SAFETY DATA SHEET

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

1.1. Product identifier

Trade name or designation of the mixture	Minus 45
Registration number	-
UFI:	FR7X-E8KH-N00Q-35TR
Synonyms	None.
Product code	BDS002505AE
Issue date	15-March-2022
Version number	1.0
Revision date	15-March-2022

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

Identified uses	Cooling agent
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Company name	CRC Industries Europe bv
Address	Touwslagerstraat 1 9240 Zele Belgium
Telephone	+32(0)52/45.60.11
Fax	+32(0)52/45.00.34
E-mail	hse@crcind.com
Website	www.crcind.com

1.4. Emergency telephone number Tel.: +32(0)52/45.60.11 (office hours: 9-17h CET)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms	None.
Signal word	Warning
Hazard statements	
H229	Pressurized container: May burst if heated.

Precautionary statements

Prevention	
P102	Keep out of reach of children.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P251	Do not pierce or burn, even after use.
Response	
P336	Thaw frosted parts with lukewarm water. Do not rub affected area.
Storage	
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Disposal	Not assigned.

Supplemental label information	Avoid contact with skin and eyes, in case of contact with liquid product frostbite symptoms may occur.
2.3. Other hazards	This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

SECTION 3: Composition/information on ingredients

Mixture

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
(E)-1,3,3,3-tetrafluoroprop-1-ene	75 - 100	29118-24-9 471-480-0	01-0000019758-54	-	
Classification: -					

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).
M: M-factor
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation If symptoms develop move victim to fresh air. Get medical attention if symptoms persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed Exposure may cause temporary irritation, redness, or discomfort.

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

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media Water. Alcohol resistant foam. Carbon dioxide (CO2). Dry sand.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures Containers should be cooled with water to prevent vapour pressure build up.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Wear appropriate personal protective equipment.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. This product is miscible in water.

6.4. Reference to other sections For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Pressurised container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Ground and bond containers when transferring material. Do not re-use empty containers. Avoid prolonged exposure. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Contents under pressure. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Store away from incompatible materials (see Section 10 of the SDS).
Storage class (TRGS 510): 2B (Aerosol dispensers and lighters)

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no effect levels (DNELs)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

8.2. Exposure controls

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection

Wear safety glasses with side shields (or goggles). Use eye protection conforming to EN 166.

Skin protection

- Hand protection

For incidental contact with the product wear chemical-resistant gloves (standard EN 374). The use of disposable gloves is acceptable provided that they are changed immediately after a splash or spill. Viton gloves are recommended.

- Other

Not available.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Recommended respiratory protection: Compressed air.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Liquid.

Form

Compressed liquefied gas.

Colour

Colourless.

Odour

Neutral.

Odour threshold

Not available.

pH

Not applicable.

Melting point/freezing point

Not available.

Initial boiling point and boiling range

-19 °C (-2.2 °F)

Flash point	None
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	No LEL was assigned at standard testing conditions(20°C). Exhibits flame limits at temperatures in excess of 28°C.
Flammability limit - upper (%)	No UEL was assigned at standard testing conditions(20°C). Exhibits flame limits at temperatures in excess of 28°C.

Vapour pressure	420 kPa at 20°C
Vapour density	Not available.
Relative density	1.18 g/cm3 at 20°C

Solubility(ies)

Solubility (water)	Partly soluble in water

Auto-ignition temperature	288 - 293 °C (550.4 - 559.4 °F)
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information

Aerosol spray enclosed space

Time equivalent	> 300 s/m³
Aerosol spray ignition distance	< 15 cm
Heat of combustion	< 20 kJ/g
VOC	1180 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Avoid high temperatures. Avoid temperatures exceeding the decomposition temperature.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	Carbon oxides. HF may be formed.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Eye contact	Based on available data, the classification criteria are not met.
Skin contact	Based on available data, the classification criteria are not met.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects

Acute toxicity	Based on available data, the classification criteria are not met.
Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
Respiratory sensitisation	Based on available data, the classification criteria are not met.
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.

Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Not likely, due to the form of the product.
Mixture versus substance information	Not available.

