rollaway container

EUTECTIC PLATES

USER MANUAL

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1 General Comments

1.1 General

This user manual provides the knowledge required for the effective use of the Eutectic Plates.

Please read this user manual thoroughly to avoid incorrect handling and to ensure optimum use of the Eutectic Plates.

1.2 Warranty and liability

As a basic rule, the general sales terms and delivery conditions as provided by the manufacturer of the Eutectic Plates will apply.

Warranty and liability claims are excluded if caused by improper use of the equipment and/or the result of any of the following:

- ❑ Improper use of the Eutectic Plates
- ❑ Ignoring or disregarding the safety rules and regulations as specified in this User's Manual
- ❑ Making changes to the Eutectic Plates without manufacturers' written instructions or approval
- ❑ Disregarding of the safety regulations in chapter 7.2: Maintenance

1.3 User's Instructions

The user instructions are itemized in chapter 9. Each page will start with the header of the respective chapter, followed by a description of the various sections.

The footers on each page from chapter 1 through 9 contain the following information:

- ❑ Description of the Eutectic Plates
- ❑ Date of issue and version
- ❑ Page number

When using this document with a computer, all the contents in this user manual can be cross-referenced.

In the Table of Contents or Index of Illustrations, place the cursor on the required link and a mouse click will direct the user immediately to the referenced area in the document.

2 Safety and Security

2.1 Definition of symbols and color signals

Symbol	**DANGER** **Severe warning for danger that could result in death or serious injuries!**
Symbol	**WARNING** **Warning for possible injuries and severe property damages!**
Symbol	**CAUTION** **Warning for possible property damages!**
	**NOTICE** **Reference to important information and special tips!**

2.2 Security labels on the Eutectic Plates

WARNING

EUTECTIC PLATE CAN BE DAMAGED!

Damaged parts may cause leakage!

Do not throw or expose plates to mechanical strain (beat or crush)!

Do not use nor store sharp objects near plate.

If eyes come in contact with the contents of the plate, hold eye open and rinse for several minutes with running water.

2.3 Security details when using Eutectic Plates

DANGER

DAMAGED PLATES MAY LEAK LIQUID!

Danger of slipping and/or falling.

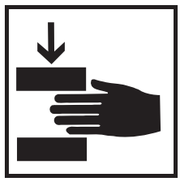
Immediately remove leaked liquid and dispose of plate in an environmental-friendly manner.

CAUTION

PAY ATTENTION TO FALLING PLATES!

Foot injury could occur!

Wear safety shoes



WARNING

PLACEMENT OF EUTECTIC PLATES IN CONTAINER!

Hand injury could occur when placing the Eutectic Plates in the container!

DANGER

ATTENTION, DANGER THROUGH FROZEN SURFACES!

Could cause hyperthermia and skin injury!

Wear safety thermo gloves!

Avoid direct contact with organic material (e.g. people, animals, edibles).

DANGER

DANGER THROUGH CHEMICALS IN COOLING FLUID!

Cooling liquid is not suitable for consumption.

WARNING

MAY BE HARMFUL FOR SKIN!

If on skin, immediately wash skin thoroughly with water.

2.4 Use according to regulations

DANGER

DANGER THROUGH UNAUTHORIZED USE!

Only use Eutectic Plates to maintain refrigerated or frozen temperatures in closed containers for the transportation and storage of food products and other perishable items!

The temperature of the Eutectic Plates should never fall below -30 °C (-22 °F) or exceed +50 °C (+122 °F).

Keep plates in a cool and protected place.

NOTICE

The Eutectic Plates should not be moved or touched during the freezing process in order to secure the air circulation. Otherwise, the contents of the plate will not be frozen solid.

NOTICE

The operational reliability and functionality of the Eutectic Plates is only warranted when used according to specifications as listed in this user manual.

2.5 Technical condition

The Eutectic Plates have been constructed and built according to current regulations. Arbitrary changes to the equipment are strictly prohibited.

Please pay attention to the following:

DANGER

DANGER THROUGH PARTS FAILURE!

In order to avoid potential danger, neither changes nor revisions may be made to the Eutectic Plates. Never use for any purpose other than intended.

Do not open plates and re-fill with a different chemical liquid.

The operator is committed to only use the Eutectic Plates while in good order and condition.

