

**according to Regulation (EC) No 1907/2006, Article 31**

Printing date 27.03.2024

Version number 5 (replaces version 4)

Revision: 27.03.2024

**1 Identification of the substance/mixture and of the company/undertaking****· 1.1 Product identifier****· Trade name:** 403C**· Other Means of Identification:** Super Cold™ 1234ZE**· Related Part Number:** 403C-Aerosol, 403C-235G**· CAS Number:**

29118-24-9

**· ELINCS Number:**

471-480-0

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

Not available

**· Application of the substance / the mixture**

For cooling electronic components and locating thermal intermittents.

**· 1.3 Details of the supplier of the safety data sheet M.G. Chemicals Ltd.****· Manufacturer/Supplier:**

MG Chemicals Ltd. (Head Office)

1210 Corporate Drive

Burlington, Ontario L7L 5R6

CANADA

+(1) 800-340-0772

MG Chemicals

Heame House, 23 Bliston Street

Sedgely Dudley DY3 1JA.

UNITED KINGDOM

+(44) 1663 362888 sales@mgchemicals.com

MG Chemicalst Ltd.

Level 2, Vision Exchange, Building Territorials Street,

Zone 1, Central Business, District,

Birkirkara CBD 1070,

MALTA

**· Further information obtainable from:** sds@mgchemicals.com**· 1.4 Emergency telephone number:**

Verisk 3E (Access code: 335388), +(44) 20 3514787

Other emergency telephone numbers: +(0) 800 680 0425

Members of the public seeking specific information on poisons should contact:

In England and Wales: NHS 111 - dial 111

In Scotland: NHS 24 - dial 111

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)

USA or CANADA-Call Verisk 3E at +1-866-519-4752 or +1-760-476-3962 (Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service

CANADA-Call CANUTEC collect at +1-613-996-6666 or \*666 on cellular phones

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**2 Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS04 gas cylinder

Press. Gas (Liq.) H280 Contains gas under pressure; may explode if heated.

Aerosol 3 H229 Pressurised container: May burst if heated.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the GB CLP regulation.

- **Hazard pictograms**



GHS04

- **Signal word** Warning
- **Hazard statements**

H229 Pressurised container: May burst if heated.

H280 Contains gas under pressure; may explode if heated.

- **Precautionary statements**

P102 Keep out of reach of children.

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.

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

- **Determination of endocrine-disrupting properties**

Endocrine Disruptor substance  $\geq 0.1\%$  = none

**3 Composition/information on ingredients**

- **3.1 Substances**
- **CAS No. Description**  
29118-24-9 (E)-1,3,3,3-tetrafluoroprop-1-ene  
HFO1234ze
- **Identification number(s)**
- **ELINCS Number:** 471-480-0

**4 First aid measures**

- **4.1 Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.

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- **After swallowing:** *If symptoms persist consult doctor.*
- **4.2 Most important symptoms and effects, both acute and delayed**  
*No further relevant information available.*
- **4.3 Indication of any immediate medical attention and special treatment needed**  
*No further relevant information available.*

## 5 Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
*Use fire extinguishing methods suitable to surrounding conditions.*
- **5.2 Special hazards arising from the substance or mixture**  
*Vapors are heavier than air. Vapors may travel to sources of ignition near the ground. They can cause flash fire or ignite explosively.*
- **5.3 Advice for firefighters**
- **Protective equipment:** *No special measures required.*

## 6 Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
*Not required.*
- **6.2 Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*
- **6.3 Methods and material for containment and cleaning up:**  
*Absorb liquid components with liquid-binding material.*
- **6.4 Reference to other sections**  
*See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.*

## 7 Handling and storage

- **7.1 Precautions for safe handling** *No special precautions are necessary if used correctly.*
- **Information about fire - and explosion protection:** *No special measures required.*
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
*Observe official regulations on storing packagings with pressurised containers.*
- **Information about storage in one common storage facility:** *Not required.*
- **Further information about storage conditions:** *None.*
- **7.3 Specific end use(s)** *No further relevant information available.*

## 8 Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** *Not required.*
- **Additional information:** *The lists valid during the making were used as basis.*
- **8.2 Exposure controls**
- **Appropriate engineering controls** *No further data; see section 7.*
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**  
*Wash hands before breaks and at the end of work.*

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- **Respiratory protection:**  
Use suitable respiratory protective device in case of insufficient ventilation.
- **Hand protection**  
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
- **Material 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.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye/face protection** Not required.

## 9 Physical and chemical properties

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

#### · General Information

- |   |                               |
|---|-------------------------------|
| · <b>Physical state</b>   | Aerosol                       |
| · <b>Colour:</b>  | Not determined.               |
| · <b>Odour:</b>   | Characteristic                |
| · <b>Odour threshold:</b>   | Not determined.               |
| · <b>Melting point/freezing point:</b>                            | Undetermined.                 |
| · <b>Boiling point or initial boiling point and boiling range</b> | -19 °C                        |
| · <b>Flammability</b>   | Not applicable.               |
| · <b>Lower and upper explosion limit</b>                          |                               |
| · <b>Lower:</b>   | Not determined.               |
| · <b>Upper:</b>   | Not determined.               |
| · <b>Flash point:</b>   | Not applicable, as aerosol.   |
| · <b>Auto-ignition temperature:</b>                               | 368 °C                        |
| · <b>Decomposition temperature:</b>                               | Not determined.               |
| · <b>pH</b>   | Mixture is non-polar/aprotic. |
| · <b>Viscosity:</b>   |                               |
| · <b>Kinematic viscosity</b>                                      | Not determined.               |
| · <b>Dynamic:</b>   | Not determined.               |
| · <b>Solubility</b>   |                               |
| · <b>water at 20 °C:</b>  | .373 g/l                      |
| · <b>Partition coefficient n-octanol/water (log value)</b>        | Not determined.               |
| · <b>Vapour pressure at 20 °C:</b>                                | 4,192 hPa                     |
| · <b>Density and/or relative density</b>                          |                               |
| · <b>Density at 20 °C:</b>  | 1.17 g/cm <sup>3</sup>        |
| · <b>Relative density</b>   | Not determined.               |
| · <b>Vapour density</b>   | Not determined.               |
| · <b>Relative gas density</b>                                     |                               |

