SAFETY DATA SHEET
UFR UNIVERSAL FLUX REMOVER, AEROSOL

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name UFR UNIVERSAL FLUX REMOVER, AEROSOL

Product number MCC-UFR10A, MCC-UFR107, MCC-UFR10Y

Recommended use of the chemical and restrictions on use

Application Cleaning agent.

Details of the supplier of the safety data sheet

Supplier MicroCare Corporation

Manufacturer MICROCARE CORPORATION
595 John Downey Drive
New Britain, CT 06051
United States of America
CAGE: OATV9
Tel: +1 860-827-0626
Fax: +1 860-827-8105
techsupport@microcare.com

Emergency telephone number

Emergency telephone CHEMTREC (800) 424-9300

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Repr. 2 - H361 STOT SE 1 - H370

Environmental hazards Not Classified

Human health Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. Mild dermatitis, allergic skin rash.

Environmental The product contains a substance which is harmful to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Physicochemical Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. Not considered to be a significant hazard due to the small quantities used. Gas or vapor displaces oxygen available for breathing (asphyxiant).

Label elements

UFR UNIVERSAL FLUX REMOVER, AEROSOL

Pictogram

Signal word	Danger
Hazard statements	H361 Suspected of damaging fertility or the unborn child. H370 Causes damage to organs .
Precautionary statements	P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking. P251 Pressurized container: Do not pierce or burn, even after use P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P261 Avoid breathing vapor/ spray. P314 Get medical advice/ attention if you feel unwell. P302+P352 If on skin: Wash with plenty of water. P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. P501 Dispose of contents/ container in accordance with national regulations.
Supplemental label information	Safety data sheet available on request. For use in industrial installations only.
Contains	ETHANOL

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

Trans-1-chloro-3,3,3-trifluoropropene **60-100%**

CAS number: 102687-65-0

Classification
Press. Gas, Liquefied - H280

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE **10-30%**

CAS number: 29118-24-9

Classification
Press. Gas, Liquefied - H280

ETHANOL **5-10%**

CAS number: 64-17-5

Classification
Flam. Liq. 2 - H225
Eye Irrit. 2A - H319
Repr. 2 - H361
STOT SE 1 - H370
STOT SE 3 - H335

The full text for all hazard statements is displayed in Section 16.

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Composition comments The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of CFR 1900.1200 TSCA: The ingredients of this product are on the TSCA Inventory.

Composition

4. First-aid measures

Description of first aid measures

General information Never give anything by mouth to an unconscious person. Do not induce vomiting. Place unconscious person on the side in the recovery position and ensure breathing can take place. If breathing stops, provide artificial respiration. Consult a physician for specific advice.

Inhalation Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention.

Ingestion Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Promptly get affected person to drink large volumes of water to dilute the swallowed chemical. Get medical attention.

Skin Contact Remove contaminated clothing and rinse skin thoroughly with water.

Eye contact Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Consult a physician for specific advice.

Most important symptoms and effects, both acute and delayed

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure. Get medical attention promptly if symptoms occur after washing.

Inhalation Upper respiratory irritation. Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. Gas or vapor displaces oxygen available for breathing (asphyxiant). Prolonged or excessive inhalation may cause respiratory tract irritation.

Ingestion May cause stomach pain or vomiting. Diarrhea. May cause nausea, headache, dizziness and intoxication. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

Skin contact Skin irritation. This product is rapidly absorbed through the skin and may cause symptoms similar to those of ingestion.

Eye contact Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain. May cause blurred vision and serious eye damage.

Indication of immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

Special hazards arising from the substance or mixture

Specific hazards Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Aerosol containers can explode when heated, due to excessive pressure build-up.

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Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Oxides of carbon. Fire or high temperatures create: Carbonyl compounds. Mineral acids.

Advice for firefighters

Protective actions during firefighting Move containers from fire area if it can be done without risk.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Warn everybody of potential hazards and evacuate if necessary. Provide adequate ventilation. Avoid inhalation of vapors. Use approved respirator if air contamination is above an acceptable level.

Environmental precautions

Environmental precautions Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.

Methods and material for containment and cleaning up

Methods for cleaning up Provide adequate ventilation. Contain spillage with sand, earth or other suitable non-combustible material. Avoid the spillage or runoff entering drains, sewers or watercourses. Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation. Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely.

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes. Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Keep out of the reach of children.