Before each use, check the Eutectic Plates for possible damages and ensure it is in good condition.

Do not use damaged plates.

Incidents with the Eutectic Plates must be reported immediately to the operating company.

Eutectic Plates may solely be used to maintain refrigerated or frozen temperatures in closed containers for the transportation and storage of food products and other perishable items.

DANGER

DANGER THROUGH CONTAMINATED FOOD PRODUCTS!

Do not consume or feed products, that have been contiminated by leaking coolant!

Food products contaminated by defect plates must be immediately disposed of in an environmentally friendly manner.

2.6 Operating personnel

NOTICE

Eutectic plates may only be used by authorized personnel and only when assigned by the operating company.

Authorized personnel:
Trained operators, assigned by operating company.

Trained and assigned personnel:
Company-assigned personnel that specifically handles the Eutectic Plates, and has been briefed and trained using the manual at hand.

The user manual must be available to the operators at all times.

The operating company is ultimately responsible in ensuring that all safety regulations are being adhered to and that all its authorized personnel is using the insolated containers as instructed.

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Please notice the following:

- ❑ Always ensure, that only authorized personnel as defined above is operative with Eutectic Plates or its surroundings.
- ❑ During use, personnel must abide by the following measures to warrant operational safety:
  - Refer to the user manual
  - Always wear safety shoes
  - Always wear safety gloves
  - Do not eat, drink or smoke during work

2.7 Transport

DANGER

DANGER THROUGH FALLING PLATES!

Always ensure that the Eutectic Plates do not fall during loading and/or unloading of goods.

Do not damage the outer shell and sealing.

Wear safety gloves both during loading and unloading as well as during transport of the plates.

3 Technical Data

Eutectic Plates		
	Type 3 (small)	**Type 5 (large)**
Sizes approx. L x B x H	480 x 280 x 33 mm 18,91 x 11,03 x 1,30 inch	620 x 380 x 33 mm 24,43 x 14,97 x 1,30 inch
Wall thicknes	2,5 – 3,0 mm (corners / sides) 0,10 – 0,12 inch	
Surface profile	Indentations for faster freezing, more homogeneous cold release and higher deformation resistance	
Material	plastic (HDPE), cold resistant, food safe	
Filling	sodium chloride (NaCl) dissolved in water (H_2O)	
Temperature range	Temperature for freezing and melting is dependant on the freeze and melting temperature and depends on the concentration of the filling	
Freeze temperature	min. 4 – 5 °C (39 °F) under melting point, optimum freeze temperature 8 °C (46 °F) under melting point	
Freeze time	10 – 36 hours depending on condition	
Max. permissible temperature range	-30 °C – +50 °C (22 °F – +122 °C) (+50 °C due to warranty of sealing plugs)	
Net weight	ca. 1,0 kg ca. 2,2 lbs	ca. 1,6 kg ca. 3,5 lbs
Total weight	ca. 4,5 kg ca. 10,0 lbs	ca. 7,5 kg ca. 16,5 lbs

4 Operation

4.1 Initial operation

The Eutectic Plates are delivered completely ready for use with the sodium chloride concentration as ordered.

The plates are packed in standard wrapping material to protect from potential damage.

4.2 Unpacking

⚠ WARNING

CAUTION WITH THE USE OF CUTTING TOOLS!

Potential hand injury!

Wear protective gloves.

⚠ DANGER

LEAKING COOLANT MAY BE HARMFUL FOR SKIN!

Danger of damage to Eutetic Plates from cutting tool!

Wear protective gloves, and unwrap carefully!

To unpack Eutectic Plates remove the wrapping with an appropriate cutting tool.

Carefully unwrap to avoid potential damage to the Eutectic Plates.

In case of leakage, immediately separate and discard the damaged plate. Never re-use damaged plates!

After unwrapping, the Eutectic Plates are immediately ready for use and can be frozen to the desired temperature. See also chapter 5.1 Operation

Dispose of the packaging materials according to the local laws.

5 Technical Details

5.1 Operation

The Eutectic Plates are used in refrigerated or frozen containers to keep the temperature over a pre-defined period of time within a pre-defined temperature range.

To accomplish this goal, the eutectic plates are kept in a freezer area until the filling is completely and solidly frozen.

To guarantee that the plates are completely frozen, air circulation between the plates must be ensured (the plates cannot lay on top of each other). A good air circulation will result in shorter freezing times.

