	**E005/010**
Description:	Water-pack 0.3 L
Manufacturer's reference:	BK-V4H
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

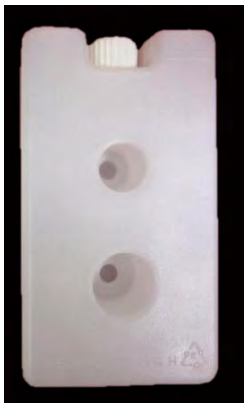
Specifications

Nominal capacity (Liter):	0.3L	**Weight empty (g):**	69 g
Rated water content (Liter)	0.3 L	**Weight filled (g):**	374 g
External dimensions (mm):	162.4 x 89.9 x 34.3 mm		

Minimum order:	225 units	**Pieces per carton:**	225 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	225 units or more: 0.50 USD	**Volume per carton (m3):**	*0.12 m3*
		Weight per carton (kg):	*22 kg*

Test report:	719170704-EEC10	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.



E005: Coolant packs for insulated containers

PQS code:	**E005/011**
Description:	water-pack 0.4L
Manufacturer's reference:	BK-4
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Nominal capacity (Liter):	0.4 L	**Weight empty (g):**	70 g
Rated water content (Liter)	0.39 L	**Weight filled (g):**	430 g
External dimensions (mm):	165 x 93 x 35 mm		

Minimum order:	225 units	**Pieces per carton:**	225 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	225 units or more: 0.50 USD	**Volume per carton (m3):**	*0.13 m3*
		Weight per carton (kg):	*22 kg*

Test report:	EEC09-719162420-B	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/012**
Description:	Water-pack 0.6L
Manufacturer's reference:	BK-6
Manufactured in:	India
Company:	Blowkings
Address:	53-C Mittal Court Nariman Point Mumbai 400021 India
Telephone:	+91-(0)22-22840120
Email:	*munjal@blowkings.co.in*
Web address:	*http://www.blowkings.co.in/*

Specifications

Nominal capacity (Liter):	0.6 L	**Weight empty (g):**	110 g
Rated water content (Liter)	0.55 L	**Weight filled (g):**	655 g
External dimensions (mm):	190 x 120 x 35 mm		

Minimum order:	144 units	**Pieces per carton:**	144 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	144 units or more: 0.65 USD	**Volume per carton (m3):**	*0.13 m3*
		Weight per carton (kg):	*22 kg*

Test report:	EEC09-719162420 A	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/013**
Description:	Water-pack 0.3L T2
Manufacturer's reference:	BIP-3
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Nominal capacity (Liter):	0.3 L	**Weight empty (g):**	75 g
Rated water content (Liter)	0.29 L	**Weight filled (g):**	370 g
External dimensions (mm):	163 x 90.5 x 33 mm		

Minimum order:	240 units	**Pieces per carton:**	240 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	240 units or more: 0.47 USD	**Volume per carton (m3):**	*0.16 m3*
		Weight per carton (kg):	*22 kg*

Test report:	WHO 10-004	**Verification laboratory:**	CEMAFROID GIE
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/014**
Description:	Water-pack 0.4L
Manufacturer's reference:	BIP-4
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Nominal capacity (Liter):	0.4 L	**Weight empty (g):**	76 g
Rated water content (Liter)	0.35 L	**Weight filled (g):**	431 g
External dimensions (mm):	165 x 95 x 33 mm		

Minimum order:	230 units	**Pieces per carton:**	230 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	230 units or more: 0.49 USD	**Volume per carton (m3):**	*0.16 m3*
		Weight per carton (kg):	*21 kg*

Test report:	WHO 10-005	**Verification laboratory:**	CEMAFROID GIE
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/015**
Description:	Water-pack 0.6L
Manufacturer's reference:	BIP-6
Manufactured in:	India
Company:	Nilkamal Limited
Address:	Street No 14, MIDC - Andheri (East) Mumbai-400093 India
Telephone:	+91 9833 920 742
Email:	*vaishali.gaikwad@nilkamal.com;* *nayan.parekh@nilkamal.com*
Web address:	*http://www.nilkamal.com/*

Specifications

Nominal capacity (Liter):	0.6 L	**Weight empty (g):**	114 g
Rated water content (Liter)	0.56 L	**Weight filled (g):**	650 g
External dimensions (mm):	190 x 121 x 35 mm		

Minimum order:	150 units	**Pieces per carton:**	150 units
Year base price:	2010	**Incoterms:**	EXW
Price / unit:	150 units or more: 0.63 USD	**Volume per carton (m3):**	*0.16 m3*
		Weight per carton (kg):	*20 kg*

Test report:	WHO 10-006	**Verification laboratory:**	CEMAFROID GIE
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E005: Coolant packs for insulated containers

PQS code:	**E005/016**
Description:	Water-pack 0.4L
Manufacturer's reference:	Giostyle WP 0.4L
Manufactured in:	Italy
Company:	Gio'Style Lifestyle S.p.A
Address:	Via Battaina 393/C 24059 Urgnano (Bg) Italy
Telephone:	+39 0354188501
Email:	*stefano.petro@giostyle.com*
Web address:	*www.giostyle.com/*

Specifications

Nominal capacity (Liter):	0.4 L	**Weight empty (g):**	50 g
Rated water content (Liter)	0.38 L	**Weight filled (g):**	420 g
External dimensions (mm):	165 x 93 x 33 mm		

Minimum order:	64 units	**Pieces per carton:**	60 units
Year base price:	2011	**Incoterms:**	EXW
Price / unit:	60 units or more: 0.80 USD	**Volume per carton (m3):**	*0.040 m3*
		Weight per carton (kg):	*4 kg*

Test report:	WHO-10-014	**Verification laboratory:**	CEMAFROID GIE
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*20 Jan 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006
Temperature monitoring devices

This section covers thermometers, freeze indicators, temperature recorders, data loggers and event loggers for monitoring temperatures at all levels in the cold chain. It also includes alarm systems. Currently, several of the device types set out below do not yet have pre-qualified examples listed in the catalogue.

E006.1 Device types

A number of new device types are specified under PQS. A few of these were listed in PIS 2000 as untested products. The new devices are highlighted below.

Acoustic and visual alarms (NEW): These can be used in conjunction with fixed dial thermometers and pen recorders.

Cold Chain Monitor cards (CCM): WHO no longer recommends the use of these cards for in-country use. Their use should now be confined to international shipments only, where dry ice is used; otherwise electronic shipping indicators are generally preferred for this purpose.

Freeze indicators: Both electronic and passive phase-change types are now covered by the specification. Freeze indicators should be used routinely for internal distribution of freeze-sensitive vaccines and for monitoring freezing events in cold rooms and vaccine refrigerators where alternative devices are not fitted, or are not thought to be reliable.

Vaccine Vial Monitors (VVM): VVMs are now routinely fixed to all vaccines supplied by UNICEF.

Electronic thermometers: Hand-held electronic thermometers are used by cold chain technicians during repair work, for routine monitoring, for cold chain studies and during the commissioning of cold rooms and freezer rooms.

Fixed dial thermometers: Fixed gas or vapour pressure dial thermometers, require no power supply and they can be used to trigger an alarm system. Their primary use is as a back-up device for cold rooms and freezer rooms. Bi-metallic dial thermometers are no longer recommended because they easily loose their calibration.

Stem thermometers: A stem thermometer should be supplied with every vaccine refrigerator and freezer even when more sophisticated devices are also fitted. They can also be fitted in cold rooms and freezer rooms as a cheap back-up device. Stem thermometers should never be used as the primary temperature monitoring device because they do not provide a continuous record of vaccine temperature exposure.

Bi-metallic dial thermometers are no longer recommended by WHO because they do not hold their calibration well.

Integrated electronic thermometer, with alarm (NEW): This is a new device type which may be built in to a vaccine refrigerator or freezer at the manufacturer's discretion. Its purpose is to provide some of the capabilities of the monitoring equipment used on cold rooms and freezer rooms. This is the only E006 product type of which there are no examples currently on the market.

Event logger systems (NEW): Event logger systems can be supplied with varying levels of sophistication. They consist of a network of sensors linked to a central temperature recording unit, which may be PC-based. Both hard-wired and wireless devices are available. They all include alarm systems. Detailed temperature records can be produced and the most sophisticated systems can be internet-enabled which allows for remote monitoring. Their principal use is at primary store level, but they may also be appropriate for large sub-national stores.

Pen recorders: Pen recorders have been standard equipment for cold rooms and freezer rooms for many years. They continue to have a use for smaller cold rooms and for programmes which are unable to provide the technical support needed to operate and maintain an event logger system.

Temperature data loggers (NEW): Data loggers are used principally during cold chain studies and for verifying performance during the initial commissioning of cold rooms and freezer rooms.

30-day electronic refrigerator temperature loggers (NEW): This is a new device type which can be used to review vaccine refrigerator temperatures over 30 days. The earliest data points are continuously overwritten so that the user always has access to the most recent 30 day period. The devices include a visual temperature alarm and some models allow data to be downloaded to a computer. They are not suitable for use in vaccine freezers. Their use offers the possibility of much improved temperature monitoring at the health facility and lower sub-national levels where routine manual recording is known to be unreliable.

Current models operate for two years after they are activated. Because the product is supplied with sealed-in batteries, the whole unit has to be replaced when the battery runs out. This design approach avoids the need to re-calibrate the device, which is expensive and logistically complex.

Electronic shipping indicators (NEW): Electronic shipping indicators are single-use devices designed to monitor vaccine temperature during international shipment from the manufacturer to the primary store. The data they provide is recorded on the Vaccine Arrival Report (VAR).

E006.2 Use of E006 devices

The following table summarizes the use of each of the E6 device types:

Use of temperature monitoring devices

Device category	PQS spec	PRINCIPAL USE LOCATION							Notes
		International shipping	Primary store	Intermediate store	Health facility	Internal distribution	Equipment commissionin	Cold chain studies	
Acoustic/visual alarm	E06/AL01		X	X					Used with E06/TH02 & E06/TR04
Cold Chain Monitor (CCM)	E06/IN02	X							
Freeze indicator	E06/IN03		X	X	X	X		X	
Vaccine Vial Monitor (VVM)	E06/IN05	X	X	X	X	X		X	
Electronic thermometer	E06/TH01						X	X	
Fixed dial thermometer	E06/TH02		X	X					Typically used as a back-up device
Stem thermometer	E06/TH03		X	X	X				
Integrated thermometer	E06/TH06		X	X	X				May be supplied with fridge or freezer
Event logger systems	E06/TR03		X	X					For large well-managed stores. Includes alarm system
Pen recorder	E06/TR04		X	X					For smaller cold or freezer rooms where E06/TR03 is inappropriate
Temperature data logger	E06/TR05						X	X	
Electronic fridge logger	E06/TR06			X	X				
Shipping Indicator	E06/TR07	X							

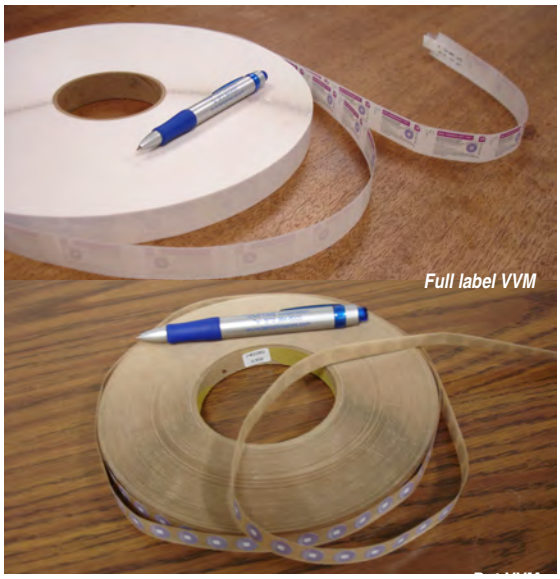
Note: The table shows the appropriate locations for each type of device. It does not imply that ALL the devices listed for a particular location should be used at the same time.

E006.3 Future developments

Low-cost temperature monitoring systems are being developed which measure and record refrigerator temperatures and use cell phone technology to alert staff when there is a problem. When the refrigerator is too cold or too warm, the device automatically sends an SMS alarm message to facility staff and supervisors.

E006 data sheets follow

E006: Temperature monitoring devices



PQS code: E006/001

HEATmarker® Vaccine Vial Monitor (VVM)

Manufactured in: USA

Company name:
TEMPTIME Corporation
116 American Road
Morris Plains, NJ 07950
USA
Tel: 001-973-984-6009
Fax: 001-973-984-1835
Email: info@temptimecorp.com
chrisc@temptimecorp.com

Standard Specifications:

Specification	Full Label VVM	Dot VVM
Minimum Order For One (1) Shipment	500,000	50,000
Standard Label Sizes	20mm X 44mm 57mm X 15mm 48mm X 18mm	10mm dot (circle) or 16mm X 10mm Rectangle
Indicators Per Roll	10,000	10,000
Core size	76mm	76mm
Core Size	76mm	76mm
Shipped by Container	LD3 (in one shipment) or Insulated Coolers Depending on Volume	LD3 (in one shipment) or Insulated Coolers Depending on Volume
Number of Label Colors	2	N/A

Standard Material Specifications:

Full Labels are made on a 38#, semi-gloss white, lightweight, calendered, wood free printing paper face sheet. The adhesive of the face sheet can be a rubber based solvent adhesive with a service temperature range of -40°F to +175°F or a rubber based hot melt adhesive with a service temperature range of -50°F to +120°F. The face sheet with adhesive is removed from either a 44# bleached glassine liner or #40 bleached kraft liner.

Dots are made on corona-treated, flexible, opaque white polyolefin film. The adhesive is clear, permanent and designed for prime labeling applications with a service temperature range -40°F to +200°F. The minimum application temperature is +10°F. The face sheet is removed from a 44#, poly-coated natural kraft (brown) paper stock for roll-to-roll applications. This liner is specifically designed for high speed automatic label dispensing applications. The face sheet has a 1mil, polypropylene, clear self-wound overlaminate with a permanent acrylic adhesive. This film is not designed for printing.

Method of Application:

The rolls of VVM are suitable for use with high speed automatic labeling equipment.

Delivery:

- All deliveries are Ex Works TEMPTIME Corporation (Morris Plains, NJ – USA)
- Shipment costs are (dry ice, specific shipping container rental, inland transportation and air freight are all additional costs).

Shipment Lead Time Following Order Confirmation:

Lead times are very different for the Dot VVM, which are generally stored in TEMPTIME inventory and can be shipped in relatively short periods of time based on quantities. The Full Label VVM requires a customized manufacturing for each order.

	VVM Type	Dots	Full Label
Normal Shipment Lead Times	VVM2	1-3 weeks	3 to 5 weeks
	VVM7	1-3 weeks	4 to 7 weeks
	VVM14	1-3 weeks	5 to 8 weeks
	VVM30	1-3 weeks	5 to 8 weeks

Prices:

All prices are EX WORKS Morris Plains, NJ (USA). Please contact the company for current pricing information.

