



## SAFETY DATA SHEET

acc. to Regulation (EC) No. 1907/2006 (REACH), amended by Regulation (EU) 2020/878

REINHARTIN®

Version: 2.4, ID-No.: 1020-01\_EN-EN

Revision date 08.04.2022

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### SECTION 1: Identification of the substance/mixture and of the company

**1.1. Product identifier:** REINHARTIN®

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

**Relevant identified uses:** Brine for ice machines and cooling and refrigeration plants

**1.3. Details of the supplier of the safety data sheet**

**Company:** TYFOROP Chemie GmbH, Ausschläger Billdeich 77, D-20539 Hamburg

**Telephone/Telefax:** Tel.: +49 (0)40 20 94 97 0, Fax: +49 (0)40 20 94 97 20

**E-Mail:** msds@tyfo.de (E-Mail address of person responsible for SDS)

**1.4. Emergency telephone number:** Tel.: +49 (0)551-19240 GIZ-Nord Poison Center

### SECTION 2: Hazards identification

**2.1. Classification of the substance or mixture**


**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Eye Irrit. 2, H319.

The full text of the abbreviations is listed in section 16.

**2.2. Label elements**

**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms	Signal word
	Warning
	<b>Hazard Statements</b>
	H319 Causes serious eye irritation
	<b>Precautionary Statements (Prevention)</b>
	P280 Wear protective gloves/protective clothing/eye protection/face protection
	P264 Wash skin with plenty of water and soap thoroughly after handling
	<b>Precautionary Statements (Response)</b>
P305+P351 IF IN EYES: Rinse cautiously with water for several minutes. Remove +P338 contact lenses if present and easy to do - continue rinsing	
P337+P313 If eye irritation persists: Get medical advice/medical attention	
<b>Precautionary Statements (Disposal)</b>	
-	
<b>Hazard determinant component for labelling</b>	
Calcium chloride	

**2.3. Other hazards**

The product could cause minor skin irritation and dry skin.

- I This mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% by weight or higher.
- I This mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% by weight or higher.

### SECTION 3: Composition/information on ingredients

**3.2. Mixtures**

**Chemical nature:** Aqueous solutions of magnesium chloride and calcium chloride with inhibitors.



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### SECTION 3: Composition/information on ingredients

#### Components

Substance / REACH registration number	Content [% w/w]	CAS number	EC number	INDEX number	Classification acc. to CLP
Calcium chloride 01-2119494219-28	10 - 15	10043-52-4	233-140-8	017-013-00-2	Eye Irrit. 2, H319
Magnesium chloride 01-2119485597-19	20 - 25	7786-30-3	232-094-6	-	-

The full text of the abbreviations is listed in section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

**General advice:**

Remove contaminated clothing immediately.

**Protection of first-aiders:**

First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.

**If inhaled:**

If inhaled, remove to fresh air. Get medical attention if symptoms occur.

**On skin contact:**

Immediately wash thoroughly with soap and water. Get medical attention if symptoms occur.

**On contact with eyes:**

Wash affected eyes for at least 15 minutes under running water with eyelids held open and get medical attention.

**On ingestion:**

Immediately rinse mouth thoroughly and then drink plenty of water. Do NOT induce vomiting without medical advice. Get medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

None known.

#### 4.3. Indication of any immediate medical attention and special treatment needed

**Treatment:**

Symptomatic treatment (decontamination, vital functions)

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media:** Water spray. Alcohol-resistant foam. Dry powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media:** None known.

#### 5.2. Special hazards arising from the substance or mixture

**Specific hazards during firefighting:**

Exposure to combustion products may be a hazard to health.

**Hazardous combustion products:** Fire may cause evolution of hydrogen chloride gas.

#### 5.3. Advice for fire-fighters

**Special protective equipment:**

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

**Specific extinguishing methods:**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so.



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### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions:** Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

#### 6.2. Environmental precautions

Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

#### 6.3. Methods and material for containment and cleaning up

**Methods for cleaning up:** Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 provide information regarding certain local or national requirements.

