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According to REACH Regulation (EC) No. 1907/2006

1) Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Name: R143a

Chemical Name: 1,1,1-trifluoroethane

CAS no: 354-33-6 EC no: 206-557-8

Product type and uses: Refrigerant,

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

Relevant identified uses: Refrigerant

Uses advised against: Specific uses that are not recommended are not identified.

1.3. Details of the supplier of the safety data sheet

Supplier address: Cantaş Kimya Sanayi ve Ticaret A.Ş.

Supplier address: Demirciler OSB Mevkii, Gebze V(Kimya) İhtisas OSB, Fatma Börü Caddesi No:5/1

Dilovası/Kocaeli/Türkiye

Phone Number : 0 (212) 910 12 76 Fax Number : 0 (212) 219 30 61

E-mail address : info@cantaskimya.com

Contact Person : Elif Ekinci

1.4. Emergency telephone number

Cantaş Kimya: 0 (212) 910 12 60

National Poison Consultation Center Turkey: 114

Emergency Health Services Turkey: 112

Fire Brigade Turkey: 112

2) Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with (EC) Regulation 1272/2008

Flam. Gas Category 1 H220

Press. Gas liq.; H280

2.2. Label Elements

Label In Accordance with (EC) No. 1272/2008

Hazard pictograms:



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Signal Word: Danger Hazard Statements:

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

Precautionary Statements:

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

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 In case of leakage, eliminate all ignition sources.

P403 Store in a well-ventilated place.

P410+P403 Protect from sunlight. Store in a well-ventilated place.

Supplemental Label Elements:

Contains fluorinated greenhouse gases

2.3.Other hazards

Contact with its liquid form may cause frostbite. In contact with the skin, the spray quickly evaporates and cools; may cause frostbite or frostbite.

Based on the available data, the product does not contain any PBT (Persistent, Bioaccumulative and Toxic substances) or vPvB (very Persistent and very Bioaccumulative substances) at concentrations exceeding 0.1%

Based on the available data, the product does not contain any endocrine disrupting at concentrations exceeding 0.1%

3) Composition/information on ingredients

3.1. Substances

In Accordance with (EC) No. 1272/2008

Product name: R152a

Chemical name: 1,1-difluoroethane

CAS number: 75-37-6 **EC number:** 200-866-1

Chemical formula: C2H4F2

Quantity: >99.9%

Properties of the Component:



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According to REACH Regulation (EC) No. 1907/2006 (SEA, Hazard class and category code)
Flam.Gas 1 H220
Pressure Gas H280

3.2. Mixture

Nonapplicable.

4) First aid measures

4.1. Description of first aid measures

General information

Get medical help immediately. Show this Safety Data Sheet to healthcare personnel.

Inhalation: Remove victim from source of contamination. Remove the exposed person to fresh air and keep warm and at rest in a comfortable breathing position. Keep airways open. Loosen tight parts of clothing, such as collars, ties or belts. When breathing is difficult, oxygen can be given to the victim by appropriately trained personnel. Place the unconscious person on his side in the first aid position and allow breathing to occur.

Skin Contact: Wash with water. If symptoms are severe or persistent after washing, seek medical attention.

Eye Contact: Rinse immediately with plenty of water. Remove any contact lenses and open the eyelids wide. Wash with water for at least 10 minutes.

Ingestion: Remove victim from source of contamination. Remove the exposed person to fresh air and keep warm and at rest in a comfortable breathing position. Keep airways open. Loosen tight parts of clothing, such as collars, ties or belts. When breathing is difficult, oxygen can be given to the victim by appropriately trained personnel. Place the unconscious person on his side in the first aid position and allow breathing to occur.

Protection of first aid workers

First aid personnel should wear appropriate protective equipment during rescue.

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

General information

For additional information on health hazards, see Section 11. The severity of the symptoms described may vary depending on the concentration and duration of exposure.

Inhalation: May cause respiratory irritation.

Ingestion: Due to the physical properties of this product, the risk of ingestion is very low.



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Skin contact: There are no known specific symptoms.

Eye contact: There are no known specific symptoms. It may be slightly irritating to the eyes.

See paragraphs 2 and 11

4.3. Indications for immediate medical attention and special treatment

There is no data available.

Treatment:

Apply symptomatic treatment.

5) Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water mist. Use suitable extinguishing media to surround the fire.

Unsuitable extinguishing media: Do not use water jet to extinguish the fire as it may spread the fire.

5.2. Special hazards arising from the substance or mixture

Special hazards: Containers may burst violently when heated due to excessive pressure inside the containers.