Conformity with quality system and environmental management standards:
ISO 9001:2008, - certified since March 2001. Certification body SGS-USA
ISO 13485:2003, - certified since March 2008. Certification body SGS-USA
Meets WHO/PQS/E006/IN.05.2 performance specification.

WHO prequalification: 30 September 2007

E006: Temperature monitoring devices

PQS code:	**E006/002**
Description:	Electronic temperature monitor Q-tag2 plus
Manufacturer's reference:	Q-tag 2 plus
Manufactured in:	Switzerland
Company:	Berlinger & Co. AG
Address:	Mitteldorfstrasse 2, CH-9608 Ganterschwil, Switzerland
Telephone:	+41 (71) 982 88 25
Email:	*andrea.berlinger@berlinger.ch*
Web address:	*http://www.berlinger.ch*

Specifications

Product type:	Electronic shipping indicator	**Main material:**	ABS
Mode of operation:	Electronic	**Dimensions:**	5.7 x 5.8 x 1.1 cm
Minimum temperature:	+55°C	**Weight**	0.028 kg
Maximum temperature:	-30°C		
Display medium:	LCD		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	± 0.5°C	**Min logging interval:**	pre-set at 1 mn interval
Power source:	Passive device	**Alarm type:**	Visual
Battery type:	Lithium non-replaceable battery	**User interface:**	LCD - Start/Stop button
Battery shelf life:	24 months	**Programmability:**	Factory programmed
Memory capacity:	---	**IP rating:**	IP 67
Related components:	Q-Tag2 plus is an irreversible electronic temperature indicator that show if a product has been exposed to temperatures beyond assigned alarm settings. There are three types of Q-tag2 plus: 1. Type 1 for freeze sensitive vaccines 2. Type 2 for heat sensitive vaccines 3. Type prevenar 7-valent conjugated vaccine Each type has its own alarm settings		
Minimum order:	50	**Year base price:**	2008
Quality standard:	ISO 9001:2008	**Pieces per carton:**	50
Price per unit:	50 - 99 units: 15 €	**Volume per carton:**	
	100 - 999 units: 12 €	**Weight per carton:**	1.8 kg
	1000 - 2500 units: 10 €	**Incoterms:**	EXW
Verification report:	151-04740	**Verification laboratory:**	METAS
Comments:	Check the specific page in the catalogue for more information		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*30 Sep 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

CODE E06/02, Electronic temperature monitor Model Q-tag 2 plus

ADDITIONAL COMMENTS

Alarm setting:

Type	TYPE 2: for vaccines: OPV, freeze-dried BCG, measles, MR, MMR, Hib, yellow fever and, Meningitis vaccine	TYPE 1: for vaccines: DTP, DT, TT, Td, Hep B, IPV, liquid Hib and combination vaccines	Type Prevenar: Only for Prevenar 7-valent conjugated vaccine
Alarm settings	>= +45°C 1 hour single >= +30°C 10 hours cumulative >= +10°C 20 hours cumulative	>= +45°C 1 hour single >= +30°C 10 hours cumulative <= -0.5°C 1 hour single	>= +40°C 1 hour single >= +30°C 10 hours cum. <= -0.5°C 1 hour single

Function: Q-tag 2 plus is an irreversible electronic temperature indicator that shows if a product, such as vaccine, has been exposed to temperatures beyond assigned alarm settings described above. It consists of an electronic temperature measuring circuit with associated LCD-display. As long as the temperature is within the allowed range, the OK-sign is shown on the display. If the indicator is exposed to an out-of-range temperature the ALARM-sign appears on the display. Some examples of information that can be displayed are:

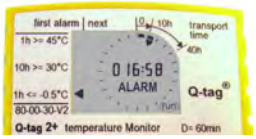
1. Actual elapsed transport time with ALARM-sign and violated alarm condition
2. Actual elapsed transport time since start with OK-sign.
3. Extreme temperatures can be read out by every time segment.
4. Exact time since START until the alarm occurrence.

The Q-tag 2 plus device is attached onto a card which provides instructions for senders and receivers. This device has an initial start delay of 1 hour.

For more information please contact the supplier.

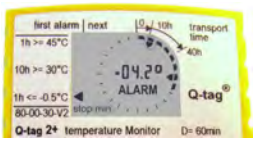
Use: This electronic temperature indicator is used to monitor all kind of shipments of vaccines and other perishable goods.

Following languages are available (except Type Prevenar): English (Standard), French, Spanish, Arabic, Russian, Mandarin Chinese

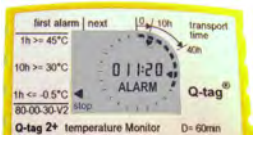


1

2



3



4

E006: Temperature monitoring devices

PQS code:	**E006/003**
Description:	30-day electronic refrigerator logger
Manufacturer's reference:	Fridge-tag®
Manufactured in:	Switzerland
Company:	Berlinger & Co. AG
Address:	Mitteldorfstrasse 2, CH-9608 Ganterschwil, Switzerland
Telephone:	+41 (71) 982 88 25
Email:	*andrea.berlinger@berlinger.ch*
Web address:	*http://www.berlinger.ch*

Specifications

Product type:	30-day electronic refirgerator temperature logger	**Main material:**	ABS
Mode of operation:	Electronic	**Dimensions:**	11.5 x 7.5 x 1.2 cm
Minimum temperature:	-20°C	**Weight**	0.080 kg
Maximum temperature:	+55°C		
Display medium:	LCD		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	± 0.3°C	**Min logging interval:**	1 minute pre-set
Power source:	Non-replaceable battery	**Alarm type:**	Visual
Battery type:	Lithium non-replaceable	**User interface:**	device itself
Battery shelf life:	36 months	**Programmability:**	Factory programmed
Memory capacity:	N/A	**IP rating:**	IP 67
Related components:	The Frige-Tag is a 30-day electronic temperature logger that indicates if storage temperatures have exceeded the alarm settings. The history mode shows mini and max temperatures of the 30 previous days and the duration of any temperature violation.		
Minimum order:	20	**Year base price:**	2007
Quality standard:	ISO 9001:2008	**Pieces per carton:**	20
Price per unit:	20 - 49 units: 25 US$	**Volume per carton:**	0.01 m3
	50 - 99 units: 22 US$	**Weight per carton:**	2 kg
	100 - 999 units: 20 US$	**Incoterms:**	EXW
Verification report:	151-03614	**Verification laboratory:**	METAS
Comments:	This device has a 10 minutes delay before recording temperature after activation and each history reading		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*30 Sep 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006: Temperature monitoring devices

PQS code:	**E006/004**
Description:	Cold chain monitor
Manufacturer's reference:	Vaccine cold chain monitor shipment record
Manufactured in:	Switzerland
Company:	Berlinger & Co. AG
Address:	Mitteldorfstrasse 2, CH-9608 Ganterschwil, Switzerland
Telephone:	+41 (71) 982 88 25
Email:	*andrea.berlinger@berlinger.ch*
Web address:	*http://www.berlinger.ch*

Specifications

Product type:	Cold chain monitor	**Main material:**	Card
Mode of operation:	Chemical	**Dimensions:**	12 x 15 cm
Minimum temperature:		**Weight**	0.006 kg
Maximum temperature:			
Display medium:	---		

MECHANICAL AND ELECTRONIC DEVICES ONLY

Accuracy:	N/A	**Min logging interval:**	N/A
Power source:	Passive device	**Alarm type:**	Visual
Battery type:	N/A	**User interface:**	N/A
Battery shelf life:	N/A	**Programmability:**	Not applicable
Memory capacity:	N/A	**IP rating:**	N/A
Related components:	This indicator is made of a porous wick track strip with 3 windows (A, B, and C) changing colour to blue when temperature exceeds +10°C. In addition it has a high temperature dot activated at +34° C		

Minimum order:	500	**Year base price:**	2007
Quality standard:	ISO 9001:2008	**Pieces per carton:**	250
Price per unit:	Per unit: 4.30 CHF	**Volume per carton:**	0.0055 m3
		Weight per carton:	1.7 kg
		Incoterms:	EXW

Verification report:	Wolff Laboratory (1988)	**Verification laboratory:**	
Comments:	This device is to be used only in international shipments when there is no other choice than having dry ice as the passive coolant		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*30 Sep 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006: Temperature monitoring devices

PQS code:	**E006/006**
Description:	User prg temperature data logger
Manufacturer's reference:	Logtag TRIX-8
Manufactured in:	New Zealand
Company:	Logtag Recorders Limited
Address:	PO Box 101-482 NSMC, Auckland, New Zealand
Telephone:	+64 9 444 5881
Email:	*sales@logtagrecorders.com*
Web address:	

Specifications

Product type:	User-programmable temperature data logger	**Main material:**	Polycarbonate
Mode of operation:	Electronic	**Dimensions:**	8.5 x 5.4 x 0.85 cm
Minimum temperature:	-40°C	**Weight**	0.035 kg
Maximum temperature:	+85°C		
Display medium:	LED		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	± 0.5°C	**Min logging interval:**	30 seconds
Power source:	Battery 3V	**Alarm type:**	Visual
Battery type:	Lithium 3V	**User interface:**	Logtag interface + software
Battery shelf life:	up to 120 months	**Programmability:**	User programmed
Memory capacity:	8000 point	**IP rating:**	IP65
Related components:			
Minimum order:	100	**Year base price:**	2008
Quality standard:	ISO 9001:2008	**Pieces per carton:**	100
Price per unit:	100 units: 15 €	**Volume per carton:**	0.020 m3
	101 - 1000 units: 12 €	**Weight per carton:**	4.6 kg
	1000 units and more: upon request	**Incoterms:**	EXW
Verification report:	TUV 21123235_001	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Jan 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006: Temperature monitoring devices

PQS code:	**E006/007**
Description:	Freeze indicator
Manufacturer's reference:	Freeze-tag®
Manufactured in:	Switzerland
Company:	Berlinger & Co. AG
Address:	Mitteldorfstrasse 2, CH-9608 Ganterschwil, Switzerland
Telephone:	+41 (71) 982 88 25
Email:	*andrea.berlinger@berlinger.ch*
Web address:	*http://www.berlinger.ch*

Specifications

Product type:	Irreversible freeze indicator	**Main material:**	ABS
Mode of operation:	Electronic	**Dimensions:**	5.0 x 3.1 x 1.05
Minimum temperature:	-20°C	**Weight**	0.012
Maximum temperature:	+50°C		
Display medium:	LCD		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	+/- 0.5°C	**Min logging interval:**	---
Power source:	Non-replaceable battery	**Alarm type:**	Visual
Battery type:	non-replaceable battery	**User interface:**	LCD screen
Battery shelf life:	5 years	**Programmability:**	Factory programmed
Memory capacity:	---	**IP rating:**	IP67
Related components:	Freeze-Tag is an irreversible temperature indicator that shows if a product, such as vaccine has been exposed to freezing temperatures. It consists of an electronic temperature measuring circuit with associated LCD-display. If the indicator is exposed to a temperature below -0.5°C ±0.5°C for more then 60min ± 3min the display will change from the "good" status into the "alarm" status. A small blinking dot in the right hand corner of the LED display indicates that the device is functioning.		
Minimum order:	450	**Year base price:**	2009
Quality standard:	ISO 9001:2008	**Pieces per carton:**	450
Price per unit:	450 units: 5.30 CHF; up to 1350 units: 4.60 CHF	**Volume per carton:**	0.03 m3
	up to 4500 units: 4.30 CHF	**Weight per carton:**	6.5 kg
	up to 10 000 and more units: 4.00 CHF	**Incoterms:**	EXW
Verification report:	151-04141	**Verification laboratory:**	METAS
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*27 May 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006: Temperature monitoring devices

PQS code:	**E006/008**
Description:	User prg temperature data logger
Manufacturer's reference:	Libero pdf datalogger
Manufactured in:	Switzerland
Company:	Berlinger & Co. AG
Address:	Mitteldorfstrasse 2, CH-9608 Ganterschwil, Switzerland
Telephone:	+41 (71) 982 88 25
Email:	*andrea.berlinger@berlinger.ch*
Web address:	*http://www.berlinger.ch*

Specifications

Product type:	User-programmable temperature data logger	**Main material:**	ABS
Mode of operation:	Electronic	**Dimensions:**	9.5 x 4.0 x 1.2
Minimum temperature:	-35°C	**Weight**	0.04
Maximum temperature:	+70°C		
Display medium:	LCD		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	+/-2°C at	**Min logging interval:**	1 min
Power source:	Non-replaceable battery	**Alarm type:**	Visual
Battery type:	Lithium 3.6V	**User interface:**	LCD and Computer pdf file generator
Battery shelf life:	3 years	**Programmability:**	User programmed
Memory capacity:	16000 inte	**IP rating:**	IP65
Related components:	This device has a USB connector.	It generates automatically a pdf file	
Minimum order:	10	**Year base price:**	2010
Quality standard:	ISO 9001:2008	**Pieces per carton:**	10
Price per unit:	10 - 49 units: 120 €; 50 - 99 units: 114 €	**Volume per carton:**	0.01 m3
	100 - 249 units: 110 €; 250 - 499 units: 105 €	**Weight per carton:**	0.5 kg
	500 - 999 units: 102 €; 1000 units and more: 90 €	**Incoterms:**	EXW
Verification report:	---	**Verification laboratory:**	
Comments:	More details can be found in the E006 introductory note		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*04 Dec 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006: Temperature monitoring devices

PQS code:	**E006/009**
Description:	Freeze indicator
Manufacturer's reference:	FreezeAlert TM
Manufactured in:	United States
Company:	Sensitech Inc.
Address:	A Business Unit of Carrier Corporation, Suite 258X, 800 Cummings Center. Beverly, MA 01915 United States
Telephone:	+1 978 - 927- 7033
Email:	*info@sensitech.com*
Web address:	*http://www.sensitech.com*

Specifications

Product type:	Irreversible freeze indicator	**Main material:**	ABS
Mode of operation:	Electronic	**Dimensions:**	5.15 x 3.5 x 1.0 cm
Minimum temperature:	---	**Weight**	0.014 kg
Maximum temperature:	+55°C		
Display medium:	LCD		

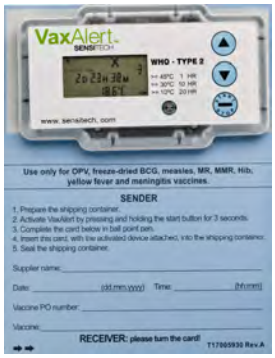
MECHANICAL AND ELECTRONIC DEVICES ONLY

Accuracy:	+/-0.5°C	**Min logging interval:**	N/A
Power source:	Non-replaceable battery	**Alarm type:**	Visual
Battery type:	Lithium coin-cell	**User interface:**	Start button switch
Battery shelf life:	can be stored inactivated for 12 months	**Programmability:**	Factory programmed
Memory capacity:	N/A	**IP rating:**	IP64

Related components: The FreezeAlert™ is a single alarm electronic temperature indicator providing an irreversible display of temperature exposure relative to the alarm setting of < -0.5 °C for a continuous period of 60 minutes. If the indicator is exposed to conditions exceeding the alarm setting, the display changes from a "√" to an "X", informing the user of the triggered alarm state. The device contains an integrated push-button switch for field activation and a dynamic "dot" icon which affirms active monitoring.

