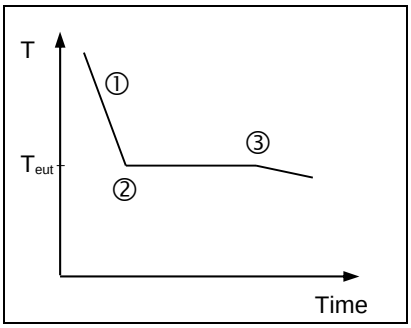
Eutectic plate (coolant accumulation) - operation principle, handling, technical data

1 Operation principle

The mode of operation of a eutectic plate is based on a reversible physical effect of a fluid solution of two special substances.

① When freezing the plate, the temperature of the solution decreases accordingly.
② When the eutectic temperature (T_{eut}) is reached the solution begins to freeze. The effective storage of cold in the plate begins.
③ After the complete freezing of the solution the storage of cold in the plate is completed.



The eutectic plate has now reached the maximum efficiency for refrigeration.

Depending on the substance solution used, there is a separate eutectic temperature, and therefore a separate application.

During cooling using the eutectic plate, the solution begins to melt. In the process, the temperature of the plate remains constant at the eutectic temperature until the solution has completely melted. How long this takes mainly depends on the ambient temperature of the plate.

2 Handling

2.1 Application

The eutectic plate may only be used for keeping food cold.

Warning!

Damage to property!
Do **not** store or heat up the eutectic plate in a heating compartment. If the eutectic plate is heated up there is a danger that the plate could deform and leak. In extreme cases the eutectic plate can burst.

2.2 Preparation (freezing)

Prior to cooling the eutectic plate must be refrigerated. For this purpose, a freezing temperature is required that is **at least** 5 °C lower (colder) than the eutectic temperature.

To prevent bowing of the panel during frosting, only frost panel in horizontal position.

The determining factor for the required freezing period is the difference between the eutectic temperature of the plate and the temperature of the refrigerated room/refrigerator ΔT.

Rule of thumb: double the temperature difference ΔT equals half of the required freezing period!

Here the following **reference values** apply:

Temperature difference (ΔT in °C)	Freezing period (hours)
5	approx. 20
10	approx. 10
20	approx. 5

The eutectic plate has only reached its full cooling capacity, when it is completely frozen!

Warning!

Damage to property!
The eutectic plate is sensitive to impacts in the frosted state! Do not drop or bump the eutectic plate in the frosted state, as this may cause it to become leaky.

2.3 Use

Protection (e.g. with gloves) must be used when handling pre-cooled eutectic plates.

When using in unit compartments with ledges, insert the eutectic plate as far as possible to the top.

The more eutectic plates are used, the longer the cooling capacity is maintained.

Leaky eutectic plates may not be used any longer for cooling food.

2.4 Cleaning

Clean eutectic plates after every use with a damp cloth (B.PRO microfiber cleaning cloth recommended).
For persistent soiling, a brush (synthetic or natural bristles) may be used.

For cleaning use commercial cleaning agents in a water-based solution. Eutectic plates of synthetic **must never** be cleaned using stainless steel cleaning agents. These will scratch the surface.

Plastic eutectic plates can be cleaned in a commercial dishwasher (with the exception of pellet dishwashers) at a maximum temperature of +90 °C (water/drying temperature).

2.5 Disposal

The eutectic plate must be taken to a recycling centre for disposal. The liquid must not be allowed to drain into the waste water system under any circumstances.

Further information on disposal can be obtained from your dealer or from B.PRO's Service Department. You must also take into account other possible national regulations concerning disposal.

3 Technical data

Item No.	Designation	Eutectic temperature (T_{eut})	Cooling output/melting temperature (kJ)	Weight (kg)	Dimensions L x W x H (mm)	Use (example)
575306	Eutectic plate (-3 °C), synthetic	-3 °C	approx. 1200	4,2	530 x 325 x 30	BPT 420 K/ 620 K/ all BPT E
575307	Eutectic plate (-12 °C), synthetic	-12 °C	approx. 1200	4,2	530 x 325 x 30	BPT 420 K/ 620 K all BPT E

Table: Type-specific details for eutectic plates

B.PRO GmbH
P. O. Box 13 10
75033 Oberderdingen
GERMANY
Phone +49 (0)7045 44 - 81416
Fax +49 (0)7045 44 - 81508
Email service@bpro-solutions.com
Internet www.bpro-solutions.com

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