Ideally, the plates are placed in a dedicated location in the freezer area (see Fig. 1).

To achieve an optimum cooling performance, the insulated containers should be cooled at the equivalent temperature as well.

Fig. 1: Freeze position

5.2 Design

5.2.1 Construction

The outside shell of the Eutectic Plates is manufactured from a cold resistant, food-safe plastic material (HDPE).

The surface area of the plate is enlarged through indentations to increase deformation resistance, boost faster freezing and ensure a more homogeneous cold release.

The casing is filled with a chemical liquid, which – depending on the concentration of the chemical – freezes or melts depending on the various temperature requirements.

After filling the plate, it is tightly sealed with a small plug. This plug can only forcibly be removed.

The color of the sealing plug reflects the melting temperature (see also color-coding chart).

5.2.2 Contents

The Eutectic Plates are filled with a solution of sodium chloride (NaCl) dissolved in water (H_2O)

Should, in spite of appropriate handling and use, leakage of NaCl occur, this should not incur any negative effects or be harmful to your health.

Rinsing with water will result in neutralization.

The content of the Eutectic Plates may be harmful if swallowed. In that occurrence, consult a physician.

For further details see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**: Safety information.

5.2.3 Color coding plug

To differentiate between the various mixtures of sodium chloride and melting temperatures, the plugs feature different colors.

The colors of the plugs have been assigned according to the table below:

If plates have been fabricated according to specific customer specifications, the colors may differentiate from standard color coding.

The colors displayed are exclusively valid for the Eutectic Plates of the company!

Color of plug	Freeze temperature
Natural (beige)	0 °C
Orange red	-3 °C
Dark red	-6 °C
Yellow	-14 °C
Silver	-18 °C
Bright green	-19 °C
Blue	-21 °C

5.3 Illustrations

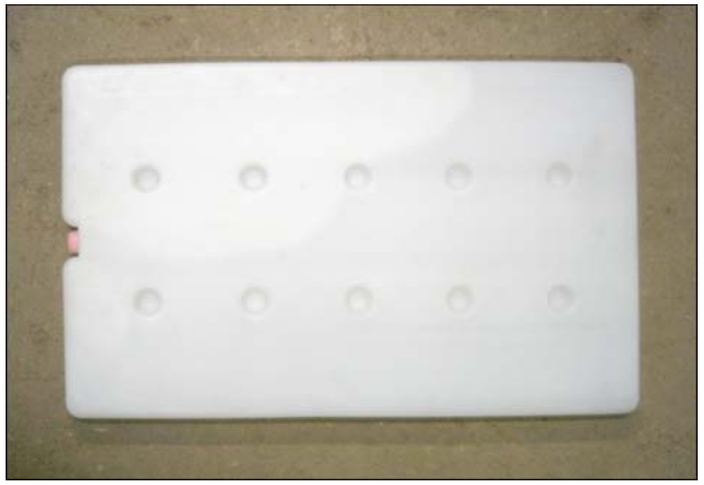

Fig. 2: Eutectic plate type 5 (large)

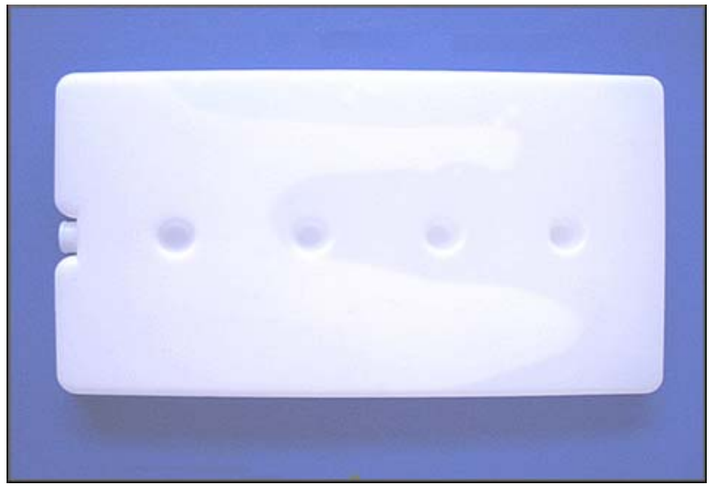

Fig. 3: Eutectic plate type 3 (small)

6 Operation

6.1 Freezing of the plates and implementation in the container

⚠ CAUTION

ATTENTION FOR FALLING PLATES!