Minimum order:	500	**Year base price:**	2009
Quality standard:	ISO 9001:2008	**Pieces per carton:**	1000
Price per unit:	500 units: 4.53 US$; 1000 units: 3.89 US$	**Volume per carton:**	0.066 m3
	5000 units: 3.64 US$	**Weight per carton:**	15.3 kg
	10 000 units: 3.40 US$	**Incoterms:**	EXW
Verification report:	S09EEC00004/C/BL/CEG Feb 2009	**Verification laboratory:**	TUV SUD PSB Pte Ltd
Comments:	carton of 1000 units		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*03 Mar 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.



E006: Temperature monitoring devices

PQS Code: E006/010

Description: Electronic temperature indicator
Manufacturer's reference: VaxAlert™
Manufactured in: United States
Company: Sensitech, Inc.
Address: 800 Cummings Ctr, Suite 258X
Beverly, MA 01915-6197
USA

Telephone: *+1-978-927-7033*
Fax: *+1-978-921-2112*
Website: *www.sensitech.com*
E-Mail: *info@sensitech.com*

SPECIFICATIONS

Type	Type 1: Vaccines DTP, DT,TT, Td, Hep B, IPV, liquid Hib, and combination vaccines	Type 2: Vaccines OPV, Freeze-dried BCG, measles, MR, MMR, yellow fever, and meningitis vaccines	RotaTeq® from Merck
Alarm settings	≥ +45ºC 1 hr single event ≥ +30ºC 10 hr cumulative ≤ - 0.5ºC 1 hr single event	≥ +45ºC 1 hr single event ≥ +30ºC 10 hr cumulative ≥ +10ºC 20 hr cumulative	≥ +27ºC 1 min single event ≥ +17ºC 2 hr cumulative ≤ - 25ºC 1 min single event

Initial Start Delay: 60 min
Temperature Accuracy: ±0.5 ºC
External Dimensions: 98.9 x 58.0 x 17.5 mm (without card)
External Material: ABS
Weight: 68 g/piece
Number per Package: 20

COMMENTS

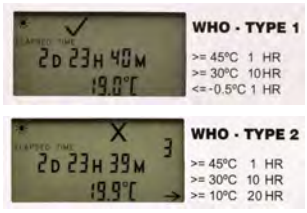
Test Report: TUV PSB Singapore Test Reports (S09EEC00004/A/1/BL/CEG, S09EEC00004/B/1/BL/CEG)
Meets performance requirements for WHO PQS/E06/TR07VP.1
TUV SUD America IAO9001:2000, Registration No. 951 05 3305

Function: VaxAlert™ is an irreversible electronic temperature indicator designed to monitor temperature exposure of vaccines and other perishable products during transit. The indicator provides alarm status and alarm excursion histories for up to three single event or cumulative time-temperature alarms as listed in the table above. The device contains an advanced LCD that presents: comprehensive alarm status (√ or X), operation mode (ready/run/stop/delay start), elapsed time from start and last temperature reading. Alarm excursion histories (up to nine events) are presented via the LCD with an alarm history event number, alarm indicator, alarm time (elapsed since start), and max or min temperature during the alarm time period.
Main purpose of the device: Temperature monitoring vaccine shipments.

2009 PRICES
(Type 1 and Type 2)

20-100 pieces	$ 17.50 / piece
101-1000 pieces	$ 14.00 / piece
1001- 3000 pieces	$ 11.75 / piece
>3000 pieces	on request

Shipping volume *0.0044 m³ (254 x 153 x 114 mm)*
Shipping weight 20 pcs *6.8 kg*
Minimum order: *20 pc*



Typical VaxAlert Display

Prequalified on 08 May 2009, revision 10 May 2011

E006: Temperature monitoring devices

PQS code:	**E006/012**
Description:	Dial thermometer
Manufacturer's reference:	Rueger TFV100BI
Manufactured in:	Switzerland
Company:	RUEGER SA
Address:	Ch. de Mongevon PO Box 98 CH-1023 Crissier 1 Switzerland
Telephone:	+41 21 6373266
Email:	*p.ruisseaux@rueger.com*
Web address:	*www.rueger.ch*

Specifications

Product type:	Fixed gas or vapor pressure thermometer	**Main material:**	Stainless steel
Mode of operation:	Physical	**Dimensions:**	57 mm x 111 mmm
Minimum temperature:	-30°C	**Weight**	0.6 kg
Maximum temperature:	+50°C		
Display medium:	--		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	± 1% scale	**Min logging interval:**	--
Power source:	Passive device	**Alarm type:**	Not applicable
Battery type:	--	**User interface:**	Direct reading
Battery shelf life:	--	**Programmability:**	Not applicable
Memory capacity:	--	**IP rating:**	55
Related components:	This device is a gas filled thermometer with capillary tube for wall mounting with rear fixing lugs. It has a waterproof bezel ring with bayonet lock. Head and bezel : AISI 304 Capillary length : 1.5 meters; capillary materials : AISI 316Ti with PVC covering. Bulb : Ø 8mm. AISI 316L, length 100mm Red lazy pointers for maximum and minimum indication		
Minimum order:	10	**Year base price:**	2011
Quality standard:	ISO 9001:2008	**Pieces per carton:**	1
Price per unit:	Per unit: 690 US$	**Volume per carton:**	0.0072 m3
		Weight per carton:	1.5 kg
		Incoterms:	EXW
Verification report:	151-04482	**Verification laboratory:**	METAS
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*04 Oct 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

E006: Temperature monitoring devices

PQS code:	**E006/013**
Description:	30-day electronic temperature logger
Manufacturer's reference:	LogtaTRID30-7 30-day electronic temperature logger
Manufactured in:	New Zealand
Company:	Logtag Recorders Limited
Address:	PO Box 101-482 NSMC, Auckland, New Zealand
Telephone:	+64 9 444 5881
Email:	*sales@logtagrecorders.com*
Web address:	

Specifications

Product type:	30-day electronic refirgerator temperature logger	**Main material:**	Polycarbonate
Mode of operation:	Electronic	**Dimensions:**	9.30 x 5.45 x 0.86 cm
Minimum temperature:	-30°C	**Weight**	0.043 kg
Maximum temperature:	+60°C		
Display medium:	LCD		
MECHANICAL AND ELECTRONIC DEVICES ONLY			
Accuracy:	+/- 0.5°C	**Min logging interval:**	30 seconds
Power source:	Non-replaceable battery	**Alarm type:**	Visual
Battery type:	Lithium	**User interface:**	Standard Logtag interface cradle
Battery shelf life:		**Programmability:**	Not applicable
Memory capacity:	7770	**IP rating:**	IP 65
Related components:	Standard Logtag Interface Software Logtag Analyser		
Minimum order:	50	**Year base price:**	2011
Quality standard:	ISO 9001:2008	**Pieces per carton:**	200
Price per unit:	50 - 99 units: 21 USD	**Volume per carton:**	59 x 34 x 15 cm
	100 - 999 units: 19 USD	**Weight per carton:**	9 kg
	> 1000 units: 17.50 USD	**Incoterms:**	EXW
Verification report:	A66604	**Verification laboratory:**	Intertek UK
Comments:	Details of any excursions can be checked directly by inspecting the statistics history on the recorder's display or in more detail by downloading the logged data via a LogTag USB interface to a PC running LogTag Analyzer.		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*19 May 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased.

NEW Product AS AT 31.05.2011

E007
Cold chain accessories

This section covers miscellaneous cold chain accessories. A PQS specification for small voltage regulators is currently being drafted and will be published soon. Meanwhile, the PIS qualified equipment can still be obtained from UNICEF Supply Division.

E007.1 Voltage regulators for refrigerators and freezers

Wherever voltage fluctuations exceed ±15%of the rated voltage at the supply point WHO recommends that refrigerators and freezers should be connected to the mains supply via a voltage regulator. Any associated electronic temperature monitoring equipment and computers should, ideally, be connected to a separate voltage-regulated circuit; this type of equipment is particularly sensitive to voltage fluctuations and to lightning-induced power surges.

Tap-changing voltage regulators are the most suitable type of voltage regulator for refrigeration equipment. There are a number of different models on the market; some are more reliable than others. A common type, supplied by many manufacturers, uses electronic tap-changing technology. This type is prone to failure due to switching stresses. The most reliable devices use relays. As an example, one typical widely used unit can control output voltages between -8% to +9% when the input voltage varies between -34% to +26%.

The simplest arrangement is to supply one single-outlet unit with each refrigeration appliance. NEVER use an adaptor to connect more than one appliance to a regulator's electrical outlet and never use an adaptor to connect more than one regulator to a wall socket. Separate models are available for compression and absorption refrigerators and freezers – ALWAYS choose the right type and make sure that it is connected to the correct appliance.

E007.2 Refrigerator spare parts and kits

Products in this category at present remain unchanged from the PIS 2000 catalogue for the time being.

Currently there are no data sheets for this section

E008
Single-use injection devices

The products listed in this section include single-use syringes and needle-free injectors used to administer vaccines. Reusable syringes are no longer listed and are no longer recommended by WHO.

Correct use of injections for immunization

An injection should only be given if it is necessary. Every injection given must be safe.

- An injection for immunization is necessary (with the exception of oral vaccines).
- An immunization injection is safe when the vaccine is injected using the appropriate equipment and according to the recommended procedures [1] for injection and disposal.

The following equipment may, in principle, be used to administer injectable vaccines:

- Auto-disable syringes to ISO 7886-3:2005.
- Single-use auto-disable needle-free syringe injectors.

E008.1 Auto-disable (AD) syringes with fixed needles

PQS pre-qualified syringes must now comply with ISO 7886-3:2005 - *Sterile hypodermic syringes for single use - Part 3: Auto-disable syringes for fixed-dose immunization.*

The auto-disable syringe is the preferred type of disposable equipment for the administration of vaccines in both routine and mass immunization programmes. The auto-disable syringe carries the lowest risk of person-to-person transmission of blood borne pathogens because it cannot be reused [2].

E008.2 Single-use auto-disable needle-free syringe injectors

It remains current WHO policy that this type of injector can be used only if laboratory tests show that it does not carry a risk of contamination.

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[1] WHO/EPI/TRAM/98.01-11 Rev 1. *Immunization in practice series*.

[2] WHO/V&B/99.25. *Safety of injections: WHO-UNICEF-UNFPA joint statement on the use of auto-disable syringes in immunization services*.

WHO has published a PQS specification and verification protocol for these devices [3] and recommends that only injectors which meet the requirements set out in these documents should be used. Currently there are no pre-qualified models, but when such equipment becomes available it will be included in the PQS data sheets.

E008.3 Standard disposable syringes

Standard disposable syringes and needles should not be used for immunization purposes because there is no guarantee that they will be destroyed after a single use. UNICEF will not supply this type of syringe for immunization purposes.

WARNING: There is clear evidence that the reuse of disposable syringes is widespread globally. WHO warns governments and donor agencies that the reuse of standard disposable syringes and needles places the general public at high risk of disease and death.

E008.4 Disposal of injection equipment

Additional equipment is necessary to ensure the safety of the contaminated waste stream - see section E010:

- Safety boxes for the collection of used syringes, needles and sharps.
- Needle disablers and needle safety boxes.
- Incinerators and autoclaves for final disposal of used injection equipment.

Injection equipment is only safe if users strictly follow the procedures specified for its use, and this includes safe disposal. [4]

E008 data sheets follow

[3] WHO/PQS/E08/JI01.1: *Specification for single-use auto-disable needle-free syringe injectors.*

WHO/PQS/E08/JI01-VP.1. *Verification protocol for single-use auto-disable needle-free syringe injectors.*

[4] WHO/BCT/03.12. *Guiding principles to ensure injection device security.*.

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/001**
Description:	AD syringe 0.5ml
Manufacturer's reference:	Terumo AD Syringe TM
Manufactured in:	Belgium
Company:	Terumo Europe N.V.
Address:	Researchpark Zone 2 Haasrode Interleuvenlaan 40 B-3001 Leuven Belgium
Telephone:	+32 16 381 450
Email:	*GPS.info@terumo-europe.com*
Web address:	*http://www.terumo-europe.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark 0197
Fixed needle size:	23G x 25mm	**Pieces per carton:**	1800
AD mechanism:	Clip blocking piston	**Volume per carton (m3):**	0.113 m3
AD location:	Start of injection	**Weight per carton (kg):**	10.1 kg
Number of components:	3 pieces	**Minimum order:**	1800
Other needle options:	Yes	**Incoterms:**	EXW
Primary packaging:	Paper blister pack	**Prices per unit:**	*Up to 1 million units: 7.0 € per 100*
Year base price:	*2011*		1 million to 5 millions: 6.8 € per 100
			5 millions to 10 millions: 6.5 € per 100

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*01 Jan 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

NEW Product AS AT 02.02.2011

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/004**
Description:	AD syringe 0.5 ml
Manufacturer's reference:	MEDECO® INJECT AD 0.5 ml
Manufactured in:	United Arab Emirates
Company:	Abu Dhabi National Industrial Projects
Address:	P.O.Box 25905, Abu Dhabi United Arab Emirates
Telephone:	+971-2-5500577
Email:	*osama@adnip.com*
Web address:	*http://www.adnip.com/*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark 0434
Fixed needle size:	23G x 25mm	**Pieces per carton:**	1300
AD mechanism:	valve in the syringe hub	**Volume per carton (m3):**	0.055 m3
AD location:	Start of injection	**Weight per carton (kg):**	5.7 kg
Number of components:	3 pieces	**Minimum order:**	1300
Other needle options:	Yes	**Incoterms:**	EXW
Primary packaging:	Paper blister pack	**Prices per unit:**	*100 000 units and more: 0.054 US$ per piece*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*25 Sep 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/007**
Description:	AD syringe 0.5ml
Manufacturer's reference:	Kojak Selinge 0.5ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	*hmduk@hmdhealthcare.com*
Web address:	*www.hmdhealthcare.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark 0473
Fixed needle size:	23G x 25mm	**Pieces per carton:**	2000
AD mechanism:	Locked / broken plunger	**Volume per carton (m3):**	0.09 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	14.5 kg
Number of components:	3 pieces	**Minimum order:**	20,000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Blister or Ribbon pack	**Prices per unit:**	*Over 1 million: 0.06 USD; over 5 millions: 0.0575 USD*
Year base price:	*2011*		Over 10 millions: 0.055 USD
			Over 50 millions: 0.0525 USD

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Dec 2004*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/010**
Description:	AD syringe 0.5ml
Manufacturer's reference:	K1 AD syringe 0.5ml
Manufactured in:	China; People's Republic of
Company:	Wenzhou Beipu Medical Co.,Ltd.
Address:	Room 506, No.6 Building, No.1139 Pudong Avenue,Pudong Shanghai 200135
Telephone:	+86-21-50936287
Email:	*lisa@beipu.com*
Web address:	