Harmful combustion products: Carbon monoxide (CO). Carbon dioxide (CO2).

5.3. Advice for firefighters

Fire due to gas leak: Do not extinguish until the leak is stopped safely.

In case of leakage, eliminate all sources of ignition.

Protective measures to be taken during fire extinguishing:

Avoid breathing fire gases or vapors. Clear the area. exposed to heat

Cool containers with water spray and, if there is no risk, remove these containers from the fire area.

Take it somewhere else. Cool containers exposed to flames with water until the fire is extinguished.

If the leak or spill is not ignited, disperse vapors with water spray and clean the leak location.

Protect personnel trying to close. Flowing fire extinguishing water, sewage and water

Take control by limiting and preventing access to roads. Danger of water contamination If so, notify the relevant authorities.

Special protective equipment for firefighters:

Positive pressure self-contained closed-circuit breathing apparatus and appropriate protective clothing get dressed. Firefighter clothing (helmets, protective boots and protective clothing) conforming to European standard EN469 gloves) will provide a basic level of protection against chemical accidents.



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6) Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Any action should not be taken without proper training or involving personal danger. Keep non-essential and unprotected persons away from spillage. Wear protective clothing as shown in section 8 of this Safety Data Sheet. For safe handling, take the precautions written in the Safety Data Sheet. Cleanse yourself thoroughly after dealing with a rash. Ensure procedures and emergency training are provided for on-site cleanup and disposal of waste. Do not touch or walk on spilled material.

6.2. Environmental precautions

Exposure to the aquatic environment is unlikely

Prevent from entering sewers, storm drains, basements or work pits because vapor can create a suffocating atmosphere.

Large Spills: If environmental pollution occurs (sewage, water resources, soil or air), notify the relevant authorities.

6.3. Methods and material for containment and cleaning up

Wear protective clothing as shown in Section 8 of this Safety Data Sheet. Clean up spills immediately and dispose of waste safely. Have the wind at your back as you approach the debris. Wash the contaminated area with plenty of water. Cleanse yourself thoroughly after dealing with a rash. Dispose of waste at a licensed waste disposal facility in accordance with the requirements of your local Waste Disposal Authority.

6.4. Reference to other sections

Retrieve the information related to safe use from the 7th section

For personal protection see section 8.

For waste disposal see section 13.

7) Handling and storage

7.1. Precautions for safe handling

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

Safe handling precautions

Read and follow the manufacturer's recommendations. Wear protective clothing as shown in Section 8 of this Safety Data Sheet. Keep away from food, drink and animal feed. Do not handle unless all precautionary statements have been read and understood. Do not handle broken packages without protective equipment.

Advice on general occupational hygiene



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If skin becomes dirty, wash immediately. Remove contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke while using this product. Wash your hands at the end of each shift and before eating, smoking and going to the toilet. Change work clothes every day before leaving the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Requested storage information:

Keep away from incompatible substances (see Section 10). Store according to local regulations.

Store only in its original container. Keep container tightly closed in a cool, well-ventilated area. Hold containers upright. Protect containers from damage. Protect from sunlight. In case of spillage, dam storage facilities to prevent soil and water contamination. The storage area floor must be leak-proof, seamless and non-absorbent.

Storage class: Flammable compressed gas storage.

7.3. Specific end use(s)

See section 1.2.

8) Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

Limit Value (TWA 8-hour): WEL: Workplace Exposure Value. 1000 mg/m³

8.2. Exposure controls

General protective health and sanitary measures: Provide eye wash stations and safety showers. Do not take contaminated clothing outside the workplace. Wash contaminated clothes before reuse. Clean equipment and work areas daily. Implement good personal hygiene procedures. Wash hands at the end of each shift, before meals, without smoking or using the restroom. Avoid eating, drinking, and smoking during use. Conduct preventive industrial medical examinations. Warn cleaning personnel about the hazardous properties of the product.

Personal protective equipment:



Respiratory Protection:

If the risk assessment indicates the possibility of inhaling air pollution, use respiratory protection compliant with an approved standard. Ensure that all respiratory protective equipment is suitable for the intended use and marked with 'CE'. Pay attention to the proper fit of the respiratory device, and replace the filter regularly. Gas filters and combined filter cartridges should comply with the TS/EN 14387 Standard. Full-face masks with replaceable filter cartridges should comply with the TS/EN 136



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According to REACH Regulation (EC) No. 1907/2006 Page 7 / 15 Standard. Half or quarter-face respiratory devices with replaceable filter cartridges should comply with the TS/EN 140 Standard.