Freeze Eutectic Plates on an even surface or on flat racks.

Potential foot injury!

Wear safety shoes.

⚠ DANGER

ATTENTION, DANGER THROUGH FROZEN SURFACES!

Could cause hyperthermia and skin injury!

Wear safety thermo gloves!

Avoid direct contact with organic material (e.g. people, animals, edibles).

⚠ WARNING

PLACEMENT OF EUTECTIC PLATES IN CONTAINER!

Hand injury could occur when placing the Eutectic Plates in the container!

Handle Eutectic Plates at the door end of the container.

⚠ DANGER

DAMAGED PLATES MAY LEAK LIQUID!

Danger of slipping and/or falling.

Immediately remove leaked liquid and dispose of plate in an environmental-friendly manner.

⚠ CAUTION

CAUTION WHEN FROZEN TOO QUICKLY!

Only freeze Eutectic Plates in freezer rooms or in similar freezer equipment (do no use „shock“ freezing)

When freezing, please pay attention that the Eutectic Plates are not in direct contact with each other. Only then assurance can be given that the plates are completely and solidly frozen.

See Fig. 1 for an excellent illustration of correct handling.

The freezing temperature depends on the concentration of the contents (see 5.2.3).

The freezing time depends on the difference in temperature between freezing point and the temperature in the freezing area.

Insert plates in the insulated containers:

- ❑ The frozen Eutectic Plates are placed on special grids or on top of inserted shelving in the cooling container (see User Manual ISOTEC®-insulated container chapter 6.1.1 Loading)
- ❑ Avoid direct contact with the products in the container
- ❑ After placing the Eutectic Plates in the frozen or refrigerated container, do not open containers until all products are removed

Fig. 4: Insulated container with Eutectic Plates inserted

6.2 Defrosting of Eutectic Plates

⚠ CAUTION

ATTENTION WHEN DEFROSTING

Only defrost Eutectic Plates naturally (do not use hot water; microwave, etc.)

7 Maintenance and Service

7.1 Maintenance

- ❑ Use a general synthetic cleaning agent to clean dirty Eutectic Plates.
- ❑ Immediately and thoroughly clean the Eutectic Plates when they are or have been in contact with industrial acids or base.

7.2 Service

⚠ DANGER

DANGER THROUGH FAILURE TO REPLACE SPARE PARTS!

Do not remove plug!

The contents may not be exchanged by the operator.

The maintenance of the Eutectic Plates is restricted to surface cleaning and visual inspection for damage and testing for leaks.

Damaged plates may not be re-used!

8 Disposal

When disposing of the Eutectic Plates containers please observe local rules and regulations for proper removal, see also exhibit 9 – security data specifications.

9 Appendix Security Data Specifications

CSC jäklechemie
Distribution · Beratung · Service

Material Safety Data Sheet
According to 91/155 EEC

Printing date 30.09.2005 Reviewed on 30.09.2005

1 Identification of the substance/preparation and of the company/undertaking

·**P roduct details**
·**T rade name:** **Natriumchlorid (Kochsalz, Siedespeisesalz, Siedegewerbesalz, Stein-Gewerbesalz, Viehsalz, Broxosalz, Broxetten, Regeneriersalz, Auftausalz)**

·**A rticle number:** 520000/010/020/025/026/037/040/100/105/120/121/151/158/160
·**A pplication of the substance / the preparation:** Chemical agent for different applications

·**M anufacturer/Supplier:**
CSC JÄKLECHEMIE GmbH & Co. KG
Matthiasstr. 10 - 12
D-90431 Nürnberg
0911/3 26 46 -0

·**Further information obtainable from:**
Abteilung Sicherheit & Technik
Telefon: 0911/3 26 46-0
·**Informa tion in case of emergency:**
Giftinformationszentrale Universitätsklinikum Mainz
Telefon: +49(0)6131/19240

2 Composition/information on ingredients

·**Chemi cal characterization:**
·**CA S No. Description**
7647-14-5 Natriumchlorid
·**Identifica tion number(s)**
·**E INECS Number:** 231-598-3

3 Hazards identification

·**Haz ard description:** Not applicable.
·**Information concerning particular hazards for human and environment:** Not applicable.