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	1800
AD mechanism:	Locked/broken plunger	**Volume per carton (m3):**	0.09 m3
AD location:	Middle of injection	**Weight per carton (kg):**	9 kg
Number of components:	3 pieces	**Minimum order:**	1800
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*0.063 USD*
Year base price:	*2005*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*16 Jun 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/013**
Description:	AD syringe 0.5ml
Manufacturer's reference:	AD SoloShot TM IX 0.5ml
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	*michael_garrison@bd.com*
Web address:	*http://www.bd.com*

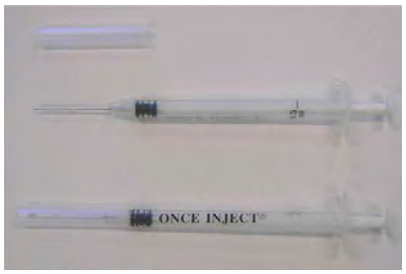
Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	2400
AD mechanism:	Clip locking plunger at start	**Volume per carton (m3):**	0.1029 m3
AD location:	Start of injection	**Weight per carton (kg):**	11.49 kg
Number of components:	2 pieces	**Minimum order:**	2400
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2005*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*25 Jun 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased



E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/017**
Description:	AD syringe 0.5ml
Manufacturer's reference:	ISO 7886-3
Manufactured in:	Denmark
Company:	Codan
Address:	Faergevej 4 DK - 4970 Roedby Danemark
Telephone:	+45 54657411
Email:	*kra@codanmedical.dk*
Web address:	*http:/www.codan.de*

Specifications

Graduations:	0.5ml	**Quality standard:**	ISO 13485
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	3200
AD mechanism:	Plunger disassembled from gasket, trapped piston	**Volume per carton (m3):**	0.106 m3
AD location:	Start of injection	**Weight per carton (kg):**	11 kg
Number of components:	3 pieces	**Minimum order:**	3200 units
Other needle options:	Yes	**Incoterms:**	EXW
Primary packaging:	Paper blister pack	**Prices per unit:**	*Per unit: 0.06 €*
Year base price:	*2005*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*27 Jul 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/019**
Description:	AD syringe 0.5ml
Manufacturer's reference:	K1 OneJect AD 0.5ml
Manufactured in:	Indonesia
Company:	PT Oneject Indonesia
Address:	Sentul Industrial Estate Jl.Olympic Raya Kav B9 Bogor 16810, Indonesia
Telephone:	+62 21 879 17 422
Email:	*marketing@oneject.co.id*
Web address:	*www.oneject.co.id*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE 0044
Fixed needle size:	23G x 25mm	**Pieces per carton:**	1600
AD mechanism:	Locked and broken plunger	**Volume per carton (m3):**	0.06 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	7.7 kg
Number of components:	3 pieces	**Minimum order:**	16,000
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2005*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*12 Oct 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/020**
Description:	AD syringe 0.5ml
Manufacturer's reference:	AD syringe 0.5ml
Manufactured in:	China; People's Republic of
Company:	Wuxi Yushou Medical Appliances Co., Ltd
Address:	No.215 Xigang Road, Dongbeitang town, Wuxi city Jiangsu Province
Telephone:	+86 (510)3777555
Email:	*mike@chinasyringe.com*
Web address:	

Specifications

Graduations:	0.5ml	**Quality standard:**	ISO 13485
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	3000
AD mechanism:	Clip locking plunger at start	**Volume per carton (m3):**	0.088 m3
AD location:	Start of injection	**Weight per carton (kg):**	11 kg
Number of components:	3 pieces	**Minimum order:**	3000
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*Per unit: 0.05 US$*
Year base price:	*2005*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*22 Sep 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/021**
Description:	AD syringe 0.5ml
Manufacturer's reference:	AD SoloShot TM IX
Manufactured in:	India
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	*michael_garrison@bd.com*
Web address:	*http://www.bd.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	24G x 25mm	**Pieces per carton:**	2400
AD mechanism:	Clip lock plunger at start	**Volume per carton (m3):**	0.010 m3
AD location:	Start of injection	**Weight per carton (kg):**	11.49 kg
Number of components:	2 pieces	**Minimum order:**	2400
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2005*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 Oct 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/024**
Description:	AD syringe 0.5ml
Manufacturer's reference:	Single-Ject AD syringe 0.5ml
Manufactured in:	Korea; Republic of (South Korea)
Company:	MK Limited
Address:	#439-14, Gakyo-ri, Songak-Myun, Dangjin-Gun, 343-821 Choong nam
Telephone:	+ 82 413567460
Email:	*monomedi@hanmail.net; rudysmah@monomedi.biz*
Web address:	*http://www.monomedi.kr*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	1600
AD mechanism:	Plunger lock	**Volume per carton (m3):**	0.048 m3
AD location:	Middle of injection	**Weight per carton (kg):**	
Number of components:	3 pieces	**Minimum order:**	2 millions
Other needle options:	Yes	**Incoterms:**	EXW
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2007*		

Comments:	Cartons of 1600 pieces

Current PQS status:	*pre-qualified*	**Prequalification date:**	*16 Jan 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/025**
Description:	Retractable AD syringe 0.5ml
Manufacturer's reference:	Vanishpoint® Retractable AD syringe 0.5ml
Manufactured in:	China; People's Republic of
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	*rticlinical@vanishpoint.com*
Web address:	*http://www.vanishpoint.com/*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	800
AD mechanism:	automatic retraction of needle after extra push	**Volume per carton (m3):**	0.0432 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	4.5 kg
Number of components:	3 pieces	**Minimum order:**	800
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2005*		

Comments:	Retractable syringes are with reuse prevention and sharp injury protection features

Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Jun 2005*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/026**
Description:	AD syringe 0.5ml
Manufacturer's reference:	AD syringe 0.5ml K1
Manufactured in:	Vietnam
Company:	Mediplast Medical Plastic Company
Address:	89 Luong Dinh Cua Rd., Phuong mai Vietnam
Telephone:	+84 4 5760770
Email:	*mediplast@fpt.vn*
Web address:	

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	2400
AD mechanism:	locked/broken plunger	**Volume per carton (m3):**	0.107 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	9.8 kg
Number of components:	3 pieces	**Minimum order:**	2400
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2006*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*14 Jul 2006*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/028**
Description:	AD syringe 0.05ml
Manufacturer's reference:	MEDECO® INJECT AD 0.05 ml BCG
Manufactured in:	United Arab Emirates
Company:	Abu Dhabi National Industrial Projects
Address:	P.O.Box 25905, Abu Dhabi United Arab Emirates
Telephone:	+971-2-5500577
Email:	*osama@adnip.com*
Web address:	*http://www.adnip.com/*

Specifications

Graduations:	0.05ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	26G x 3/8"	**Pieces per carton:**	1300
AD mechanism:	One way valve technology	**Volume per carton (m3):**	0.055 m3
AD location:	Start of injection	**Weight per carton (kg):**	5.7 kg
Number of components:	3 pieces	**Minimum order:**	1300
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*Per unit: 0.068 US$*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 May 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/029**
Description:	AD syringe 0.1ml
Manufacturer's reference:	MEDECO® INJECT AD 0.1 ml BCG
Manufactured in:	United Arab Emirates
Company:	Abu Dhabi National Industrial Projects
Address:	P.O.Box 25905, Abu Dhabi United Arab Emirates
Telephone:	+971-2-5500577
Email:	*osama@adnip.com*
Web address:	*http://www.adnip.com/*

Specifications

Graduations:	0.1ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	26G x 3/8"	**Pieces per carton:**	1300
AD mechanism:	One way valve technology	**Volume per carton (m3):**	0.055 m3
AD location:	Start of injection	**Weight per carton (kg):**	5.7 kg
Number of components:	3 pieces	**Minimum order:**	1300
Other needle options:	Yes	**Incoterms:**	EXW
Primary packaging:	Paper blister pack	**Prices per unit:**	*Per unit: 0.068 US$*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 May 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/030**
Description:	AD syringe 0.05 ml
Manufacturer's reference:	K1 Oneject 0.05 ml
Manufactured in:	Indonesia
Company:	PT Oneject Indonesia
Address:	Sentul Industrial Estate Jl.Olympic Raya Kav B9 Bogor 16810, Indonesia
Telephone:	+62 21 879 17 422
Email:	*marketing@oneject.co.id*
Web address:	*www.oneject.co.id*

Specifications

Graduations:	0.05ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE 0044
Fixed needle size:	26G x 3/8”	**Pieces per carton:**	1600
AD mechanism:	Locked and broken plunger	**Volume per carton (m3):**	0.06 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	6.3 kg
Number of components:	3 pieces	**Minimum order:**	16,000
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2007*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*21 May 2007*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/032**
Description:	AD syringe 0.1ml
Manufacturer's reference:	Auto-disable syringe 0.1ml YUSHOU
Manufactured in:	China; People's Republic of
Company:	Wuxi Yushou Medical Appliances Co., Ltd
Address:	No.215 Xigang Road, Dongbeitang town, Wuxi city Jiangsu Province
Telephone:	+86 (510)3777555
Email:	*mike@chinasyringe.com*
Web address:	

Specifications

Graduations:	0.1ml	**Quality standard:**	ISO 13485
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	27G x 10mm	**Pieces per carton:**	3000
AD mechanism:	locking clip, locked trapped piston	**Volume per carton (m3):**	0.088 m3
AD location:	Start of injection	**Weight per carton (kg):**	11 kg
Number of components:	3 pieces	**Minimum order:**	3000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*05 Jan 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/033**
Description:	AD syringe 0.05ml
Manufacturer's reference:	Auto-disable syringe 0.05ml Yushou®
Manufactured in:	China; People's Republic of
Company:	Wuxi Yushou Medical Appliances Co., Ltd
Address:	No.215 Xigang Road, Dongbeitang town, Wuxi city Jiangsu Province
Telephone:	+86 (510)3777555
Email:	*mike@chinasyringe.com*
Web address:	

Specifications

Graduations:	0.05ml	**Quality standard:**	ISO 13485
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	27 G x 10 mm.	**Pieces per carton:**	3000
AD mechanism:	locking clip, locked trapped piston	**Volume per carton (m3):**	0.088 m3
AD location:	Start of injection	**Weight per carton (kg):**	11 kg
Number of components:	3 pieces	**Minimum order:**	3000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*05 Jan 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/034**
Description:	AD syringe 0.5 ml
Manufacturer's reference:	AD syringe 0.5 ml SKIFA
Manufactured in:	Indonesia
Company:	Mitra Rajawali Banjaran, PT
Address:	JL. Raya Banjaran KM16 Bandung, Jawa Barat Indonesia
Telephone:	+62 22 594 0151
Email:	*rd1.mrb@gmail.com*
Web address:	*http://www.mrb.co.id*

Specifications

Graduations:	0.5ml	**Quality standard:**	ISO 13485
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23 G x 25 mm.	**Pieces per carton:**	2000
AD mechanism:	locked middle injection -broken plunger	**Volume per carton (m3):**	0.071 m3
AD location:	Middle of injection	**Weight per carton (kg):**	9.64 kg
Number of components:	3 pieces	**Minimum order:**	10 000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Plastic ribbon	**Prices per unit:**	*On request*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*14 Jan 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/035**
Description:	AD syringe 0.5ml
Manufacturer's reference:	Auto-disable syringe 0.5ml BD SoloShot™ Mini
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	*michael_garrison@bd.com*
Web address:	*http://www.bd.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25 mm	**Pieces per carton:**	3300
AD mechanism:	locking clip; locked trapped piston	**Volume per carton (m3):**	0.103 m3
AD location:	Start of injection	**Weight per carton (kg):**	10.3 kg
Number of components:	2 pieces	**Minimum order:**	3300
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2009*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Apr 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/036**
Description:	AD syringe 0.1ml
Manufacturer's reference:	AD syringe 0.1ml BD SoloShot™ Mini
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	*michael_garrison@bd.com*
Web address:	*http://www.bd.com*

Specifications

Graduations:	0.1ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	27G x 10 mm	**Pieces per carton:**	3300
AD mechanism:	locking clip; locked trapped piston	**Volume per carton (m3):**	0.103 m3
AD location:	Start of injection	**Weight per carton (kg):**	10.2 kg
Number of components:	2 pieces	**Minimum order:**	3300
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2009*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Apr 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/037**
Description:	AD syringe 0.05ml
Manufacturer's reference:	AD syringe 0.05ml BD SoloShot™ Mini
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	*michael_garrison@bd.com*
Web address:	*http://www.bd.com*

Specifications

Graduations:	0.05ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	27G x 10 mm	**Pieces per carton:**	3300
AD mechanism:	locking clip; locked trapped piston	**Volume per carton (m3):**	0.103 m3
AD location:	Start of injection	**Weight per carton (kg):**	10.2 kg
Number of components:	2 pieces	**Minimum order:**	3300
Other needle options:	Yes	**Incoterms:**	FOB
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2009*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Apr 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/038**
Description:	ADsyringe 0.5ml
Manufacturer's reference:	AD syringe 0.5ml MedExel-M1
Manufactured in:	Korea; Republic of (South Korea)
Company:	MedExel Manufacturing Co.,Ltd
Address:	536-65, 70 Geumgwang-Ri, Gemkwang-Myeon Ansung-Si, Gyeonggi-Do Republic of South Korea
Telephone:	+82 31 677 8004
Email:	*choi681109@naver.com*
Web address:	*http://www.medexel.co.kr*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23 G x 25 mm	**Pieces per carton:**	1600
AD mechanism:	Locked/trapped piston	**Volume per carton (m3):**	0.048 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	9.48 kg
Number of components:	3 pieces	**Minimum order:**	100 000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2008*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Apr 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/039**
Description:	AD syringe 0.5 ml
Manufacturer's reference:	KOJAK SELINGE 0.5ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	*hmduk@hmdhealthcare.com*
Web address:	*www.hmdhealthcare.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25 mm	**Pieces per carton:**	2000
AD mechanism:	locked / broken plunger	**Volume per carton (m3):**	0.09 m3
AD location:	Start of injection	**Weight per carton (kg):**	14.5 kg
Number of components:	3 pieces	**Minimum order:**	20,000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Blister or Ribbon pack	**Prices per unit:**	*Over 1 million: 0.06 USD; Over 5 millions: 0.0575 USD*
Year base price:	*2011*		Over 10 millions: 0.055 USD
			Over 50 millions: 0.0525 USD

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*15 Apr 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/040**
Description:	AD Syringe 0.5ml
Manufacturer's reference:	AD Syringe 0.5ml
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	*qualitycontrol@rhcare-epz.com*
Web address:	*www.revitalhealthcare.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE 1023
Fixed needle size:	23 G x 25 mm.	**Pieces per carton:**	4000
AD mechanism:	Plunger Disable	**Volume per carton (m3):**	
AD location:	upon completion of injection	**Weight per carton (kg):**	6 kg
Number of components:	2 pieces	**Minimum order:**	860 000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*Per unit: 0.06 €*
Year base price:	*2008*		

