

Revision date 06/11/2023

Revision Number 3.01

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product Name	Freezer
Product Code(s)	FRE, EFRE200, EFRE400, ZO
Safety data sheet number	02081
Unique Formula Identifier (UFI)	TNR5-M01M-700R-M0A6
Pure substance/mixture	Mixture

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

Recommended use	Freezer
Uses advised against	No specific uses advised against are identified

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

<u>Manufacturer</u>	<u>Supplier</u>
ELECTROLUBE MacDermid Alpha Electronics Solutions ASHBY PARK, COALFIELD WAY, ASHBY DE LA ZOUCH, LEICESTERSHIRE LE65 1JR UNITED KINGDOM	HK WENTWORTH LIMITED 32 RUE DE TOURNENFILS 91540 MENNECY FRANCE
+44 (0)1530 419600 +44 (0)1530 416640 info@electrolube.com	+33 (0) 1 82 88 47 94 info@electrolube.com

For further information, please contact

E-mail address	info@electrolube.com
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**1.4. Emergency telephone number**

Emergency Telephone	POISON INFORMATION CENTRE (Beaumont Hospital, Republic of Ireland only) +353 (0)1 809 2166 (08:00 - 22:00)
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**Emergency Telephone - IN CASE OF EMERGENCY CALL: +44 1865 407333 (24hr, Provided by Carechem 24)****SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

Classification according to

Regulation (EC) No. 1272/2008 [CLP]

**Aerosols**

Category 3 - (H229)

**2.2. Label elements**

HFO-1234ze (CAS number 29118-24-9)

**Signal word**

Warning

**Hazard statements**

H229 - Pressurised container: May burst if heated

**Precautionary Statements - EU (§28, 1272/2008)**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P251 - Do not pierce or burn, even after use.

P410 + P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

**2.3. Other hazards**

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

Not applicable

**3.2 Mixtures**

The product contains no substances which at their given concentration, are considered to be hazardous to health

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
1,3,3,3-Tetrafluoropropane (HFO-1234ze) 29118-24-9	60-100	01-0000019758-54	471-480-0	Press. Gas (Liq.) (H280)	-	-	-

**Full text of H- and EUH-phrases: see section 16****Acute Toxicity Estimate**

No information available

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

**SECTION 4: First aid measures****4.1. Description of first aid measures**

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.
Skin contact	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.
Ingestion	Rinse mouth.
Self-protection of the first aider	Wear personal protective clothing (see section 8).

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

Symptoms	No information available.
Effects of Exposure	No information available.

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

Note to doctors	Treat symptomatically.
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### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

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

Specific hazards arising from the chemical	Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists. Containers may explode when heated.
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#### **5.3. Advice for firefighters**

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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### **SECTION 6: Accidental release measures**

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

Personal precautions	Use personal protective equipment as required. See section 8 for more information. Avoid breathing dust/fume/gas/mist/vapours/spray.
For emergency responders	Use personal protection recommended in Section 8.

#### **6.2. Environmental precautions**

**Environmental precautions** Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

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

**Methods for containment** Keep out of drains, sewers, ditches and waterways.

**Methods for cleaning up** Pick up and transfer to properly labelled containers.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### **6.4. Reference to other sections**

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

**Advice on safe handling** Avoid breathing dust/fume/gas/mist/vapours/spray. Use personal protection equipment. Ensure adequate ventilation. Do not puncture or incinerate cans. Contents under pressure.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

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

**Storage Conditions** Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Keep in properly labelled containers.

**Storage class (TRGS 510)** LGK 2A.

### **7.3. Specific end use(s)**

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## **SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

**Exposure Limits** This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
1,3,3,3-Tetrafluoropropene (HFO-1234ze) 29118-24-9	-	TWA: 1000 ppm TWA: 4700 mg/m <sup>3</sup>	TWA: 1000 ppm TWA: 4700 mg/m <sup>3</sup> Peak: 2000 ppm Peak: 9400 mg/m <sup>3</sup>	-	-
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
1,3,3,3-Tetrafluoropropene (HFO-1234ze) 29118-24-9	-	-	-	TWA: 4700 mg/m <sup>3</sup> TWA: 1000 ppm STEL: 2000 ppm STEL: 9400 mg/m <sup>3</sup>	-
Chemical name	Sweden		Switzerland		United Kingdom
1,3,3,3-Tetrafluoropropene (HFO-1234ze)	-		TWA: 1000 ppm TWA: 4700 mg/m <sup>3</sup>		-

29118-24-9		STEL: 2000 ppm STEL: 9400 mg/m <sup>3</sup>	
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**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Chemical name	Latvia	Luxembourg	Romania	Slovakia
1,3,3,3-Tetrafluoropropene (HFO-1234ze) 29118-24-9	-	-	5 mg/g Creatinine - urine (Fluorine) - end of shift	-

**Derived No Effect Level (DNEL) - Workers**

**Derived No Effect Level (DNEL) - General Public** .

**Predicted No Effect Concentration (PNEC)** .

## 8.2. Exposure controls

**Engineering controls** Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment**

**Eye/face protection** Safety glasses with side shields are recommended for medical or industrial exposures.

**Skin and body protection** No special protective equipment required.

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** No information available.