Conditions for safe storage, including any incompatibilities

Storage precautions Aerosol cans: Must not be exposed to direct sunlight or temperatures above 50°C.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

Reference to other sections. Store away from incompatible materials (see Section 10).

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

Trans-1-chloro-3,3,3-trifluoropropene

Long-term exposure limit (8-hour TWA): SUP 800 ppm

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Long-term exposure limit (8-hour TWA): OSHA 1000 ppm 1900 mg/m³
Short-term exposure limit (15-minute): ACGIH 1000 ppm 1880 mg/m³
A3

OSHA = Occupational Safety and Health Administration.
ACGIH = American Conference of Governmental Industrial Hygienists.
A3 = Confirmed Animal Carcinogen with Unknown Relevance to Humans.

Additional Occupational Exposure Limits

Ingredient comments ACGIH = US Standard. SUP = Supplier's recommendation. OES = Occupational Exposure Standard.

Trans-1-chloro-3,3,3-trifluoropropene (CAS: 102687-65-0)

Ingredient comments No exposure limits known for ingredient(s).

ETHANOL (CAS: 64-17-5)

Ingredient comments WEL = Workplace Exposure Limits

Exposure controls

Protective equipment

Appropriate engineering controls No specific ventilation requirements. This product must not be handled in a confined space without adequate ventilation.

Eye/face protection Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. It is recommended that gloves are made of the following material: Nitrile rubber. Polyvinyl alcohol (PVA). Viton rubber (fluoro rubber).

Other skin and body protection Wear suitable protective clothing as protection against splashing or contamination. Wear apron or protective clothing in case of contact.

Hygiene measures No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products. When using do not eat, drink or smoke.

Respiratory protection Considering the size of the packaging, the risk is regarded as minimal. Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. In confined or poorly-ventilated spaces, a supplied-air respirator must be worn. Wear self-contained breathing apparatus with full facepiece.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Aerosol. Liquid. Gas

Color Clear liquid. Colorless.

Odor Slight.

Odor threshold No information available.

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pH	Not applicable.
Melting point	Not applicable.
Initial boiling point and range	19°C/66°F @ 101.3 kPa
Flash point	Not applicable. The product is not flammable.
Evaporation rate	Not determined.
Evaporation factor	No information available.
Upper/lower flammability or explosive limits	Not applicable.
Other flammability	No information available.
Vapor pressure	1.91 kPa @ 20°C
Vapor density	>1
Relative density	1.24
Bulk density	No information available.
Solubility(ies)	Slightly soluble in water.
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	No information available.
Volatility	100%
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	This product contains a maximum VOC content of 59 g/litre.
Flammability	The product is not flammable.

10. Stability and reactivity

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Will not polymerize.
Conditions to avoid	Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.
Materials to avoid	Alkali metals. Alkaline earth metals.

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Hazardous decomposition products	Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO2). Carbon monoxide (CO).

11. Toxicological information

Information on toxicological effects

Other health effects	There is no evidence that the product can cause cancer.
Inhalation	Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.
Ingestion	May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.
Skin Contact	Product has a defatting effect on skin. May cause allergic contact eczema.
Eye contact	May cause temporary eye irritation.
Medical Symptoms	Gas or vapor in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting.

Toxicological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Acute toxicity - oral

Notes (oral LD_{50})	No information available.

Acute toxicity - dermal

Notes (dermal LD_{50})	No information required.

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} gases ppmV)	120,000.0
Species	Rat
ATE inhalation (gases ppm)	120,000.0
Inhalation	Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.
Ingestion	May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.
Skin Contact	Product has a defatting effect on skin. May cause allergic contact eczema.
Eye contact	May cause temporary eye irritation.
Medical Symptoms	Gas or vapor in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting.

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE

Acute toxicity - inhalation

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Acute toxicity inhalation (LC_{50} vapours mg/l)	207,000.0
Species	Rat
ATE inhalation (vapours mg/l)	207,000.0

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Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	7,060.0
Species	Rat
ATE oral (mg/kg)	7,060.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} vapours mg/l)	20,000.0
Species	Rat
ATE inhalation (vapours mg/l)	20,000.0

Carcinogenicity

IARC carcinogenicity	IARC Group 1 Carcinogenic to humans.

12. Ecological Information

Ecotoxicity There are no data on the ecotoxicity of this product.