Comments:	Shipper cartons of 8600 boxes of 100 pieces

Current PQS status:	*pre-qualified*	**Prequalification date:**	*08 Oct 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/041**
Description:	AD syringe 0.5ml
Manufacturer's reference:	AD syringe 0.5ml
Manufactured in:	China; People's Republic of
Company:	Anhui Tiankang Medical Products Co., Ltd
Address:	20, South Renhe Road, Tianchang City, Anhui Province China; People's Republic of
Telephone:	+86 550 7022258
Email:	*marshall988@163.net*
Web address:	*http://www.tkmedical.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	25 G x 20 mm	**Pieces per carton:**	7680
AD mechanism:	Clip blocking plunger	**Volume per carton (m3):**	Container 28 m3
AD location:	Start of injection	**Weight per carton (kg):**	Container 3840 kg
Number of components:	3 pieces	**Minimum order:**	768 000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*Up to 768 000 units: 0.0405 €*
Year base price:	*2008*		Up to 1 590 000 units: 0.0378 €

Comments:	Cartons of 7680 boxes of 100 pieces

Current PQS status:	*pre-qualified*	**Prequalification date:**	*12 Nov 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/042**
Description:	AD syringe 0.5ml
Manufacturer's reference:	Destroject 0.5ml AD 1000
Manufactured in:	Pakistan
Company:	Destroject GmbH Medical Devices
Address:	Destroject GmbH Medical Devices Havelstrasse 1-3 24539 Neumünster Germany
Telephone:	+49 4321 840000
Email:	*Info@destroject.com*
Web address:	*http://www.destroject.de/*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark GB09/77875
Fixed needle size:	23G x 25mm	**Pieces per carton:**	2000
AD mechanism:	Plunger locking	**Volume per carton (m3):**	0.097 m3
AD location:	Start of injection	**Weight per carton (kg):**	12.5 kg
Number of components:	3 pieces	**Minimum order:**	32 000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2009*		

Comments:	Manufactured and distributed in Pakistan by Amsom Vaccines and Pharma ltd. 113, Industrial Triangle, Kahuta Road, Islamabad - Email: amsonhealthcare@yahoo.com

Current PQS status:	*pre-qualified*	**Prequalification date:**	*09 Mar 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/043**
Description:	AD syringe 0.5ml
Manufacturer's reference:	AD syringe 0.5ml
Manufactured in:	China; People's Republic of
Company:	Jiangxi Sanxin Medtec Co.,Ltd
Address:	999 Fushan Road, Xiaolan Industry Park Nanchang, Jiangxi, P.C. 330200 China; People's Republic of
Telephone:	+86 791 5988111
Email:	*sanxin-med@vip.163.com*
Web address:	*www.sanxin-med.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	25G x 19mm	**Pieces per carton:**	10000
AD mechanism:	Plunger lock	**Volume per carton (m3):**	0.1 m3
AD location:	upon completion of injection	**Weight per carton (kg):**	15 kg
Number of components:	3 pieces	**Minimum order:**	2000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Paper blister pack	**Prices per unit:**	*On request*
Year base price:	*2009*		

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*02 Sep 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/044**
Description:	AD syringe 0.5ml
Manufacturer's reference:	ADject o.5ml
Manufactured in:	China; People's Republic of
Company:	ADJECT Safety Medical Devices Aps
Address:	Mosehojvej 19 DK-2920 Charlottenlund Denmark
Telephone:	+45 6134479
Email:	*mh@ad-ject.com*
Web address:	*www.ad-ject.com*

Specifications

Graduations:	0.5ml	**Quality standard:**	- ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	23G x 25mm	**Pieces per carton:**	3000
AD mechanism:	Trapped piston	**Volume per carton (m3):**	0.113 m3
AD location:	Start of injection	**Weight per carton (kg):**	16 kg
Number of components:	3 pieces	**Minimum order:**	3000
Other needle options:	Yes	**Incoterms:**	
Primary packaging:	Paper blister pack	**Prices per unit:**	*Up to 1 million: 0.0535 USD*
Year base price:	*2011*		1 to 10 millions: 0.052 USD
			10 to 50 millions: 0.05; more price on request

Comments:

Current PQS status:	*pre-qualified*	**Prequalification date:**	*28 Jan 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

NEW Product AS AT 02.02.2011

E008: Auto-disable syringe for fixed dose immunization

PQS code:	**E008/045**
Description:	AD syringe 0.1ml
Manufacturer's reference:	Kojak AD syringe 0.1ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	*hmduk@hmdhealthcare.com*
Web address:	*www.hmdhealthcare.com*

Specifications

Graduations:	0.1ml	**Quality standard:**	- ISO 9001 - ISO 13485 -
Syringe material(s):	Polypropylene	**Markings:**	CE mark
Fixed needle size:	26G x 10 mm	**Pieces per carton:**	2000
AD mechanism:	Locked and broken plunger	**Volume per carton (m3):**	0.071m3 or 0.069m3
AD location:	Start of injection	**Weight per carton (kg):**	8.80kgs
Number of components:	3 pieces	**Minimum order:**	100,000
Other needle options:	Yes	**Incoterms:**	FCA
Primary packaging:	Blister or Ribbon pack	**Prices per unit:**	*On request to manufacturer*
Year base price:	*2011*		

Comments:	Two types of packs with 100 units or 200 units

Current PQS status:	*pre-qualified*	**Prequalification date:**	*10 May 2011*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

NEW Product AS AT 10.05.2011

E009

(not currently used)

WARNING: Steam sterilizers for sterilizing reusable injection equipment were listed in Section E9 of PIS 2000. This type of equipment is no longer recommended for use in immunization programmes.

E010
Waste management equipment

Waste disposal is a key element of any immunization programme. Poorly managed waste arising from immunization sessions exposes heath workers and the community to infection and to injury. The cost of waste disposal must be incorporated into the budget and training plans of all immunization activities.

E010.1 Safety boxes

Puncture-resistant containers for the collection and disposal of used sharps, including disposable and auto-disable syringes, needles and other injection materials, must be provided and used for all immunization activities. These containers reduce the risk posed by contaminated needles and syringes both to health staff and the general population. Containers are available in a range of sizes.

The relevant PQS specification requires safety boxes to have a minimum capacity of 20 syringes per litre. This figure should be used to estimate need. It is good practice to order more boxes than the calculated minimum to take account of inefficiencies such as the premature collection of partly filled containers and the use of containers for purposes other than immunization. WHO recommends over-ordering by 150% to 200%[1].

E010.2 Incinerator boxes

WARNING: Incinerator boxes for on-site burning are no longer recommended by WHO. They have been excluded from the PQS because low temperature

[1] WHO/V&B/02.11. *Guidelines for estimating costs of introducing new vaccines into the national immunization system.*

incineration releases toxic gases and this should be avoided. Controlled combustion above 800°C is needed to prevent this.

E010.3 Needle disablers

These devices are designed to cut the needle from a used syringe and to hold the offcuts in a disposable sharps container. Use of these devices can reduce the risk of needle-stick injury to workers dealing with the waste stream and also increase the effective capacity of safety boxes. Because the needles are removed, it also allows the use of cheaper alternative syringe containers.

WARNING: There are hazards associated with the use of needle disablers and their adoption requires careful evaluation of risks and benefits.

E010.4 Incinerators and autoclaves

Auto-combustion type incinerators, which achieve temperatures in excess of 800°C, are recommended for the final disposal of all contaminated sharps, including syringes and needles used for immunization. This equipment ensures the most complete destruction of used sharps while also causing minimal environmental pollution. Product information on incinerators and autoclaves is available at http://www.healthcarewaste.org which provides reference documents and links and gives guidance on decision-making.

A PQS specification and verification protocol for waste disposal autoclaves is currently under development.

E010 data sheets follow

E010: Waste management products

PQS code:	**E010/001**
Description:	Safety box 5L
Manufacturer's reference:	Polysafe® SB 5L
Manufactured in:	Norway
Company:	Polynor AS
Address:	Brennerigt. 3 P.O. Box 1273 N-2806 Gjøvik Norway
Telephone:	+47 61 13 89 30
Email:	*post@polynor.no*
Web address:	*http://www.polynor.no*

Specifications

Volume (Liter):	5 L	**Syringe hole diameter (mm):**	38 mm
Nominal syringe capacity:	155 units	**Material:**	recycled carton board
Dimensions before assembly (mm):	585 x 275 x 4.3 mm	**Colour:**	White
Dimensions after assembly (mm):	280 x 160 x 125 mm		
Weight empty (g):	280 g		
Minimum order:	25 units	**Pieces per carton:**	25 units
Year base price:	2008	**Volume per carton:**	0.02 m3
Price per unit:	On request	**Weight per carton:**	8 kg
		Incoterms:	FCA
		Quality standard:	ISO 9001
Verification report:	108-21912-1 (April 2008)	**Verification laboratory:**	ForceTechnology
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*10 Jul 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/002**
Description:	Safety box 10L
Manufacturer's reference:	Polysafe® SB 10L
Manufactured in:	Norway
Company:	Polynor AS
Address:	Brennerigt. 3 P.O. Box 1273 N-2806 Gjøvik Norway
Telephone:	+47 61 13 89 30
Email:	*post@polynor.no*
Web address:	*http://www.polynor.no*

Specifications

Volume (Liter):	10 L	**Syringe hole diameter (mm):**	38 mm
Nominal syringe capacity:	306 syringes	**Material:**	Recycled carton board, water resistant
Dimensions before assembly (mm):	603 x 385 x 5.2 mm	**Colour:**	White
Dimensions after assembly (mm):	300 x 250 x 150 mm		
Weight empty (g):	486 g		
Minimum order:	15 units	**Pieces per carton:**	15 units
Year base price:	2008	**Volume per carton:**	0.02 m3
Price per unit:	On request	**Weight per carton:**	8 kg
		Incoterms:	FCA
		Quality standard:	ISO 9001
Verification report:	108-21912-2 (April 2008)	**Verification laboratory:**	ForceTechnology
Comments:	Boxes of 15 units		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*10 Apr 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/003**
Description:	Safety box 15L
Manufacturer's reference:	Polysafe® SB 15L
Manufactured in:	Norway
Company:	Polynor AS
Address:	Brennerigt. 3 P.O. Box 1273 N-2806 Gjøvik Norway
Telephone:	+47 61 13 89 30
Email:	*post@polynor.no*
Web address:	*http://www.polynor.no*

Specifications

Volume (Liter):	15 L	**Syringe hole diameter (mm):**	39 mm
Nominal syringe capacity:	450 units	**Material:**	Recycled carton board, water resistant
Dimensions before assembly (mm):	775 x 445 x 5.7 mm	**Colour:**	White
Dimensions after assembly (mm):	310 x 240 x 210 mm		
Weight empty (g):	680 g		
Minimum order:	10 units	**Pieces per carton:**	10 units per carton
Year base price:	2008	**Volume per carton:**	0.02 m3
Price per unit:	On request	**Weight per carton:**	8.1 kg
		Incoterms:	FCA
		Quality standard:	ISO 9001
Verification report:	108-21912-3 (April 2008)	**Verification laboratory:**	ForceTechnology
Comments:	Boxes of 10 units		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*10 Jul 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/004**
Description:	Safety box 5L
Manufacturer's reference:	Pa-Hu Oy SB 5L
Manufactured in:	Finland
Company:	Pa-Hu Oy
Address:	Teollisuustie 2, FIN-02880 Veikkola, Finland
Telephone:	+358-20 789 1000
Email:	*sales@pa-hu.fi*
Web address:	*http://www.pa-hu.fi*

Specifications

Volume (Liter):	5 L	**Syringe hole diameter (mm):**	38 mm
Nominal syringe capacity:	130 units	**Material:**	solid carton board
Dimensions before assembly (mm):	570 x 250 x 2.53 mm	**Colour:**	Brown
Dimensions after assembly (mm):	280 x 145 x 165 mm		
Weight empty (g):	232 g		
Minimum order:	25 units	**Pieces per carton:**	25 units
Year base price:	2011	**Volume per carton:**	0.019 m3
Price per unit:	1000 - 10,000 units: 0.85 €	**Weight per carton:**	7.0 kg
	1000 - 10000 units: 0.60 €	**Incoterms:**	FCA
	10,000 units and more: 0.5 €	**Quality standard:**	ISO 9001
Verification report:	108-21655-1 (May 2008)	**Verification laboratory:**	ForceTechnology
Comments:	Carton of 25 units		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*05 Dec 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/005**
Description:	Safety box 5L
Manufacturer's reference:	SB TimSafe 5L
Manufactured in:	Sweden
Company:	Smurfit Kappa Lagamill AB
Address:	Box 43, SE-285 21 Markaryd, Sweden
Telephone:	+46 433 181 12
Email:	*solidsales@smurfitkappa.se*
Web address:	*http://www.smurfitkappa-lagamill.com*

Specifications

Volume (Liter):	5 L	**Syringe hole diameter (mm):**	38 mm
Nominal syringe capacity:	130 syringes	**Material:**	Recycled carton board and virgin fiber
Dimensions before assembly (mm):	520 x 260 x 4 mm	**Colour:**	White
Dimensions after assembly (mm):	312 x 154 x 112 mm		
Weight empty (g):	275 g		
Minimum order:	1500	**Pieces per carton:**	25 units per carton
Year base price:	2008	**Volume per carton:**	0.015 m3
Price per unit:	1500 units: 0.89 € per unit 15,000 units and more: 0.75 € per unit	**Weight per carton:**	6.7 kg
		Incoterms:	FCA
		Quality standard:	ISO 9001
Verification report:	107-27177-1 (Nov 2008)	**Verification laboratory:**	ForceTechnology
Comments:	Carton of 25 units		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*12 Dec 2008*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/006**
Description:	Safety box 5L
Manufacturer's reference:	Kojak safety box 5L
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	*hmduk@hmdhealthcare.com*
Web address:	*www.hmdhealthcare.com*

Specifications

Volume (Liter):	5 L	**Syringe hole diameter (mm):**	38 mm
Nominal syringe capacity:	100 units	**Material:**	Yellow duplex kraft board
Dimensions before assembly (mm):	585 x 285 x 4 mm	**Colour:**	Yellow
Dimensions after assembly (mm):	285 x 160 x 125 mm		
Weight empty (g):	275 g		
Minimum order:	25 units	**Pieces per carton:**	25 units
Year base price:	2011	**Volume per carton:**	0.016 m3
Price per unit:	Over 100 units: 1.25 USD; over 1000: 1.00 USD	**Weight per carton:**	8.60 kg
	Over 10 000 units: 0.90 USD	**Incoterms:**	FCA
	Over 100 000 units: 0.85 USD	**Quality standard:**	ISO 9001
Verification report:	108-32733-(20 April 2009)	**Verification laboratory:**	ForceTechnology
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*28 Apr 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/007**
Description:	Safety box 5L
Manufacturer's reference:	Pa-Hu Oy SB squared 5L
Manufactured in:	Finland
Company:	Pa-Hu Oy
Address:	Teollisuustie 2, FIN-02880 Veikkola, Finland
Telephone:	+358-20 789 1000
Email:	*sales@pa-hu.fi*
Web address:	*http://www.pa-hu.fi*