Eye Protection:

If the risk assessment indicates the possibility of eye contact, use eye protection compliant with an approved standard. Personal protective equipment used for eye and face protection should comply with the TS/EN 166 Standard. Unless the risk assessment indicates the need for higher-level protection, use tight-fitting safety glasses.

Skin Protection:

If the risk assessment suggests possible contamination of the skin, wear appropriate shoes and additional protective clothing compliant with an approved standard.

Hand Protection:

If the risk assessment indicates possible skin contact, use chemical-resistant, waterproof gloves compliant with an approved standard. Choose the most suitable gloves by consulting with the glove distributor/manufacturer, who can provide information about the puncture resistance of the glove material. Gloves should comply with the TS/EN 374 Standard for protecting hands against chemicals. Check regularly throughout use if the gloves maintain their protective properties according to the information provided by the glove manufacturer. Replace gloves promptly if any deterioration is detected. It is recommended to change gloves frequently.

Thermal Risks:

Not applicable.

Environmental Exposure Controls:

Containers should be tightly closed when not in use. Refer to Section 7 and Section 13.

Engineering Controls:

Ensure adequate ventilation. Personal, workplace, or biological monitoring may be necessary to determine the effectiveness of ventilation or the need for other control measures and/or the use of respiratory protective equipment. Implement primary methods of process protection, local exhaust ventilation, and other technical controls to minimize employee exposure. If employee exposure cannot be adequately controlled with technical control measures, use personal protective equipment. Ensure regular inspection and maintenance of control measures. Provide training for operators to minimize exposure. Adequate ventilation facilities should be available.

9) Physical and chemical properties

9.1. Information on basic physical and chemical properties



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Property	Value
(a) Physical state	Liquefied Gas
(b) Colour	Colorless
(c) Odour	Slight ether like odour
(d) Melting point/freezing point	-117 °C
(e) Boiling point or initial boiling point and boiling range	-24,7 °C
(f) Flammability	Extremely flammable gas.
(g) Lower and upper explosion limit (7)	Upper flammability/explosion limit: 18 % Lower flammability/explosion limit: 3.7 %
(h) Flash point	-50 °C Open Cup
(i) Auto-ignition temperature	455°C
(j) Decomposition temperature	Information not available
(k) pH	Information not available
(l) 1) Viscosity	0,263 cP @ 10°C
(l) 2) Kinematic viscosity	Information not available
(m) Solubility	2,671 g/l Water @ 25° C
(n) Partition coefficient n-octanol/water (log value)	log Pow: 0,75
(o) Vapour pressure	4550 mm Hg @ 25°C
(p) Density and/or relative density	0,91 g/cm3 @21 °C
(q) Relative vapour density	Information not available
(r) Particle characteristics	Information not available
(s) Evaporation rate	Information not available

9.2. Other Information

Property	Value
Critical temperature	113,5°C
Henry law constant	0,02 atm-m3/mol

- 9.2.1. Information with regard to physical hazard classes
- H220 Extremely flammable gas.
- H280 Contains gas under pressure; may explode if heated
- 9.2.2. Other safety characteristics

Information not available.

10) Stability and reactivity



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10.1. Reactivity

For more detailed information, please refer to other sections of this part.

10.2. Chemical stability

Stable under normal temperature, conditions and recommended use. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Decomposition at ambient temperatures may produce the following substances: Harmful gases or vapours. Hydrogen fluoride (HF). Carbon oxides. Phosgene (COCl2).

10.4. Conditions to avoid

Avoid heat, flame and other ignition sources. Containers may burst violently when heated due to excessive pressure build-up inside. Do not crush, cut, weld, drill, grind, or expose containers to sources of heat or ignition.

10.5. Incompatible materials

Strong oxidizing agents. Magnesium. Aluminum. Rice. Steel.

10.6. Hazardous decomposition products

There will be no decomposition when used and stored in accordance with recommended conditions. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors. Carbon oxides. Hydrogen fluoride (HF).

11) Toxicological information

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

a) Acute toxicity

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

b) Skin corrosion/irritation;

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

c) Serious eye damage/irritation

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

d) Respiratory or skin sensitisation

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

e) Germ cell mutagenicity

Sınıflandırılmamış.

Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.

Uygulama yoktur.



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According to REACH Regulation (EC) No. 1907/2006

f) Carcinogenicity

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

IARC carcinogenicity: None of the components have been listed or exempted.

g) Reproductive toxicity

Sınıflandırılmamış.