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Ecotoxicity	The product contains a substance which is toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Toxicity

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Acute toxicity - fish	, : , Onchorhynchus mykiss (Rainbow trout) LC_{50}, 96 hours: 38 mg/l mg/l, Fish
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 82 mg/l, Freshwater invertebrates
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 106.7 mg/l, Freshwater algae NOEC, 72 hours: 115 mg/l, Freshwater algae

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE

Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: >160 mg/l, Daphnia magna

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Acute toxicity - fish	LC_{50}, 96 hours: >10,000 mg/l, Fish
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 7,800 mg/l, Daphnia magna
Acute toxicity - aquatic plants	, 96 hours: 1000 mg/l, Freshwater algae

Persistence and degradability

Persistence and degradability There are no data on the degradability of this product.

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Persistence and degradability	The product is not readily biodegradable.

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE

Persistence and degradability	The product is not readily biodegradable.

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Persistence and degradability	The product is expected to be biodegradable.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient No information available.

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Bio-Accumulative Potential	No data available on bioaccumulation.
Partition coefficient	Kow: 2.09

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Bio-Accumulative Potential	Bioaccumulation is unlikely.
Partition coefficient	No information available.

Mobility in soil

Mobility The product contains volatile substances which may spread in the atmosphere.

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Mobility	No data available.

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Mobility The product is soluble in water.

Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB. No data available.

Other adverse effects

Other adverse effects The product contains a substance which has a photochemical ozone creation potential.

Ecological information on ingredients.

Trans-1-chloro-3,3,3-trifluoropropene

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Empty containers must not be punctured or incinerated because of the risk of an explosion. Aerosol containers can explode when heated, due to excessive pressure build-up. Reuse or recycle products wherever possible.

14. Transport information

UN Number

UN No. (TDG) UN1950

UN No. (IMDG) UN1950

UN No. (ICAO) UN1950

UN No. (DOT) UN1950

UN proper shipping name

Proper shipping name (TDG) UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY

Proper shipping name (IMDG) UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY

Proper shipping name (ICAO) UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY

Proper shipping name (DOT) UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY

Transport hazard class(es)

TDG class 2.2

TDG label(s) 2

IMDG Class 2.2

ICAO class/division 2.2

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ICAO subsidiary risk N/A

Transport labels

Packing group

TDG Packing Group N/A

IMDG packing group N/A

ICAO packing group N/A

DOT packing group N/A

Environmental hazards

Environmentally Hazardous Substance
No.

Special precautions for user

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

15. Regulatory information

International Regulations

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
Not listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)
Not listed.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities
Not listed.

SARA 313 Emission Reporting
Not listed.

CAA Accidental Release Prevention
Not listed.

SARA (311/312) Hazard Categories
Acute
Pressure

OSHA Highly Hazardous Chemicals
Not listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins
Not listed.

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California Air Toxics "Hot Spots" (A-I)
Not listed.

California Air Toxics "Hot Spots" (A-II)
Not listed.

California Directors List of Hazardous Substances

ETHANOL
Present.

Massachusetts "Right To Know" List

ETHANOL
Present.

Rhode Island "Right To Know" List

ETHANOL
Present.

Minnesota "Right To Know" List

ETHANOL
Present.

New Jersey "Right To Know" List

ETHANOL
Present.

Pennsylvania "Right To Know" List

ETHANOL
Present.

Inventories

Canada - DSL/NDSL

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE
DSL

Trans-1-chloro-3,3,3-trifluoropropene
DSL

ETHANOL
DSL

US - TSCA
Yes

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE
Present.

Trans-1-chloro-3,3,3-trifluoropropene
Present.

ETHANOL
Present.

16. Other information

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Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	11/29/2016
Revision	21
Supersedes date	11/28/2016
SDS No.	AEROSOL - UFR
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapor. H280 Contains gas under pressure; may explode if heated. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H361 Suspected of damaging fertility or the unborn child. H370 Causes damage to organs . H370 Causes damage to organs (Central nervous system, Eyes).
NFPA - health hazard	Temporary incapacitation, injury. (2)
NFPA - flammability hazard	Burns only if pre-heated. (1)
NFPA - instability hazard	Normally stable. (0)
NFPA - special hazard	N/A
ACA HMIS Health rating.	Moderate Hazard. (2)
ACA HMIS Flammability rating.	Burns only if pre-heated. (1)
ACA HMIS Physical hazard rating.	Normally stable. (0)
ACA HMIS Personal protection rating.	N/A.