Specifications

Volume (Liter):	5 L	**Syringe hole diameter (mm):**	38 mm
Nominal syringe capacity:	150 units	**Material:**	Solid carton board
Dimensions before assembly (mm):	600 x 144 x 3.98 mm	**Colour:**	Brown
Dimensions after assembly (mm):	315 x 128 x 145 mm		
Weight empty (g):	253 g		
Minimum order:	25 units	**Pieces per carton:**	25 units
Year base price:	2011	**Volume per carton:**	0.021 m3
Price per unit:	Per 1000 units: 1.10 US$	**Weight per carton:**	7.7 kg
	Per 10 000 units: 0.77 US$	**Incoterms:**	FCA
		Quality standard:	ISO 9001
Verification report:	108-33979 (March 2009)	**Verification laboratory:**	ForceTechnology
Comments:			
Current PQS status:	*pre-qualified*	**Prequalification date:**	*26 May 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/008**
Description:	Safety box 2.5L
Manufacturer's reference:	Disposafe 2.5L
Manufactured in:	Indonesia
Company:	Medibest Group, PT
Address:	Plaza Bona Indah, Office #A4-C4 Jalan Karang Tengah Raya Lebak Bulus – Cilandak Jakarta Selatan 12440, Indonesia
Telephone:	+62 21 765 3248
Email:	*monita.kustini@medibestgroup.com*
Web address:	*http://www.medibestgroup.com*

Specifications

Volume (Liter):	2.5 L	**Syringe hole diameter (mm):**	40 mm with fringes
Nominal syringe capacity:	81 syringes	**Material:**	recycled board and virgin fiber
Dimensions before assembly (mm):	551 x 238 x 2.21 mm	**Colour:**	Yellow
Dimensions after assembly (mm):	238 x 127 x 116 mm		
Weight empty (g):	290 g		
Minimum order:	25	**Pieces per carton:**	25 units
Year base price:	2009	**Volume per carton:**	0.024 m3
Price per unit:	On request	**Weight per carton:**	7.5 kg
		Incoterms:	FCA
		Quality standard:	ISO 9001
Verification report:	109-24758-1 (May 2009)	**Verification laboratory:**	ForceTechnology
Comments:	Carton of 25 units; custom made printing on demand		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*24 Jul 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/009**
Description:	Safety box 5L
Manufacturer's reference:	Medibest Disposafe 5L
Manufactured in:	Indonesia
Company:	Medibest Group, PT
Address:	Plaza Bona Indah, Office #A4-C4 Jalan Karang Tengah Raya Lebak Bulus – Cilandak Jakarta Selatan 12440, Indonesia
Telephone:	+62 21 765 3248
Email:	*monita.kustini@medibestgroup.com*
Web address:	*http://www.medibestgroup.com*

Specifications

Volume (Liter):	5 L	**Syringe hole diameter (mm):**	40 mmwith fringes
Nominal syringe capacity:	142 syringes	**Material:**	recycled carton board and virgin fiber
Dimensions before assembly (mm):	660 x 238 x 2.21 mm	**Colour:**	Yellow
Dimensions after assembly (mm):	290 x 158 x 130 mm		
Weight empty (g):	376 g		
Minimum order:	25 units	**Pieces per carton:**	25 units
Year base price:	2009	**Volume per carton:**	0.029 m3
Price per unit:	On request	**Weight per carton:**	9 kg
		Incoterms:	FCA
		Quality standard:	ISO 9001
Verification report:	109-24758.b (June 2009)	**Verification laboratory:**	ForceTechnology
Comments:	Carton of 25 units; custom printing on demand		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*24 Jul 2009*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E010: Waste management products

PQS code:	**E010/010**
Description:	Safety box 5L
Manufacturer's reference:	Sol-Millennium Safety Box 5L
Manufactured in:	China; People's Republic of
Company:	Shanghai Sol-Millennium Medical Products Co. Ltd.
Address:	Suite 702, 18 Dong Fang Road, Shanghai China; People's Republic of
Telephone:	+86-21-68622586-17
Email:	*HeGL@sol-millennium.com*
Web address:	*www.sol-millennium.com*

Specifications

Volume (Liter):	5	**Syringe hole diameter (mm):**	38
Nominal syringe capacity:	150	**Material:**	cardboard
Dimensions before assembly (mm):	600 x 280 x 5.0	**Colour:**	Brown
Dimensions after assembly (mm):	288 x 165 x 130		
Weight empty (g):	270		
Minimum order:	5000	**Pieces per carton:**	25
Year base price:	2010	**Volume per carton:**	0.018 m3
Price per unit:	On request	**Weight per carton:**	8 kg
		Incoterms:	EXW
		Quality standard:	
Verification report:	110-29507 (August 2010)	**Verification laboratory:**	ForceTechnology
Comments:	Carton of 25 units		
Current PQS status:	*pre-qualified*	**Prequalification date:**	*01 Nov 2010*

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E011
Specimen collection equipment

Currently there are no PQS specifications for specimen collection equipment. These will be developed in the near future in collaboration with other partners. Meanwhile, the PIS qualified equipment can still be obtained from UNICEF Supply Division.

E011.1 Stool specimen collection for AFP

The full procedures describing how to collect a stool specimen are explained in WHO/EPI/GEN/95.01 Rev.1. *Field guide for supplementary activities aimed at achieving polio eradication.*

E011.2 Sending specimens via a 'reverse cold chain'

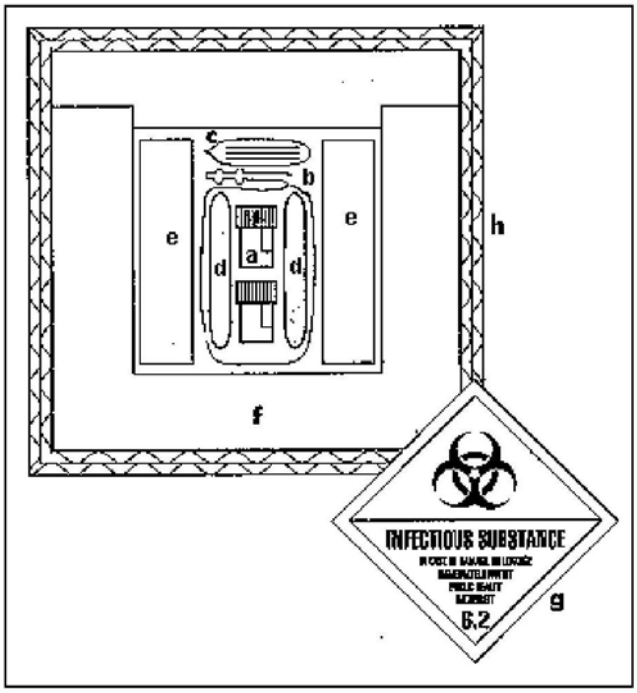
Poliovirus is sensitive to heat: the titre (virus concentration) is maintained at -20°C, but deteriorates when exposed to higher temperatures. The higher the titre, the more easily a laboratory can detect the virus. The possibility of detection therefore depends on the original titre, the duration and degree of post-collection exposure to higher temperatures and the quality of the laboratory. The first two aspects can be influenced in the field by timely collection and correct transport of stool specimens.

After collection, the specimens must be placed immediately in a refrigerator or, for shipment, in a cold box at 0°C to +8°C between frozen ice packs. Aim for the specimens to arrive at the laboratory within 72 hours of collection. If this is not possible, the specimens must be frozen at -20°C and then shipped frozen, preferably with dry ice or with cold packs that have also been frozen at -20°C. Try to limit repeated freezing and thawing to a minimum. This process of keeping the specimen refrigerated or frozen is called a 'reverse cold chain'. If a reverse cold chain is not properly maintained at all times during transport, polioviruses will not survive in the stool specimen.

E011.3 Basic rules for specimen storage and transport

- **Storage at 0°C - 8°C:** 3-4 days between collection and arrival at laboratory. (Check the cold life of the carrier in the product data sheet).
- **Storage at -20°C:** Indefinitely.
- Repeatedly freezing and thawing decreases the titre of the sample.
- Avoid storing samples in refrigerators or cold boxes used for vaccines or medicines.
- If separate storage is unavoidable, seal specimens in 2-3 layers of plastic bags and separate them properly from vaccines.

- Before packing the specimen carrier, disinfect the inside of the carrier with a solution of 1 part bleach to 10 parts water.
- Inform the receiving laboratory in advance.
- If sending by air, investigate procedures in advance.



(a) 30-60 ml faeces container with external screw cap.

(b) Sealed polyethylene bag to hold faeces containers.

(c) Sealed polyethylene bag to hold report form.

(d) Absorbent material (cotton wool absorbs 8-10 times its own weight).

(e) Icepacks obtainable from national EPI.

(f) High-density (30-35 kgs/m3) polystyrene (small bubbles and firm when squeezed).

(g) Infectious substance label.

(h) Outer carton of double-ply corrugated cardboard or plastic.

Source: WHO/V&B/00.13. *Product Information Sheets*

E012

(not currently used)

E013
Therapeutic injection devices

The products listed in this new section include single-use syringes for therapeutic use. All PQS pre-qualified syringes in this category must now comply with ISO 7886-4: 2006 - *Sterile hypodermic syringes for single use - Part 4: Syringes with re-use prevention feature.*

The recommendations on safe disposal of used injection equipment given in the guidance notes to section E010 also apply to this category.

E013 data sheets follow

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/001
Description:	RUP 2 ml
Manufacturer's reference:	Kojak Selinge 2ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	hmduk@hmdhealthcare.com
Web address:	www.hmdhealthcare.com

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 25 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Locked upon completion - plunger break	**Primary packaging:**	Paper or Ribbon pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.09 m3
Minimum order:	18000	**Weight per carton (kg):**	14.5 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	Over 1 million: 0.06 USD; Over 5 millions: 0.0575	Over 10 millions: 0.0550 USD	Over 50 millions: 0.0525 USD
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:	Packs of 100 units		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***24 Mar 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/002
Description:	RUP Retractable 3 ml
Manufacturer's reference:	Vanishpoint® Retractable syringe 3 ml
Manufactured in:	United States
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	0.1 ml	**Needle size:**	23G x 1" (25mm)
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction - plunger disabled	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	600	**Volume per carton (m3):**	0.0432 m3
Minimum order:	600	**Weight per carton (kg):**	5.9 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***15 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/005
Description:	RUP Retractable 1 ml
Manufacturer's reference:	Vanishpoint® Retractable 1 ml Tuberculin
Manufactured in:	United States
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	0.01 ml	**Needle size:**	27 g x 12.7 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction - plunger disabled	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.0432 m3
Minimum order:	800	**Weight per carton (kg):**	4.59 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	on request		
Quality standard:	- ISO 13485 -		
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***16 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/006
Description:	RUP retractable 1ml Tuberculin
Manufacturer's reference:	Vanishpoint® Retractable 1 ml Tuberculin
Manufactured in:	China; People's Republic of
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	0.01 ml	**Needle size:**	27G x 12.7 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction into barrel	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	800	**Volume per carton (m3):**	0.0432 m3
Minimum order:	800	**Weight per carton (kg):**	4.5 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	- ISO 13485 -		
Comments:	Needle retraction is considered as reuse prevention and sharp injury protection features		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***15 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/007
Description:	RUP Retractable 10ml
Manufacturer's reference:	Vanishpoint® Retractable 10ml
Manufactured in:	China; People's Republic of
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	0.2	**Needle size:**	21Gx1.5" (38mm)
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Retraction of needle into barrel triggered by spring	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.068 m3
Minimum order:	600	**Weight per carton (kg):**	9.7 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	- ISO 13485 -		
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***15 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/008
Description:	RUP Retractable 5ml
Manufacturer's reference:	Vanishpoint® Retractable 5ml
Manufactured in:	China; People's Republic of
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	0.2 ml	**Needle size:**	21Gx1.5" (38mm)
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Retraction of needle into barrel by spring	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.045 m3
Minimum order:	600	**Weight per carton (kg):**	8.2 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***16 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/009
Description:	RUP retractable 3ml
Manufacturer's reference:	Vanishpoint® Retractable 3ml
Manufactured in:	China; People's Republic of
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	0.1 ml	**Needle size:**	23Gx1" (25mm)
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction into barrel by spring	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.0432 m3
Minimum order:	600	**Weight per carton (kg):**	5.9 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***16 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/010
Description:	RUP 5ml
Manufacturer's reference:	BD SolomedTM 5ml (2 pieces)
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 1.5"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger rod blocked and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.103 m3
Minimum order:	1800	**Weight per carton (kg):**	12.28 kg
Year base price:	2005	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		

Quality standard:	- ISO 9001 - ISO 13485 -
Comments:	

Current PQS status:	***pre-qualified***	**Prequalification date:**	***25 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/011
Description:	RUP 2ml
Manufacturer's reference:	BD SolomedTM 2ml (2 pieces)
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.1ml	**Needle size:**	25G x 5/8"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger blocked and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.103 m3
Minimum order:	3000	**Weight per carton (kg):**	13.61 kg
Year base price:	2005	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***25 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/012
Description:	RUP 10ml
Manufacturer's reference:	BD SolomedTM 10ml 2 pieces
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.5ml	**Needle size:**	23G x 1 174"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger blocked and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.103 m3
Minimum order:	1200	**Weight per carton (kg):**	12.40 kg
Year base price:	2005	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***25 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/013
Description:	RUP 20ml
Manufacturer's reference:	BD SolomedTM 20ml 2 pieces
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.5ml	**Needle size:**	23G x 1 1/4"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger blocked and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.103 m3
Minimum order:	960	**Weight per carton (kg):**	14.1 kg
Year base price:	2005	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***25 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/014
Description:	RUP retractable 1 ml Insulin
Manufacturer's reference:	Vanishpoint® Retractable 1 ml Insulin
Manufactured in:	United States
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	unit dose	**Needle size:**	29G x 12.7 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction - plunger disabled	**Primary packaging:**	Paper blister pack
RUP location:		**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	800	**Volume per carton (m3):**	0.0432 m3
Minimum order:	800	**Weight per carton (kg):**	4.5 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***15 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/015
Description:	RUP retractable 1ml Insulin
Manufacturer's reference:	Vanishpoint® Retractable 1ml insulin
Manufactured in:	China; People's Republic of
Company:	Retractable Technologies, Inc.
Address:	511 Lobo Lane, Little Elm, TX 75068
Telephone:	+1 972 294 1010
Email:	rticlinical@vanishpoint.com
Web address:	http://www.vanishpoint.com/

Specifications

Graduations:	1 unit	**Needle size:**	29G x 12.7 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.0432 m3
Minimum order:	800	**Weight per carton (kg):**	4.5 kg
Year base price:	2005	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***15 Jun 2005***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/018
Description:	RUP 5ml
Manufacturer's reference:	Kojak Selinge 5ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	hmduk@hmdhealthcare.com
Web address:	www.hmdhealthcare.com

Specifications

Graduations:	0.5ml	**Needle size:**	21G x 38 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Plunger locked	**Primary packaging:**	Paper or Ribbon pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1200	**Volume per carton (m3):**	0.12 m3
Minimum order:	16800	**Weight per carton (kg):**	16 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Over 1 million: 0.065USD; Over 5 millions: 0.0625	Over 10 millions: 0.06 USD	Over 50 millions: 0.0575 USD
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:	Packs of 100 units		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***24 Feb 2008***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/019
Description:	RUP 3ml
Manufacturer's reference:	Oneject K1 3ml
Manufactured in:	Indonesia
Company:	PT Oneject Indonesia
Address:	Sentul Industrial Estate Jl.Olympic Raya Kav B9 Bogor 16810, Indonesia
Telephone:	+62 21 879 17 422
Email:	marketing@oneject.co.id
Web address:	www.oneject.co.id