4 First-aid measures

·**Gener al information:** No special measures required.
·**A fter inhalation:** Supply fresh air; consult doctor in case of complaints.
·**A fter skin contact:** Generally the product does not irritate the skin.
·**A fter eye contact:** Rinse opened eye for several minutes under running water.
·**A fter swallowing:** If symptoms persist consult doctor.

5 Fire-fighting measures

·**S uitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
·**P rotective equipment:** No special measures required.

6 Accidental release measures

·**Pe rson-related safety precautions:** Not required.
·**M easures for environmental protection:** Do not allow to enter sewers/ surface or ground water.

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EEC

Printing date 30.09.2005 Reviewed on 30.09.2005

Trade name: Natriumchlorid (Kochsalz, Siedespeisesalz, Siedegewerbesalz, Stein-Gewerbesalz, Viehsalz, Broxosalz, Broxetten, Regeneriersalz, Auftausalz)

(Contd. of page 1)

·**M easures for cleaning/collecting:** Pick up mechanically.
·**A dditional information:** No dangerous substances are released.

7 Handling and storage

·**Handl ing:**
·**Information for safe handling:** No special measures required.
·**Information about fire - and explosion protection:** No special measures required.

·**Stor age:**
·**Requir ements to be met by storerooms and receptacles:** No special requirements.
·**Informa tion about storage in one common storage facility:** Not required.
·**Further information about storage conditions:** None.

8 Exposure controls/personal protection

·**A dditional information about design of technical facilities:** No further data; see item 7.

·**Ingre dients with limit values that require monitoring at the workplace:** Not required.
·**A dditional information:** The lists valid during the making were used as basis.

·**P ersonal protective equipment:**
·**Gener al protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
·**Res piratory protection:**
Use suitable respiratory protective device only when aerosol or mist is formed.
·**P rotection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
·**M aterial of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
·**P enetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
·**E ye protection:** Safety glasses
·**Body protection:** Protective work clothing

9 Physical and chemical properties

·**Gener al Information**	
Form:	Solid material
Colour:	White
Odour:	Odourless
·**Change in condition**	
Melting point/Melting range:	801°C
Boiling point/Boiling range:	1461°C

(Contd. on page 3)

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(Contd. of page 2)

·**Flas h point:**	Not applicable.
·**Flamm ability (solid, gaseous):**	Product is not flammable.
·**Dange r of explosion:**	Product does not present an explosion hazard.
·**V apour pressure:**	Not determined
·**Density at 2 0°C:**	2.16 g/cm³
·**Bulk density at 20°C:**	800-1600 kg/m³
·**S olubility in / Miscibility with water at 20°C:**	358 g/l
·**pH-value (50 g/l) at 20°C:**	6-9

10 Stability and reactivity

·**T hermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
·**Dange rous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

·**A cute toxicity:**
·**P rimary irritant effect:**
·**on the s kin:** No irritant effect.
·**on the eye:** No irritating effect.
·**S ensitization:** No sensitizing effects known.
·**A dditional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.
The substance is not subject to classification according to the latest version of the EU lists.

12 Ecological information

·**Gener al notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

·**Pr oduct:**
·**Rec ommendation** Smaller quantities can be disposed of with household waste.
·**W aste disposal key:** Individual to state regulations

·**Uncl eaned packaging:**
·**Rec ommendation:** Disposal must be made according to official regulations.

(Contd. on page 4)

Material Safety Data Sheet
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Trade name: Natriumchlorid (Kochsalz, Siedespeisesalz, Siedegewerbesalz, Stein-Gewerbesalz, Viehsalz, Broxosalz, Broxetten, Regeneriersalz, Auftausalz)

(Contd. of page 3)

14 Transport information

·**T ransport/Additional information:** No dangerous good according to ADR regulation

15 Regulatory information

·**Label ling according to EU guidelines:**
The substance is not subject to classification according to EU lists and other sources of literature known to us.
Observe the general safety regulations when handling chemicals.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

·**Nationa l regulations:**

·**W aterhazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

·**Depa rtment issuing MSDS:** Abteilung Sicherheit & Technik
·**Cont act:** Herr Dipl.-Ing.(FH) G. Marquardt
·* **Data compared to the previous version altered.**

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