Mevcut bilgilere göre, sınıflandırma kriterlerini karşılamamaktadır.

Uygulama yoktur.

h) Single Target Organ Toxicity-Single Exposure

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

i) Single Target Organ Toxicity- Repeated Exposure

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

i) Aspiration hazard.

Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Application not available.

11.2. Information on other hazards:

General information: The severity of the symptoms described may vary depending on the concentration and duration of exposure.

Inhalation: May cause respiratory irritation.

Ingestion: Due to the physical properties of this product, the risk of ingestion is very low. Contact with its liquid form may cause frostbite.

Skin contact: In contact with skin, the spray evaporates and cools quickly; may cause frostbite or frostbite.

Eye contact: Contact with the liquid form may cause frostbite.

Routes of contact: Inhalation Skin and/or eye contact.

Target organs: There are no specific target organs known.

Based on the available data the product does not contain any other hazards in accordance with Regulation (EC) No 1272/2008.

12) Ecological information

Ecotoxicity: Not considered hazardous to the environment. However, large or frequent spills may have harmful effects on the environment.

12.1. Toxicity



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Not classified.

Mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 Acute aquatic toxicity

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: 980 mg/l, Daphnia magna (OECD SIDS)

12.2. Persistence and degradability

Information not available It is not expected to biodegrade easily.

12.3. Bioaccumulative potential

There are no available data on bioaccumulation. Low potential.

Distribution coefficient: log Pow: 0.75

12.4. Mobility in soil

Non-relevant.

Henry's law constant 0.02 atm-m3/mol

12.5. Results of PBT and vPvB assessment

Based on the available data the product does not contain %0,1 or more PBT and vPvB components.

12.6. Endocrine disrupting properties

Based on the available data the product does not contain substances listed in the Endocrine disruptor assessment list

12.7. Other adverse effects

Global warming potential (GWP): 120

Climate warming potential.

13) Disposal considerations

13.1. Waste treatment methods

General information

Waste generation should be minimized or avoided wherever possible. Where possible, reuse or recycle products. This material and its container must be disposed of safely. Disposal of this product, process solutions, residues and by-products must always comply with environmental protection requirements, waste disposal legislation and local authority requirements. When handling waste, the safety measures implemented for handling the product should be taken into account. When handling emptied containers, care should be taken to thoroughly clean and wash them. Empty containers or product residues that may remain in their layers can be potentially hazardous.

Waste processing methods

Do not empty into drains. We dispose of leftover and non-recyclable products in a licensed waste disposal facility.



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Dispose of it with the help of a disposal organization. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in appropriate containers and labeled according to their contents. Waste packaging should be collected for reuse or recycling. When recycling is not feasible, only incineration or burial should be used.

14) Transport information



14.1. UN number or ID number:

UN No. (ADR/RID) 1030 UN No. (IMDG) 1030 UN No. (ICAO) 1030 UN No. (ADN) 1030

14.2. UN proper shipping name

Proper shipping name (ADR/RID): 1,1-DIFLOROETHANE (REFRIGERANT GAS R 152a) Proper shipping name (IMDG): 1,1-DIFLOROETHANE (REFRIGERANT GAS R 152a) Proper shipping name (ICAO): 1,1-DIFLOROETHANE (REFRIGERANT GAS R 152a) Proper shipping name (ADN): 1,1-DIFLOROETHANE (REFRIGERANT GAS R 152a)

14.3. Transport hazard class(es)

ADR/RID class 2.1 ADR/RID classification code 2F ADR/RID label 2.1 IMDG class 2.1 ICAO class/division 2.1 ADN class 2.1

14.4. Packaging group

Not applicable.

14.5. Environmental damages

Environmentally harmful/marine pollutant: No.

14.6. Special precautions for the user

EmS: F-D, S-U

ADR shipment category: 2 Emergency action code: 2YE Hazards Identification: 23 Number (ADR/RID)



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According to REACH Regulation (EC) No. 1907/2006 Tunnel restriction code: (B/D)

14.7. Maritime transport in bulk according to IMO instruments:

Information not available

15) Regulatory information

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

REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) Regulation (EC) No. 1907/2006

CLP (Classification, Labelling, and Packaging) Regulation (EC) No. 1272/2008

Seveso Directive (Directive 2012/18/EU)

Waste Framework Directive (Directive 2008/98/EC)

Regulation on Persistent Organic Pollutants (Regulation (EU) 2019/1021)

Biocidal Products Regulation (EU) No 528/2012

EC Commission Directive (EU) 2000/39/EC dated 8 June 2000.