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 1 1/4"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Locked & broken plunger	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.11 m3
Minimum order:	18000	**Weight per carton (kg):**	13.6 kg
Year base price:	2010	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***07 May 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/020
Description:	RUP 10 ml
Manufacturer's reference:	Kojak Selinge 10 ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	hmduk@hmdhealthcare.com
Web address:	www.hmdhealthcare.com

Specifications

Graduations:	1ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Lock/broken plunger	**Primary packaging:**	Paper or Ribbon pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1000	**Volume per carton (m3):**	0.11 m3
Minimum order:	10000	**Weight per carton (kg):**	17.5 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	Over 1 million: 0.038 USD; Over 5 millions: 0.0365	Over 10 millions: 0.035 USD	Over 50 millions: 0.0335 USD
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:	Packs of 50 units		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***08 Mar 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/021
Description:	RUP 3 ml
Manufacturer's reference:	BD Solomed TM 3 piece 3 ml
Manufactured in:	Brazil
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Broken plunger when pushed after completion of injection	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.0622 m3
Minimum order:	800	**Weight per carton (kg):**	8.8 kg
Year base price:	2007	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***24 Apr 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/022
Description:	RUP 5ml
Manufacturer's reference:	BD SolomedTM 3 piece 5ml
Manufactured in:	Brazil
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.2ml	**Needle size:**	23G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and broken	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.0712 m3
Minimum order:	800	**Weight per carton (kg):**	10.2 kg
Year base price:	2007	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***24 Apr 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/023
Description:	RUP 1ml
Manufacturer's reference:	Oneject K1 1ml
Manufactured in:	Indonesia
Company:	PT Oneject Indonesia
Address:	Sentul Industrial Estate Jl.Olympic Raya Kav B9 Bogor 16810, Indonesia
Telephone:	+62 21 879 17 422
Email:	marketing@oneject.co.id
Web address:	www.oneject.co.id

Specifications

Graduations:	1 ml	**Needle size:**	23G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Locked & broken plunger	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.11 m3
Minimum order:	18000	**Weight per carton (kg):**	13.6 kg
Year base price:	2010	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***07 May 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/024
Description:	RUP 5ml
Manufacturer's reference:	Oneject K1 5ml
Manufactured in:	Indonesia
Company:	PT Oneject Indonesia
Address:	Sentul Industrial Estate Jl.Olympic Raya Kav B9 Bogor 16810, Indonesia
Telephone:	+62 21 879 17 422
Email:	marketing@oneject.co.id
Web address:	www.oneject.co.id

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger locked and broken	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1200	**Volume per carton (m3):**	0.09m3
Minimum order:	12000	**Weight per carton (kg):**	11.1 kg
Year base price:	2008	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***21 May 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/027
Description:	RUP 1 ml
Manufacturer's reference:	SoloShotTM IX 1ml syringe
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	1 ml	**Needle size:**	22G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Plunger locking clip	**Primary packaging:**	Paper blister pack
RUP location:	At start of injection	**CE mark:**	Yes
RUP type:	Type I A		
Pieces per carton:	200	**Volume per carton (m3):**	0.102 m3
Minimum order:	2400	**Weight per carton (kg):**	11.49 kg
Year base price:	2010	**Incoterms:**	FCA
Price per unit:	On request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***28 May 2007***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/029
Description:	RUP 3ml
Manufacturer's reference:	Yushou 3ml
Manufactured in:	China; People's Republic of
Company:	Wuxi Yushou Medical Appliances Co., Ltd
Address:	No.215 Xigang Road, Dongbeitang town, Wuxi city Jiangsu Province
Telephone:	+86 (510)3777555
Email:	mike@chinasyringe.com
Web address:	

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 1 1/4"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock with clip	**Primary packaging:**	Paper blister pack
RUP location:	At start of injection	**CE mark:**	Yes
RUP type:	Type I A		
Pieces per carton:	200	**Volume per carton (m3):**	??
Minimum order:	1800	**Weight per carton (kg):**	13 kg
Year base price:	2007	**Incoterms:**	FOB
Price per unit:	On request to manufacturer		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***27 May 2008***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/031
Description:	RUP 2ml
Manufacturer's reference:	Neoject 2ml
Manufactured in:	China; People's Republic of
Company:	Neomedic Limited
Address:	112-114 Hallowell Road, Northwood, Middlesex, HA6 1DU, United Kingdom
Telephone:	+44 1923 836379
Email:	marketing@neomedic.co.uk
Web address:	http://www.neomedic.co.uk/

Specifications

Graduations:	0.1 ml	**Needle size:**	20G x 25 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	plunger locked into syringe hub, plunger break	**Primary packaging:**	Paper blister pack
RUP location:		**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.088 m3
Minimum order:	100000	**Weight per carton (kg):**	14.7 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Up to 10 millions: 0.0428 US$		
Quality standard:	- ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***20 Apr 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/032
Description:	RUP 5 ml
Manufacturer's reference:	Neoject 5ml
Manufactured in:	China; People's Republic of
Company:	Neomedic Limited
Address:	112-114 Hallowell Road, Northwood, Middlesex, HA6 1DU, United Kingdom
Telephone:	+44 1923 836379
Email:	marketing@neomedic.co.uk
Web address:	http://www.neomedic.co.uk/

Specifications

Graduations:	0.1ml	**Needle size:**	27G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger locked and broken	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1200	**Volume per carton (m3):**	0.081 m3
Minimum order:	100000	**Weight per carton (kg):**	13.53 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Up to 10 millions: 0.0452 US$		

Quality standard:	- ISO 13485 -
Comments:	

Current PQS status:	***pre-qualified***	**Prequalification date:**	***20 Apr 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/033
Description:	RUP 10 ml
Manufacturer's reference:	Neoject 10 ml
Manufactured in:	China; People's Republic of
Company:	Neomedic Limited
Address:	112-114 Hallowell Road, Northwood, Middlesex, HA6 1DU, United Kingdom
Telephone:	+44 1923 836379
Email:	marketing@neomedic.co.uk
Web address:	http://www.neomedic.co.uk/

Specifications

Graduations:	0.2 ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger locked and broken	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1200	**Volume per carton (m3):**	0.118 m3
Minimum order:	100000	**Weight per carton (kg):**	19.7 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Up to 10 millions: 0.0616 USD per unit		
Quality standard:	- ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***20 Apr 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/034
Description:	RUP 2ml
Manufacturer's reference:	Tie Shan Lan 2ml
Manufactured in:	China; People's Republic of
Company:	Puning Haiou Medical Appliance Co., Ltd
Address:	Mazha Industrial Area□Liusha□ Puning, Guangdong,
Telephone:	+86-663-3883960
Email:	haiou-luo@hotmail.com
Web address:	http://www.haiou.net.cn

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger locked and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2400	**Volume per carton (m3):**	0.118 m3
Minimum order:	2400	**Weight per carton (kg):**	15.5 kg
Year base price:	2008	**Incoterms:**	FOB
Price per unit:	On request		
Quality standard:	- ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***30 Apr 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/035
Description:	RUP 5ml
Manufacturer's reference:	Tie Shan Lan 5ml
Manufactured in:	China; People's Republic of
Company:	Puning Haiou Medical Appliance Co., Ltd
Address:	Mazha Industrial Area□Liusha□ Puning, Guangdong,
Telephone:	+86-663-3883960
Email:	haiou-luo@hotmail.com
Web address:	http://www.haiou.net.cn

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 40mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock & break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.116 m3
Minimum order:	1800	**Weight per carton (kg):**	16 kg
Year base price:	2008	**Incoterms:**	FOB
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	

Current PQS status:	***pre-qualified***	**Prequalification date:**	***30 Apr 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/036
Description:	RUP 10ml
Manufacturer's reference:	Tie Shan Lan 10ml
Manufactured in:	China; People's Republic of
Company:	Puning Haiou Medical Appliance Co., Ltd
Address:	Mazha Industrial Area□Liusha□ Puning, Guangdong,
Telephone:	+86-663-3883960
Email:	haiou-luo@hotmail.com
Web address:	http://www.haiou.net.cn

Specifications

Graduations:	1ml	**Needle size:**	21G x 40mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger locked & break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1200	**Volume per carton (m3):**	0.11 m3
Minimum order:	1200	**Weight per carton (kg):**	15.5 kg
Year base price:	2008	**Incoterms:**	FOB
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	

Current PQS status:	***pre-qualified***	**Prequalification date:**	***30 Apr 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/037
Description:	RUP 3ml
Manufacturer's reference:	RG-Non resusable syringe 3ml
Manufactured in:	China; People's Republic of
Company:	RoyalGroup
Address:	ONB-E/2, Mehar Sons Estate, Talpur Road, Karachi-74000, Pakistan
Telephone:	+92-21-32400270 Ext. 234; +92-21-32470301
Email:	asif.raza@royalgroupweb.com
Web address:	http://www.royalgroupweb.com

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.123 m3
Minimum order:	100000	**Weight per carton (kg):**	17 kg
Year base price:	2009	**Incoterms:**	EXW
Price per unit:	On request		

Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***21 May 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/038
Description:	RUP 5ml
Manufacturer's reference:	RG Non reusable 5ml
Manufactured in:	China; People's Republic of
Company:	RoyalGroup
Address:	ONB-E/2, Mehar Sons Estate, Talpur Road, Karachi-74000, Pakistan
Telephone:	+92-21-32400270 Ext. 234; +92-21-32470301
Email:	asif.raza@royalgroupweb.com
Web address:	http://www.royalgroupweb.com

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger block and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.0135 m3
Minimum order:	100000	**Weight per carton (kg):**	22 kg
Year base price:	2009	**Incoterms:**	EXW
Price per unit:	On request		

Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***21 May 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/039
Description:	RUP 20ml
Manufacturer's reference:	Kojak Selinge 20ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	hmduk@hmdhealthcare.com
Web address:	www.hmdhealthcare.com

Specifications

Graduations:	1ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and break	**Primary packaging:**	Paper or Ribbon pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	400	**Volume per carton (m3):**	0.103 m3
Minimum order:	4000	**Weight per carton (kg):**	13 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	Over 1 millions: 0.0350 USD	Over 5 millions: 0.0325 USD	Over 10 millions: 0.0300 USD
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:	Packs of 25 units		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***18 Jun 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/040
Description:	RUP 5ml
Manufacturer's reference:	Revital 5ml
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	qualitycontrol@rhcare-epz.com
Web address:	www.revitalhealthcare.com

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger (gasket) lock	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	500000	**Volume per carton (m3):**	
Minimum order:	500000	**Weight per carton (kg):**	21.5 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	0.05 US$		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***02 Sep 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/041
Description:	RUP 1ml
Manufacturer's reference:	Yushou Syringe 1ml
Manufactured in:	China; People's Republic of
Company:	Wuxi Yushou Medical Appliances Co., Ltd
Address:	No.215 Xigang Road, Dongbeitang town, Wuxi city Jiangsu Province
Telephone:	+86 (510)3777555
Email:	mike@chinasyringe.com
Web address:	

Specifications

Graduations:	0.05ml	**Needle size:**	25G x 20mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Plunger lock with metallic clip	**Primary packaging:**	Paper blister pack
RUP location:	At start of injection	**CE mark:**	Yes
RUP type:	Type I A		
Pieces per carton:	200	**Volume per carton (m3):**	0.094 m3
Minimum order:	30000	**Weight per carton (kg):**	11 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***15 Sep 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/042
Description:	RUP 2ml
Manufacturer's reference:	Revital syringe 2ml
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	qualitycontrol@rhcare-epz.com
Web address:	www.revitalhealthcare.com

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger block and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.130 m3
Minimum order:	3500	**Weight per carton (kg):**	19.5 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Per unit: 0.027 US$		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***08 Jan 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/043
Description:	RUP 5ml
Manufacturer's reference:	Revital syringe 5ml
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	qualitycontrol@rhcare-epz.com
Web address:	www.revitalhealthcare.com

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 1 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	100	**Volume per carton (m3):**	0.128 m3
Minimum order:	2500	**Weight per carton (kg):**	17.6 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Per unit: 0.0295 US$		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***08 Jan 2009***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/044
Description:	RUP retractable 1ml Tuberculin
Manufacturer's reference:	Safegard Retractable safety syringe 1ml Tuberculin
Manufactured in:	Hungary
Company:	Safegard Medical (Hungary) Kft
Address:	Lars Tillfors Consulting Sous les Vignes 2 1195 Dully
Telephone:	+41 218242113
Email:	larstillfors@hotmail.com
Web address:	www.safegardmedical.com

Specifications

Graduations:	0.01ml	**Needle size:**	27G x 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.056 m3
Minimum order:	1000	**Weight per carton (kg):**	5.4 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	Over 100,000 units: 0.098 US$	Over 1 million: 0.092	Over 10 millions: 0.082 US$
Quality standard:	- ISO 13485 -		
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***22 Feb 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/045
Description:	RUP retractable 3ml
Manufacturer's reference:	Safegard Retractable Safety syringe 3ml
Manufactured in:	Hungary
Company:	Safegard Medical (Hungary) Kft
Address:	Lars Tillfors Consulting Sous les Vignes 2 1195 Dully
Telephone:	+41 218242113
Email:	larstillfors@hotmail.com
Web address:	www.safegardmedical.com

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 1/2"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.07 m3
Minimum order:	1000	**Weight per carton (kg):**	7.3 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	Over 100,000 units: 0.098 US$	Over 1 million: 0.092 US$	Over 10 millions: 0.082 US$
Quality standard:	- ISO 13485 -		
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***22 Feb 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/046
Description:	RUP retractable 5ml
Manufacturer's reference:	Safegard Retractable Safety Syringe 5ml
Manufactured in:	Hungary
Company:	Safegard Medical (Hungary) Kft
Address:	Lars Tillfors Consulting Sous les Vignes 2 1195 Dully
Telephone:	+41 218242113
Email:	larstillfors@hotmail.com
Web address:	www.safegardmedical.com

Specifications

Graduations:	0.2 ml	**Needle size:**	21G x 1 1/4"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Needle retraction into barrel	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type II B		
Pieces per carton:	100	**Volume per carton (m3):**	0.12 m3
Minimum order:	1000	**Weight per carton (kg):**	9.68 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	Over 100,000 units: 0.098 US$	Over 1 million: 0.092 US$	Over 10 millions: 0.082 US$
Quality standard:	- ISO 13485 -		
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)		
Current PQS status:	***pre-qualified***	**Prequalification date:**	***22 Feb 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/047
Description:	RUP Retractable 3ml
Manufacturer's reference:	Sol-JectTM 3ml
Manufactured in:	China; People's Republic of
Company:	Shanghai Sol-Millennium Medical Products Co. Ltd.
Address:	Suite 702, 18 Dong Fang Road, Shanghai China; People's Republic of
Telephone:	+86-21-68622586-17
Email:	HeGL@sol-millennium.com
Web address:	www.sol-millennium.com