29118-24-9 (E)-1,3,3,3-tetrafluoroprop-1-ene 3.9  
HFO1234ze

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**9.2 Other information****Appearance:****Form:** Aerosol**Important information on protection of health and environment, and on safety.****Ignition temperature:** Not determined.**Explosive properties:** Not determined.**Solvent content:****VOC (EC)** 0.00 %**Solids content:** 0.0 %**Molecular weight** 114.04 g/mol**Change in condition****Evaporation rate** Not applicable.**Information with regard to physical hazard classes****Explosives** Void**Flammable gases** Void**Aerosols** Pressurised container: May burst if heated.**Oxidising gases** Void**Gases under pressure** Void**Flammable liquids** Void**Flammable solids** Void**Self-reactive substances and mixtures** Void**Pyrophoric liquids** Void**Pyrophoric solids** Void**Self-heating substances and mixtures** Void**Substances and mixtures, which emit flammable gases in contact with water** Void**Oxidising liquids** Void**Oxidising solids** Void**Organic peroxides** Void**Corrosive to metals** Void**Desensitised explosives** Void**10 Stability and reactivity****10.1 Reactivity** No further relevant information available.**10.2 Chemical stability****Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

**10.3 Possibility of hazardous reactions** No dangerous reactions known.**10.4 Conditions to avoid** No further relevant information available.**10.5 Incompatible materials:** No further relevant information available.**10.6 Hazardous decomposition products:** No dangerous decomposition products known.**11 Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity** Based on available data, the classification criteria are not met.

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· **LD/LC50 values relevant for classification:**

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**HFO1234ze**

Inhalative LC50/4 h 207,000 mg/l (rat)

· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

· **Serious eye damage/irritation**

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

· **Respiratory or skin sensitisation**

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

· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

· **Carcinogenicity** Based on available data, the classification criteria are not met.

· **Reproductive toxicity** Based on available data, the classification criteria are not met.

· **STOT-single exposure** 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**

· **Endocrine disrupting properties**

Substance is not listed.

## 12 Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **12.2 Persistence and degradability** No further relevant information available.

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

## 13 Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

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**14 Transport information**

- **14.1 UN number or ID number**  
ADR, IMDG, IATA UN1950
- **14.2 UN proper shipping name**  
ADR 1950 AEROSOLS  
IMDG AEROSOLS  
IATA Aerosols, non-flammable
- **14.3 Transport hazard class(es)**

- ADR



- **Class** 2.5A Gases.
- **Label** 2.2

- **IMDG, IATA**



- **Class** 2.2 Gases.
- **Label** 2.2
- **14.4 Packing group**
- **ADR, IMDG, IATA** not regulated
- **14.5 Environmental hazards:** Not applicable.
- **14.6 Special precautions for user** Warning: Gases.
- **Hazard identification number (Kemler code):** -
- **EMS Number:** F-D,S-U
- **Stowage Code** SW1 Protected from sources of heat.  
SW22 For AEROSOLS with a maximum capacity of 1 litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters.
- **Segregation Code** SG69 For AEROSOLS with a maximum capacity of 1 litre:  
Segregation as for class 9. Stow "separated from" class 1 except for division 1.4.  
For AEROSOLS with a capacity above 1 litre:  
Segregation as for the appropriate subdivision of class 2.  
For WASTE AEROSOLS:  
Segregation as for the appropriate subdivision of class 2.
- **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

- **Transport/Additional information:**

- **ADR**
- **Limited quantities (LQ)** 1L

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|                                   |  |
|-----------------------------------|--|
| · <b>Excepted quantities (EQ)</b> | Code: E0<br>Not permitted as Excepted Quantity |
| · <b>Transport category</b>       | 3  |
| · <b>Tunnel restriction code</b>  | E  |
| -----                             |  |
| · <b>IMDG</b>                     |  |
| · <b>Limited quantities (LQ)</b>  | 1L   |
| · <b>Excepted quantities (EQ)</b> | Code: E0<br>Not permitted as Excepted Quantity |
| · <b>UN "Model Regulation":</b>   | UN 1950 AEROSOLS, 2.2                          |

## 15 Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Poisons Act**
- **Regulated explosives precursors**  
Substance is not listed.
- **Regulated poisons**  
Substance is not listed.
- **Reportable explosives precursors**  
Substance is not listed.
- **Reportable poisons**  
Substance is not listed.
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**  
Substance is not listed.
- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**  
Substance is not listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**  
Substance is not listed.
- **Regulation (EC) No 273/2004 on drug precursors**  
Substance is not listed.
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**  
Substance is not listed.
- **15.2 Chemical safety assessment:**  
A Chemical Safety Assessment has not been carried out.

## 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.

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· **Date of previous version:** 27.01.2024

· **Version number of previous version:** 4

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Aerosol 3: Aerosols – Category 3

Press. Gas (Liq.): Gases under pressure – Liquefied gas

· \* **Data compared to the previous version altered.**

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