Regulation (EU) on fluorinated greenhouse gases (Regulation (EU) 517/2014)

Adhere to the national sanitary and occupational safety regulations when using this product.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

16) Other information

16.1 Revisions

Not applicable

16.2 Abbreviations and Acronyms

REACH: EU Directive No. 1907/2006 on Registration, Evaluation, Authorisation, and Restriction of Chemicals,

CLP: Directive No. 1272/2008 "Classification, Labeling and Packaging of Substance and Mixtures" published in the EU,

SDS: Safety Data Sheet

CAS: Chemical Abstracts Service (followed by a number specific to the chemical)

EC: European Commission (followed by a number specific to the chemical)

H-statements: Hazard Statements



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P-statements: Precautionary Statements

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods code

IATA: International Air Transport Association Dangerous Goods Regulations

PPE: Personal Protective Equipment

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ADN: European Agreement on the international transport of dangerous goods by waterways.

RID: European Agreement on the international transport of dangerous goods by rail.

ICAO-TI: International Civil Aviation Organization - Technical Instructions, Technical instructions for the international transportation of dangerous goods by air.

CAS number: Chemical Theory Service registration numbers are single descriptive numbers used for chemical compounds, polymers, biological sequences, mixtures and alloys.

DNEL: Derived chemical exposure level to which humans should not be exposed (Derived No-Effect Level)

EC number: The number given by the European Commission according to the structural characteristics of the substance,

EC50: The concentration at which the effect is observed in 50% of the test organisms; Effect concentration

LC50: The concentration at which death is observed in 50% of the test organisms; Deadly concentration. (Lethal Concentration)

LD50: The dose at which death is observed in 50% of the test organisms; Lethal dose. (Lethal Dose)

LOEC: Lowest Observed Effect Concentration

LOAEC: Lowest Observed Adverse Effect Concentration

LOEL: Lowest Observed Effect Level

LOAEL: Lowest Observed Adverse Effect Level

MARPOL 73/78: International Convention for the Prevention of Pollution of the Seas from Ships, signed in 1973 and amended in 1978

Contract. (Derived from the English term Marine Pollution.)

NIOSH: US National Institute for Occupational Safety and Health

NOEC: No Observed Effect Concentration

NOAEC: Concentration where no adverse effects are observed (No Observed Adverse Effect Concentration)

NOEL: No Observed Effect Level

NOAEL: Level where no adverse effects are observed (No Observed Adverse Effect Level)

PBT: Persistent, Bioaccumulate and Toxic

vPvB: Very persistent and very bioaccumulative (Very Persistent, Bioaccumulate and Toxic)

PNEC: Predicted No-Effect Concentration.



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SED: Systemic exposure dose, the amount of the component expected to pass into the bloodstream in mg/kg body weight/day (Systemic exposure dose).

STEL: Time-weighted average exposure limit value determined based on 15 minutes of exposure, unless another period is specified. Short Term Exposure Limit

TWA: Time-weighted average, a limit value that is accepted to not adversely affect the health of employees, determined on the basis of 8 hours a day and 40 hours a week.

16.3 Relevant hazard statements and/or precautionary statements (If not stated above)

All statements are stated in Section 2.

16.3 Other Information

The form has been prepared by an expert in accordance with the rules specified in latest Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), by an expert stated on Annex-XVIII of the Turkish Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals (Official Gazette Date: 23.06.2017, Official Gazette Number: 30105 Duplicate) who has received a competence certificate from an organization accredited by the Turkish Accreditation Agency (TURKAK) for personnel certification in chemical assessment.

The information contained in this document is based on our knowledge declared on the abovementioned date. It refers to the single product only and does not carry a particular quality guarantee.

It is the user's responsibility to ensure the appropriateness of this information and to complete it in the indicated suitable manner.

This MSDS replaces or cancels the previous one.

The information in this document should be kept and made readily accessible by the supplier for a period of 10 years.

Prepared by: Yusuf Melek Chemical Assessment Expert Certificate Number: NBC/04.24.02 Certificate Date: 12.07.2023

Certificate Validity Date: 12.07.2028

UNSPED CUSTOMS CONSULTANCY

ÜNSPED GÜMRÜK MÜŞAVİRLİĞİ ve LOJİSTİK HİZMETLER A.Ş

Mobile : (+90) 531 790 7004 Phone : (+90) 444 99 81 / 9760

Web : www.ugm.com.tr

E-mail: YusufMELEK@ugm.com.tr