Specifications

Graduations:	0.1ml	**Needle size:**	25G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock in hub, needle retraction and plunger break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.139 m3
Minimum order:	9000	**Weight per carton (kg):**	15.5 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***19 Mar 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/048
Description:	RUP retractable 5ml
Manufacturer's reference:	Sol-JectTM retractable 5ml
Manufactured in:	China; People's Republic of
Company:	Shanghai Sol-Millennium Medical Products Co. Ltd.
Address:	Suite 702, 18 Dong Fang Road, Shanghai China; People's Republic of
Telephone:	+86-21-68622586-17
Email:	HeGL@sol-millennium.com
Web address:	www.sol-millennium.com

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 38mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock in hub, needle retraction and plunger break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1200	**Volume per carton (m3):**	0.136 m3
Minimum order:	6000	**Weight per carton (kg):**	14 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	The retraction of the needle is considered as a reuse prevention feature (RUP) and a Sharp Injury Protection (SIP)

Current PQS status:	***pre-qualified***	**Prequalification date:**	***19 Mar 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/049
Description:	RUP 3ml
Manufacturer's reference:	Sol-JectTM 3ml
Manufactured in:	China; People's Republic of
Company:	Shanghai Sol-Millennium Medical Products Co. Ltd.
Address:	Suite 702, 18 Dong Fang Road, Shanghai China; People's Republic of
Telephone:	+86-21-68622586-17
Email:	HeGL@sol-millennium.com
Web address:	www.sol-millennium.com

Specifications

Graduations:	0.1ml	**Needle size:**	25G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.11 m3
Minimum order:	10000	**Weight per carton (kg):**	15.5 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	- ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***22 Apr 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/050
Description:	RUP 5ml
Manufacturer's reference:	Sol-JectTM 5ml
Manufactured in:	China; People's Republic of
Company:	Shanghai Sol-Millennium Medical Products Co. Ltd.
Address:	Suite 702, 18 Dong Fang Road, Shanghai China; People's Republic of
Telephone:	+86-21-68622586-17
Email:	HeGL@sol-millennium.com
Web address:	www.sol-millennium.com

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 38mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1600	**Volume per carton (m3):**	0.11 m3
Minimum order:	9000	**Weight per carton (kg):**	14 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***22 Apr 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/051
Description:	RUP 2ml
Manufacturer's reference:	Revital 2ml (2 piece)
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	qualitycontrol@rhcare-epz.com
Web address:	www.revitalhealthcare.com

Specifications

Graduations:	0.1ml	**Needle size:**	23G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger lock and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	3500	**Volume per carton (m3):**	0.130 m3
Minimum order:	3500	**Weight per carton (kg):**	17.5 kg
Year base price:	2008	**Incoterms:**	FCA
Price per unit:	Up to 5 millions: 0.028 US$	Up to 10 millions: 0.0275 US$	
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***26 Apr 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/053
Description:	RUP 2ml
Manufacturer's reference:	Hongda syringe 2ml
Manufactured in:	China; People's Republic of
Company:	Jiangxi Hongda Medical Equipment Group Ltd
Address:	39 South Shengi Road Jinxian county, Nanchang City Jiangxi province China; People's Republic of
Telephone:	+86 791 5628828
Email:	april.sfwang@gmail.com
Web address:	http://www.jxhd.cn

Specifications

Graduations:	0.1ml	**Needle size:**	21G x 38mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger block and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1500	**Volume per carton (m3):**	0.106 m3
Minimum order:	525000	**Weight per carton (kg):**	17 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***09 Jun 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/054
Description:	RUP 5ml
Manufacturer's reference:	Hongda syringe 5ml
Manufactured in:	China; People's Republic of
Company:	Jiangxi Hongda Medical Equipment Group Ltd
Address:	39 South Shengi Road Jinxian county, Nanchang City Jiangxi province China; People's Republic of
Telephone:	+86 791 5628828
Email:	april.sfwang@gmail.com
Web address:	http://www.jxhd.cn

Specifications

Graduations:	0.2ml	**Needle size:**	21G x 38mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Plunger block and break	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1500	**Volume per carton (m3):**	0.124 m3
Minimum order:	525000	**Weight per carton (kg):**	19 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***09 Jun 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/055
Description:	RUP 5ml
Manufacturer's reference:	Shifeng RUP syringe 5ml
Manufactured in:	China; People's Republic of
Company:	Chengdu Xinjin Shifeng Medical Apparatus Co, Ltd
Address:	Chengdu Xinjin Shifeng Medical Apparatus & Instruments Co, Ltd C-6, B Glorai Regent Garden #44 4th section South Renmin road Chengdu Sichuan China; People's Republic of
Telephone:	+86 2885170675
Email:	shifengjsb@xjshifeng.com
Web address:	www.xjshifeng,com

Specifications

Graduations:	0.2ml	**Needle size:**	23G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Locked broken plunger	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1600	**Volume per carton (m3):**	0.122 m3
Minimum order:	1600	**Weight per carton (kg):**	17 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***30 Aug 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/056
Description:	RUP 1ml fixed dose
Manufacturer's reference:	Kojak Selinge 1 ml
Manufactured in:	India
Company:	Hindustan Syringes & Medical Devices Ltd.
Address:	174, Sector - 25, Ballabgarh - 121 004 (Haryana) India
Telephone:	+91 129-4061151/58
Email:	hmduk@hmdhealthcare.com
Web address:	www.hmdhealthcare.com

Specifications

Graduations:	1 ml	**Needle size:**	24G x 25mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Plunger blocked	**Primary packaging:**	Paper or Ribbon pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I A		
Pieces per carton:	2000	**Volume per carton (m3):**	0.1 m3
Minimum order:	20000	**Weight per carton (kg):**	14.5 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 9001 - ISO 13485 -
Comments:	Packs of 100 units
Current PQS status:	***pre-qualified*** **Prequalification date:** ***16 Sep 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/057
Description:	RUP 1 ml Sanxin
Manufacturer's reference:	Sanxin 1 ml
Manufactured in:	China; People's Republic of
Company:	Jiangxi Sanxin Medtec Co.,Ltd
Address:	999 Fushan Road, Xiaolan Industry Park Nanchang, Jiangxi, P.C. 330200 China; People's Republic of
Telephone:	+86 791 5988111
Email:	sanxin-med@vip.163.com
Web address:	www.sanxin-med.com

Specifications

Graduations:	1 ml	**Needle size:**	25G x 16 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Fixed
RUP mechanism:	Plunger locked	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	10000	**Volume per carton (m3):**	0.12 m3
Minimum order:	10000	**Weight per carton (kg):**	15 kg
Year base price:	2009	**Incoterms:**	FCA
Price per unit:	On request		

Quality standard:	- ISO 13485 -
Comments:	

Current PQS status:	***pre-qualified***	**Prequalification date:**	***02 Sep 2010***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/058
Description:	RUP 5ml
Manufacturer's reference:	Yushou® RUP 5ml
Manufactured in:	China; People's Republic of
Company:	Wuxi Yushou Medical Appliances Co., Ltd
Address:	No.215 Xigang Road, Dongbeitang town, Wuxi city Jiangsu Province
Telephone:	+86 (510)3777555
Email:	mike@chinasyringe.com
Web address:	

Specifications

Graduations:	0.2 ml	**Needle size:**	21G x 1 1/2'
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Locked / broken plunger	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.103 m3
Minimum order:	1800	**Weight per carton (kg):**	13 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	Upon request to manufacturer		

Quality standard:	- ISO 13485 -
Comments:	

Current PQS status:	***pre-qualified***	**Prequalification date:**	***07 Mar 2011***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/059
Description:	RUP 5 ml
Manufacturer's reference:	Shifa 5 ml
Manufactured in:	China; People's Republic of
Company:	Syah Impex
Address:	1-6/15 Sector 5, Korangi Industrial Area, Karachi, Pakistan
Telephone:	021 5122997-8
Email:	info@syahimpex.com
Web address:	www.syahimpex.com

Specifications

Graduations:	0.2 ml	**Needle size:**	23G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Locked / broken plunger	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.12 m3
Minimum order:	20000	**Weight per carton (kg):**	18 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	>100,000: 5.75 USD	> 1,000,000: 5.50 USD	> 10,000,000: 5.25 USD

Quality standard:	- ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***03 May 2011***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

NEW Product AS AT 03.05.2011

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/060
Description:	RUP 3 ml
Manufacturer's reference:	Shifa 3 ml
Manufactured in:	China; People's Republic of
Company:	Syah Impex
Address:	1-6/15 Sector 5, Korangi Industrial Area, Karachi, Pakistan
Telephone:	021 5122997-8
Email:	info@syahimpex.com
Web address:	www.syahimpex.com

Specifications

Graduations:	0.1	**Needle size:**	24G x 1"
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Locked/ broken plunger	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.09 m3
Minimum order:	20000	**Weight per carton (kg):**	16.5 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	> 100,000: 5.50 USD	> 1,000,000: 5.25 USD	> 10,000,000: 5.00 USD

Quality standard:	- ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***03 May 2011***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/061
Description:	RUP syringe 10ml
Manufacturer's reference:	Revital RUP syringe 10ml
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	qualitycontrol@rhcare-epz.com
Web address:	www.revitalhealthcare.com

Specifications

Graduations:	0.5 ml	**Needle size:**	21G x 1.5''
Syringe material(s):	PPE and TPE	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Locked/broken plunger	**Primary packaging:**	Plastic ribbon
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.1874 m3
Minimum order:	18000	**Weight per carton (kg):**	21.3 kgs
Year base price:	2011	**Incoterms:**	EXW
Price per unit:	Over 1 million: 6.85 USD per pack	Over 5 millions: 6.65 USD per pack	Over 10 millions: 6.55 USD per pack
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***09 May 2011***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/062
Description:	RUP 10ml (2 piece)
Manufacturer's reference:	Revital® RUP 10ml 2 piece syringe
Manufactured in:	Kenya
Company:	Revital Healthcare Ltd.
Address:	PO Box 70813 Mombasa
Telephone:	+254 41 2228962
Email:	qualitycontrol@rhcare-epz.com
Web address:	www.revitalhealthcare.com

Specifications

Graduations:	0.5 ml	**Needle size:**	21G x 1.5''
Syringe material(s):	PPE, Polyethylene	**Other needle options:**	Yes
Number of components:	2 pieces	**Needle fixation:**	Detachable
RUP mechanism:	locked, broken plunger	**Primary packaging:**	Plastic ribbon
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	1800	**Volume per carton (m3):**	0.1874 m3
Minimum order:	18000	**Weight per carton (kg):**	19.8 kgs
Year base price:	2011	**Incoterms:**	EXW
Price per unit:	Over 1 million: 6.80 USD per pack	Over 5 millions: 6.60 USD per pack	Over 10 millions: 6.50 USD per pack
Quality standard:	ISO 13485		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***09 May 2011***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

E013: Hypodermic syringes with reuse prevention feature

PQS code:	E013/063
Description:	RUP syringe 5ml
Manufacturer's reference:	5ml BD EmeraldTM PRO RUP
Manufactured in:	Spain
Company:	Becton Dickenson
Address:	1 Becton Drive, Franklin Lakes, NJ 07417 USA MC: 240
Telephone:	+1201-847-4837
Email:	michael_garrison@bd.com
Web address:	http://www.bd.com

Specifications

Graduations:	0.2 ml	**Needle size:**	21G x 40 mm
Syringe material(s):	Polypropylene	**Other needle options:**	Yes
Number of components:	3 pieces	**Needle fixation:**	Detachable
RUP mechanism:	Locking gasket upon completion	**Primary packaging:**	Paper blister pack
RUP location:	Upon completion of injection	**CE mark:**	Yes
RUP type:	Type I B		
Pieces per carton:	2000	**Volume per carton (m3):**	0.103 m3
Minimum order:	2000	**Weight per carton (kg):**	13.4 kg
Year base price:	2011	**Incoterms:**	FCA
Price per unit:	upon request to manufacturer		
Quality standard:	- ISO 9001 - ISO 13485 -		
Comments:			
Current PQS status:	***pre-qualified***	**Prequalification date:**	***31 May 2011***

Note: If Current PQS status is 'Suspended' or 'Withdrawn', this product is NOT to be purchased

General notes

The PQS catalogue (including the data sheets contained therein and individually accessible on the PQS website) is updated regularly. Following their submission to WHO for independent verification, products are added to the PQS catalogue as and when such products are - at the time of verification - found to comply with the applicable standards and/or performance specifications and verification protocols current at the time of submission.

WHO cannot represent that the products included in the PQS catalogue will continue to meet the relevant performance specifications. WHO may suspend or remove products from the PQS catalogue based on information that may subsequently become available to it.

The PQS catalogue does not provide an exhaustive overview of products for use in immunization programmes. The PQS catalogue includes only those products which have been independently assessed in accordance with PQS verification procedures and found to meet the requirements of the relevant PQS performance specifications.

The fact that certain products and manufacturers are not included in the PQS catalogue does not mean that, if independently tested, they would not be found to comply with the relevant PQS performance specifications.

Inclusion in the PQS catalogue does not imply any approval by WHO of the products and manufacturers in question (which is the sole prerogative of national authorities).

The PQS catalogue may not be used by manufacturers and suppliers for commercial or promotional purposes.

Disclaimer

Inclusion of a product in the PQS catalogue indicates that the product has - at the time of independent verification - been found to be acceptable in principle, for use in immunization programmes. Inclusion does not constitute a WHO endorsement or warranty of the fitness of any product for a particular purpose, including in regard to its quality, safety and/or effectiveness.

Furthermore, WHO does not warrant or represent that:

- the PQS catalogue is complete or error free; and/or that
- the products which have been found to meet the relevant PQS performance specifications will continue to do so; and/or that
- the products included in the PQS catalogue have obtained marketing authorization for their specified use or any other use in any country of the world, or that their use is otherwise in accordance with the national laws and regulations of any country, including but not limited to patent laws.

In addition, WHO wishes to alert procuring agencies that the improper handling and transportation of products may affect their quality, safety and/or effectiveness. WHO disclaims any and all liability and responsibility for any injury, death, loss, damage or other prejudice of any kind whatsoever that may arise as a result of or in connection with the procurement, distribution and use of any product included in the PQS catalogue.

Procurement suggestions

- Any Member State and UN organization intending to use the PQS catalogue for procurement purposes should ensure that only products from the manufacturers mentioned in the PQS catalogue are supplied to it. However, inclusion of a product in the PQS catalogue does not constitute any guarantee for the procurement of this product.
- Procurement organizations using the PQS catalogue for procurement purposes remain solely responsible for the procurement of products included in the PQS catalogue, including for ensuring the quality of the products to be delivered to them, for performing other aspects of qualification prior to purchasing, such as ensuring the

financial stability and standing of the supplier, the ability to supply the required quantities and other related aspects, and for ensuring that the products they wish to procure have obtained the required marketing authorizations.

Guideline revision history

Date	Change summary	Reason for change	Approved
15 April 2011	First publication		