**6.4. Reference to other sections:** See sections 7, 8, 11, 12 and 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

**Technical measures:** See Engineering measures in section 8.

**Local/total ventilation:** Use only with adequate ventilation.

**Advice on safe handling:** Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice. Take care to prevent spills, waste and minimize release to the environment.

**Advice on protection against fire and explosion:** Observe the general rules of industrial fire protection.

**Hygiene measures:** When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

#### 7.2. Conditions for safe storage, including any incompatibilities

**Requirements for storage areas and containers:** Store containers tightly sealed in a cool, dry and well ventilated place. Store in accordance with the particular national regulations.

**Advice on common storage:** Do not store with acids and oxidising agents. Keep away from food, beverages and animal feedstuffs.

#### 7.3. Specific end uses

For the relevant identified uses listed in section 1 the advice mentioned in this section 7 is to be observed.

### SECTION 8: Exposure control/personal protection

#### 8.1. Control parameters

##### Components with occupational exposure limits

Contains no substances with occupational exposure limit values.



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### SECTION 8: Exposure control/personal protection

#### DNEL values - information on component Calcium chloride

End use	Exposure routes	Potential health effects	Value
Workers	Inhalation	Long-term local effects	5 mg/m <sup>3</sup>
Workers	Inhalation	Short-term local effects	10 mg/m <sup>3</sup>
Consumers	Inhalation	Long-term local effects	2.5 mg/m <sup>3</sup>
Consumers	Inhalation	Short-term local effects	5 mg/m <sup>3</sup>

#### 8.2. Exposure controls

**Engineering measures:** Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

#### Personal protective equipment

**Eye protection:** Safety glasses with side-shields (frame goggles, e.g. EN 166).

**Hand protection:** Chemical resistant protective gloves (EN 374). Material: butyl rubber. Protective index 6. Break through time: >480 minutes. Glove thickness: 0.6 - 0.8 mm. Remarks: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the manufacturer. Wash hands before breaks and at the end of workday.

**Skin and body protection:** Wash skin thoroughly after contact.

**Respiratory protection:** not necessary.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<b>Appearance:</b>	liquid.	
<b>Colour:</b>	colourless to light yellow.	
<b>Odour:</b>	odourless.	
<b>Odour threshold:</b>	No data available.	
<b>Solidification temperature:</b>	ca. -16.5 °C.	(DIN ISO 3016)
<b>Initial boiling point/boiling range:</b>	>100 °C.	(ASTM D 1120)
<b>Evaporation rate:</b>	No data available.	
<b>Flammability (solid, gas):</b>	not applicable.	
<b>Upper explosion limit:</b>	not applicable.	
<b>Lower explosion limit:</b>	not applicable.	
<b>Flash point:</b>	not applicable.	
<b>Ignition temperature:</b>	not applicable.	
<b>Decomposition temperature:</b>	No data available.	
<b>pH value (20 °C):</b>	6.5 - 7.0.	
<b>Viscosity (dynamic, 20 °C):</b>	ca. 4.4 mPa·s.	(DIN 51562)
<b>Solubility:</b>	Water solubility: soluble.	
<b>Partition coefficient n-octanol/H<sub>2</sub>O:</b>	not applicable.	
<b>Vapour pressure (20 °C):</b>	ca. 20 hPa.	(calculated)
<b>Density (20 °C):</b>	ca. 1.285 g/cm <sup>3</sup> .	(DIN 51757)
<b>Vapour density:</b>	No data available.	
<b>Particle properties:</b>	not applicable.	

#### 9.2. Other information

##### 9.2.1. Information with regard to physical hazard classes

**Oxidizing properties:** not oxidizing.

**Explosive properties:** not explosive.

##### 9.2.2. Other safety characteristics

No further information.