## SECTION 9: Physical and chemical properties

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

<b>Physical state</b>	Gas
<b>Appearance</b>	Aerosol
<b>Colour</b>	Colourless
<b>Odour</b>	Characteristic.
<b>Odour threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>Melting point / freezing point</b>	No data available	None known
<b>Initial boiling point and boiling range</b>	-19 °C	-19°C
<b>Flammability</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability or explosive limits</b>	No data available	
<b>Lower flammability or explosive limits</b>	No data available	
<b>Flash point</b>	No data available	None known

Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Vapour pressure	No data available	None known
Relative density	No data available	None known
Bulk density	No data available	
Liquid Density	No data available	
Relative vapour density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

## 9.2. Other information

9.2.1. Information with regards to physical hazard classes  
Not applicable

9.2.2. Other safety characteristics  
No information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity No information available.

### 10.2. Chemical stability

Stability Stable under normal conditions.

#### Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

### 10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.

### 10.5. Incompatible materials

Incompatible materials None known based on information supplied.

### 10.6. Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

## SECTION 11: Toxicological information

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

**Information on likely routes of exposure****Product Information**

<b>Inhalation</b>	Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**

<b>Symptoms</b>	No information available.
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**Acute toxicity****Numerical measures of toxicity**

No information available

**The following values are calculated based on chapter 3.1 of the GHS document**

<b>ATEmix (oral)</b>	99,999.00 mg/kg
<b>ATEmix (dermal)</b>	99,999.00 mg/kg
<b>ATEmix (inhalation-gas)</b>	99,999.00 ppm
<b>ATEmix (inhalation-vapour)</b>	99,999.00 mg/l
<b>ATEmix (inhalation-dust/mist)</b>	99,999.00 mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
1,3,3,3-Tetrafluoropropene (HFO-1234ze)	-	-	> 207000 ppm ( Rat ) 4 h

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

<b>Skin corrosion/irritation</b>	Based on available data, the classification criteria are not met.
<b>Serious eye damage/eye irritation</b>	Based on available data, the classification criteria are not met.
<b>Respiratory or skin sensitisation</b>	Based on available data, the classification criteria are not met.
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>Reproductive toxicity</b>	Based on available data, the classification criteria are not met.
<b>STOT - single exposure</b>	Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

## **11.2. Information on other hazards**

### **11.2.1. Endocrine disrupting properties**

**Endocrine disrupting properties** The substance/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% or higher.

### **11.2.2. Other information**

**Other adverse effects** No information available.

## **SECTION 12: Ecological information**

### **12.1. Toxicity**

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

### **12.2. Persistence and degradability**

**Persistence and degradability** No information available.

### **12.3. Bioaccumulative potential**

**Bioaccumulation** There is no data for this product.

Chemical name	Partition coefficient
1,3,3,3-Tetrafluoropropene (HFO-1234ze)	1.6

### **12.4. Mobility in soil**

**Mobility in soil** No information available.

### **12.5. Results of PBT and vPvB assessment**

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

### **12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** The substance/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% or higher.

### **12.7. Other adverse effects**

No information available.

## **SECTION 13: Disposal considerations**

### **13.1. Waste treatment methods**



**Waste from residues/unused products**

Dispose of in accordance with local regulations.

**Contaminated packaging**

Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

**SECTION 14: Transport information****IATA**

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	AEROSOLS
14.3 Transport hazard class(es)	2.2
14.4 Packing group	None
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None

**IMDG**

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	AEROSOLS
14.3 Transport hazard class(es)	2.2
14.4 Packing group	None
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
EmS-No	F-D, S-U
14.7 Maritime transport in bulk according to IMO instruments	No information available

**RID**

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	AEROSOLS
14.3 Transport hazard class(es)	2.2
14.4 Packing group	None
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None

**ADR**

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	AEROSOLS
14.3 Transport hazard class(es)	2.2
14.4 Packing group	None
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
Tunnel restriction code	(E)

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations**

Germany

**Water hazard class (WGK)** slightly hazardous to water (WGK 1)

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 1005/2009**

Not applicable

**International Inventories**

<b>TSCA</b>	Contact supplier for inventory compliance status
<b>DSL/NDL</b>	Contact supplier for inventory compliance status
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status
<b>ENCS</b>	Contact supplier for inventory compliance status
<b>IECSC</b>	Contact supplier for inventory compliance status
<b>KECL</b>	Contact supplier for inventory compliance status
<b>PICCS</b>	Contact supplier for inventory compliance status
<b>AIIC</b>	Contact supplier for inventory compliance status
<b>NZIoC</b>	Contact supplier for inventory compliance status

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AIIC** - Australian Inventory of Industrial Chemicals  
**NZIoC** - New Zealand Inventory of Chemicals

**15.2. Chemical safety assessment**

**Chemical Safety Report** No information available

**SECTION 16: Other information****Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H280 - Contains gas under pressure; may explode if heated

**Legend**

SVHC: Substances of Very High Concern for Authorisation:

**Legend Section 8: Exposure controls/personal protection**

TWA TWA (time-weighted average)

STEL

STEL (Short Term Exposure Limit)

Ceiling Maximum limit value

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Skin designation

+ Sensitisers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method
Flammable aerosol	On basis of test data

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)

European Chemicals Agency (ECHA) (ECHA\_API)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

National Institute of Technology and Evaluation (NITE)

Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications

Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme

Organisation for Economic Co-operation and Development Screening Information Data Set

World Health Organization

Revision date

06/11/2023

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**