

SAHARA-TSC

Dry warming of blood stem cells



Safe warming procedure

- Enables the quick, temperature-controlled thawing of blood stem cell preparations
- Successfully tested using cryopreserved blood stem cell preparations with volumes between 60 ml and 120 ml
- Homogeneous temperature distribution within the blood stem cell preparation is achieved via continuous tilting
- While the adaptation compress, acting as a passive heat store, cools down during the thawing process, the temperature of the warming dish is actively controlled throughout the thawing process using an electrically heated warming plate
- Delayed key response prevents unintentional interruption of the thawing process
- Warming dish, warming plate and adaptation compresses can be individually removed and can be cleaned and disinfected with minimal effort

Protocol printer

- Documentation of the product temperature
- Documentation of the system test
- Documentation of error messages in the event of a malfunction



Hygienic thawing environment

- Easy-to-clean, disinfectable and autoclavable warming dish for holding blood stem cell preparations during thawing

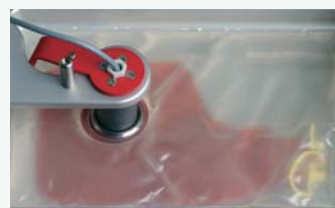
Integrated system test

- Inspection of device function
- Calibration of the temperature sensors
- Use of additional measuring apparatus not required
- Documentation via protocol printer possible



Temperature monitoring

- Determination of the blood product temperature using an infrared sensor
- Documentation via protocol printer possible



Adaptation compress - TSC

- The adaptation compress TSC is used as a heat store for thawing cryopreserved blood stem cell preparations
- For each stem cell preparation, one adaptation compress is to be heated to 37 °C to 40 °C before thawing



Checking the preparation viscosity

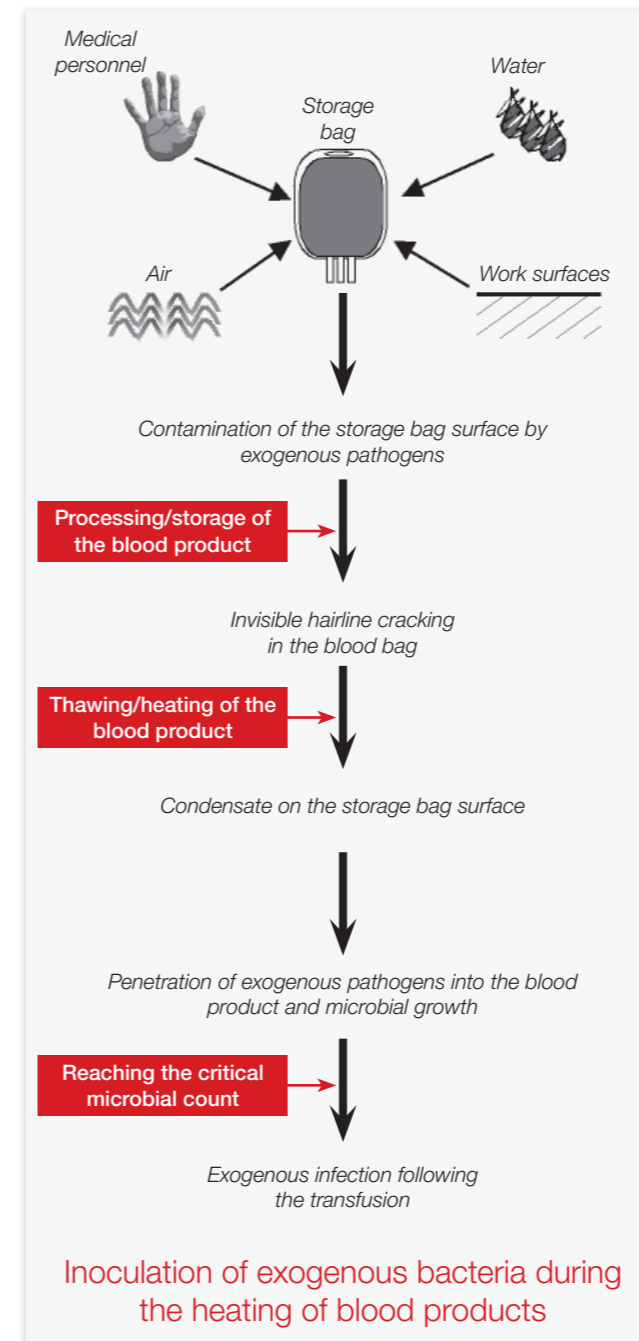
- Users can check the blood stem cell preparation manually throughout the thawing process



Agitation

- Gentle agitation in order to achieve homogeneous temperature distribution within the blood stem cell preparation

- The risk of contamination from water-borne pathogens, as can occur with traditional water baths, is avoided by dry warming



What sources are there for microbial contamination of blood products by exogenous pathogens?

Exogenous bacteria originate from the skin of the blood donor, from water, the air or from elsewhere in the environment, from surfaces or even from the hands of medical personnel. These can be inoculated during the blood collection and during the processing and storage of blood products.

Particularly during the processing and storage of blood products, mechanical influences can cause multiple small tears to form in the bag systems (predominantly in the frozen state), through which micro-organisms can subsequently penetrate into the products. Even when warming blood or blood components, preparations may become contaminated (see diagram), namely when

- the immediate environment of the blood product (e.g. the warming medium) is itself contaminated or
- the outer surface of the blood bag is contaminated with germs.

Various cases of the transfer of *Pseudomonas* bacteria have been observed during the thawing of previously uncontaminated FFP and cryoprecipitates using water baths.^{4,5}

1. Montag T. et al. **Bakterielle Kontamination von Blutkomponenten**, Bundesgesundheitsbl. - Gesundheitsforsch. - Gesundheitsschutz 42, 132-142, 1999
2. Sazama K. **Bacteria in Blood for Transfusion**, Arch. Pathol. Lab. Med., 118, 350-365, 1994
3. Puckett A. **Bacterial contamination of blood for transfusion: a study of the growth characteristics of four implicated organisms** Med. Lab. Sci. 43, 252-257, 1986
4. Centers for Disease Control **Follow-up on nosocomial Pseudomonas cepacia infection**, MMWR Morb. Mortal Wkly Rep., 28, 409, 1979
5. Casewell M. W. et al. **Operating theatre water-baths as a cause of Pseudomonas septicaemia**, J. Hosp. Infect., 2, 237-240, 1981

Ordering information

Order number	Article name
97.8710.600	SAHARA-TSC Tempering device for thawing stem cell preparations
97.8710.570	Protocol printer module for SAHARA
79.8710.575	Paper roll protocol printer
79.8710.577	Ink ribbon for the protocol printer SP742MD
79.8710.610	Adaptation compress - TSC
97.8710.620	Warming dish SAHARA-TSC Aluminium dish for storing blood stem cell preparations

Technical data

- External dimensions (WxHxD): 320x325x493 mm
- Weight: 14.3 kg
- Nominal voltage SAHARA-TSC ($\pm 10\%$): 230 V AC



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