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### SECTION 10: Stability and reactivity

<b>10.1. Reactivity:</b>	No hazardous reactions if stored and handled as prescribed/indicated.
<b>10.2. Chemical stability:</b>	The product is stable if stored and handled as prescribed/indicated.
<b>10.3. Possibility of hazardous reactions:</b>	No hazardous reactions if stored and handled as prescribed/indicated.
<b>10.4. Conditions to avoid:</b>	No conditions to avoid anticipated.
<b>10.5. Incompatible materials:</b>	Substances to avoid: strong reducing and oxidizing agents. Stainless steel.
<b>10.6. Hazardous decomposition products:</b>	No hazardous decomposition products if stored and handled as prescribed/indicated.

### SECTION 11: Toxicological information

#### I 11.1. Information on hazard classes as defined in Regulation (EC) No. 1272/2008

<b>Information on likely routes of exposure:</b>	Inhalation. Skin contact. Ingestion. Eye contact.
<b>Acute toxicity:</b>	Not classified based on available information. Information on component Calcium chloride: Acute oral toxicity: LD50 (Rat): 2301 mg/kg, method: OECD test guideline 401. Symptoms: After uptake of large quantities: Stomach/intestinal disorders. Acute inhalation toxicity: No data available. Symptoms: Possible damages: mucosal irritations. Acute dermal toxicity: LD50 (Rat): 2630 mg/kg. Information on component Magnesium chloride: Acute oral toxicity: LD50 (Rat): >2000 mg/kg, method: OECD test guideline 423. Acute Inhalation toxicity: No data available. Symptoms: slight mucosal irritations. Acute dermal toxicity: LD50 (Rat): >2000 mg/kg, method: OECD test guideline 402.
<b>Skin corrosion/irritation:</b>	Not classified based on available information. Information on component Calcium chloride: No skin irritation (Rabbit), method: OECD test guideline 404. Information on component Magnesium chloride: No skin irritation (Rabbit), method: OECD test guideline 404.
<b>Serious eye damage/eye irritation:</b>	Causes serious eye irritation. Information on component Calcium chloride: Irritating to eyes, (Rabbit), method: OECD test guideline 405. Information on component Magnesium chloride: Not irritating to Eyes (Rabbit), method: OECD test guideline 405.
<b>Respiratory or skin sensitisation:</b>	Skin sensitisation: Not classified based on available information. Respiratory sensitisation: Not classified based on available information. Information on component Calcium chloride: Skin contact: not sensitising (Guinea pig), method: OECD test guideline 406. Information on component Magnesium chloride: Skin contact: not sensitising (Guinea pig), method: OECD test guideline 406.
<b>Germ cell mutagenicity:</b>	Not classified based on available information.
<b>Carcinogenicity:</b>	Not classified based on available information.
<b>Reproductive toxicity:</b>	Not classified based on available information.
<b>Specific target organ toxicity (single exposure):</b>	Not classified based on available information.



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### SECTION 11: Toxicological information

**Specific target organ toxicity (repeated exposure):** Not classified based on available information.  
**Repeated dose toxicity:** Not classified based on available information.  
**Aspiration toxicity:** Not classified based on available information.

#### I 11.2. Information on other hazards

##### I Endocrine disrupting properties

This mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% by weight or higher.

### SECTION 12: Ecological information

#### 12.1. Toxicity

##### Information on component Calcium chloride

Toxicity to	Value / exposure time	Species
fish	LC50: 4630 mg/l / 96 h	Pimephales promelas (Fathead minnow)
daphnia and other aquatic invertebrates	LC50: 2400 mg/l / 48 h	Daphnia magna (Water flea) Method: OECD test guideline 202
algae	EC50: 2900 mg/l / 72 h	Pseudokirchneriella subcapitata (Green algae) Method: OECD test guideline 201

##### Information on component Magnesium chloride

Toxicity to	Value / exposure time	Species
fish	LC50: >2000 mg/l / 96 h	Pimephales promelas (Fathead minnow)
daphnia and other aquatic invertebrates	LC50: 548.4 mg/l / 48 h	Daphnia magna (Water flea)
algae	NOEC: 100 mg/l / 72 h	Desmodesmus subspicatus (Green algae)

**12.2. Persistence and degradability:** not applicable.

**12.3. Bioaccumulative potential:** not applicable.

**12.4. Mobility in soil:** No data available.

I **12.5. Results of PBT and vPvB assessment:** This mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% by weight or higher.