SECTION 12: Ecological information

12.1. Toxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
12.2. Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
12.3. Bioaccumulative potential	No data available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.
12.6. Other adverse effects	The product contains volatile organic compounds which have a photochemical ozone creation potential.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1950
14.2. UN proper shipping name	AEROSOLS
14.3. Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Hazard No. (ADR)	Not available.
Tunnel restriction code	(E)
14.4. Packing group	Not applicable
14.5. Environmental hazards	No
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1950
14.2. UN proper shipping name	AEROSOLS, flammable
14.3. Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Label(s)	2.1
14.4. Packing group	Not available.
14.5. Environmental hazards	No.

14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1950
14.2. UN proper shipping name	AEROSOLS, flammable
14.3. Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Label(s)	2.1
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN1950
14.2. UN proper shipping name	AEROSOLS
14.3. Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
14.4. Packing group	Not applicable
14.5. Environmental hazards	No
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number	UN1950
14.2. UN proper shipping name	AEROSOLS
14.3. Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
14.4. Packing group	Not applicable
14.5. Environmental hazards	
Marine pollutant	No
EmS	F-D,S-U
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

ADN; ADR; IATA; IMDG; RID

SECTION 15: Regulatory information

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

Retained direct EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

This safety data sheet conforms to the following laws, regulations and standards:

Act on the management of packaging and packaging waste of June 13, 2013
Regulation of the Minister of Health of June 11, 2012 on the categories of dangerous substances and dangerous preparations whose packaging should be fitted with child-resistant closures and a tactile warning of danger
REGULATION OF THE MINISTER OF HEALTH of February 2, 2011 on tests and measurements of factors harmful to health in working environments
Regulation of Ministry of Labor and Social Policy of June 6, 2014. On the matter of maximum permissible concentrations and intensities of harmful factors in the work environment (Journal of Laws 2014, item. 817)
Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices Decree No. 25/2000. (IX. 30.) EüM-SzCsM of the Minister of Health and the Minister of Social and Family Affairs on chemical safety at work
Act No. 93 of 1993 on Labour Safety (1993.évi XCIII.), as amended
Government Decree No. 220 of 2004 (VII. 21.) providing rules on the protection of surface waters quality
Government Decree No. 98/2001 (VI. 15.), on the conditions of the activities related to hazardous waste, and Ministry of Environmental Affairs Decree No. 16/2001 (VII. 18.), on the register of wastes
Public Act No. XXV of 2000 on Chemical Safety, and Application Decree No. 44/2000. (XII.27.) EüM [of the Ministry of Health]
Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

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.
ADR: European Agreement Concerning the International Carriage of Dangerous Goods by Road.
ATE: Acute Toxicity Estimate according to REGULATION (EC) No 1272/2008 (CLP).
CAS: Chemical Abstract Service.
Ceiling: Short Term Exposure Limit Ceiling value.
CEN: European Committee for Standardization.
CLP: Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.
GWP: Global Warming Potential.
IATA: International Air Transport Association.
IBC: Intermediate Bulk Container.
IMDG: International Maritime Dangerous Goods.
MAK: Threshold limit values Germany (Maximale Arbeitsplatzkonzentration - DFG).
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative, toxic.
REACH: Registration, Evaluation and Authorization of Chemicals (REGULATION (EC) No 1907/2006 concerning Registration, Evaluation Authorization and Restriction of Chemicals).

	RID: Regulations concerning the international carriage of dangerous goods by rail (Règlement International concernant le transport de marchandises dangereuses par chemin de fer). RID: Regulations concerning the International Carriage of Dangerous Goods by Rail. STEL: Short term exposure limit. TLV: Threshold Limit Value. TWA: Time Weighted Average. VOC: Volatile organic compounds. vPvB: Very persistent and very bioaccumulative. STEL: Short-term Exposure Limit.
References	Not available.
Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
Full text of any H-statements not written out in full under Sections 2 to 15	None.
Revision information	None.
Training information	Follow training instructions when handling this material.
Disclaimer	CRC Industries Europe bvba cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. Apart from any fair dealing for purposes of study, research and review of health, safety and environmental risks, no part of these documents may be reproduced by any process without written permission from CRC.