I **12.6. Endocrine disrupting properties:** This mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% by weight or higher.

**12.7. Other adverse effects:** No data available.



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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- I Product:** Do not allow to enter ground water, surface water or sewage system. Dispose of in accordance with local regulations. According to the European Waste Catalogue (EWC), waste code numbers are not product specific, but application specific. Waste code numbers are to be assigned by the user in discussion with the manufacturer / the disposer / the competent authority. Recommended EWC No.: 16 01 14\* - antifreeze fluids containing hazardous substances.
- Contaminated packaging:** Dispose of as the product. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### SECTION 14: Transport information

	ADR/ RID	ADN	IMDG	IATA/ ICAO
	Not classified as a dangerous good under transport regulations			
I 14.1. UN number or ID number	-	-	-	-
14.2. UN proper shipping name	-	-	-	-
14.3. Transport hazard classes	-	-	-	-
14.4. Packing group	-	-	-	-
14.5. Environmental hazards	-	-	-	-

#### 14.6. Special precautions for user

- I See sections 6, 7, and 8.
- I **14.7. Maritime transport in bulk according to IMO instruments**  
Not applicable.

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance/mixture

EU Regulations	Remark
I Regulation (EC) No. 649/2012 of the European Parliament and the Council concerning the export and import	Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59)	Not applicable
I REACH - List of substances subject to authorisation (Annex XIV)	Not applicable
Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer	Not applicable
Regulation (EC) No. 850/2004 on persistent organic pollutants	Not applicable
Seveso III - Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances	Not applicable

#### Other regulations

No further information.



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### SECTION 15: Regulatory information

#### 15.2. Chemical Safety Assessment

A Chemical Safety Assessment was not carried out for the product.

### SECTION 16: Other information

#### Full text of the abbreviations of classifications and H-Statements used in sections 2 and 3

Eye Irrit. 2                      Eye irritation, Category 2  
H319                              Causes serious eye irritation

#### Other abbreviations used in this safety data sheet in alphabetical order

ADN	European agreement concerning the international carriage of dangerous goods by inland waterways
ADR	European agreement concerning the international carriage of dangerous goods by road
ASTM	American Society for Testing and Materials
CAS number	Chemical Abstracts Service number
CLP	Regulation (EC) No. 1272/2008 on classification, labeling and packaging of chemical substances and mixtures
DIN	German Institute for Standardisation/German Industrial Standard
DNEL	Derived No Effect Level
EC50	Median Effective Concentration
EC number	EINECS number (European Inventory of Existing Substances) or ELINCS number (European List of Notified Chemical Substances)
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
INDEX number	Identification code for hazardous substances, Annex VI of Regulation (EC) No. 1272/2008
ISO	International Organisation for Standardisation/International Standard
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Cooperation and Development
REACH	Regulation (EC) No. 1907/2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulation concerning the international carriage of dangerous goods by rail

#### Further information

Sources of key data used to compile the safety data sheet: Internal technical data, data from component SDS, OECD eChem Portal search results and European Chemicals Agency [ECHA].

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Date of previous version: 01.07.2019 (Version 2.3)

Vertical lines in the left hand margin indicate an amendment from the previous version.

The information provided in this safety data sheet (SDS) is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific product identified at the top of this SDS and may not be valid when the SDS product is used in combination with any other materials or in any process, unless specified in the text. Product users should review the information and recommendations in the specific context of their intended manner of handling, use, processing, and storage, including an assessment of the appropriateness of this product in the user's end product, if applicable.