



SAFETY DATA SHEET

FRC GENERAL PURPOSE FLUX REMOVER - FLUX REMOVER C, AEROSOL

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

1. Identification

Product identifier

Product name FRC GENERAL PURPOSE FLUX REMOVER - FLUX REMOVER C, AEROSOL

Product number MCC-FRC, MCC-FRC101, MCC-FRC105, MCC-FRC10Y

Synonyms; trade names "FRC-Flux Remover C, Electronics Defluxer/Cleaner"

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: + 1 800 638 0125, +1 860-827-0626
Fax: +1 860-827-8105
techsupport@microcare.com

Emergency telephone number

Emergency telephone CHEMTREC 1-800-424-9300 (within the U.S.)
+1 703-741-5970 (from anywhere in the world)

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status This Product is Hazardous under the OSHA Hazard Communication Standard.

Physical hazards Not Classified

Health hazards STOT SE 1 - H370

Environmental hazards Aquatic Chronic 3 - H412

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

FRC GENERAL PURPOSE FLUX REMOVER - FLUX REMOVER C, AEROSOL

Pictogram



Signal word	Danger
Hazard statements	H370 Causes damage to organs . H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking. P211 Do not spray on an open flame or other ignition source. P251 Pressurized container: Do not pierce or burn, even after use P261 Avoid breathing spray. P302+P352 If on skin: Wash with plenty of water. P314 Get medical advice/ attention if you feel unwell. 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	METHANOL

Other hazards

This product contains a substance classified as PBT.

3. Composition/information on ingredients

Mixtures

trans-DICHLOROETHYLENE CAS number: 156-60-5	10-30%
Classification Flam. Liq. 2 - H225 Acute Tox. 4 - H332 Aquatic Chronic 3 - H412	
1,1,1,3,3-PENTAFLUOROBUTANE CAS number: 406-58-6	10-30%
Classification Flam. Liq. 2 - H225	
1,1,1,2,2,3,4,5,5,5-decafluoropentane CAS number: 138495-42-8	10-30%
Classification Aquatic Chronic 3 - H412	

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HFC-134a Tetrafluoroethane	10-30%
CAS number: 811-97-2	
Classification Press. Gas, Liquefied - H280	
METHANOL	1-5%
CAS number: 67-56-1	
Classification Flam. Liq. 2 - H225 Acute Tox. 3 - H301 Acute Tox. 3 - H311 Acute Tox. 3 - H331 STOT SE 1 - H370	

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

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.
Inhalation	Vapors may cause headache, fatigue, dizziness and nausea.
Ingestion	May cause nausea, headache, dizziness and intoxication. May cause stomach pain or vomiting.
Skin contact	Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.
Eye contact	Irritation and redness, followed by blurred vision.

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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

Flammability Class The product is not flammable.

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.

Advice for firefighters

Protective actions during firefighting Move containers from fire area if it can be done without risk. Bursting aerosol containers may be propelled from a fire at high speed.

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)

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Specific end use(s) The identified uses for this product are detailed in Section 1.

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

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

trans-DICHLOROETHYLENE

Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 793 mg/m³

1,1,1,3,3-PENTAFLUOROBUTANE

Long-term exposure limit (8-hour TWA): SUP 1000 ppm

1,1,1,2,2,3,4,5,5,5-decafluoropentane

No information available that would effect occupational exposure limit values.

HFC-134a Tetrafluoroethane

Long-term exposure limit (8-hour TWA): OES 4240 mg/m³

METHANOL

Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 262 mg/m³

Short-term exposure limit (15-minute): ACGIH 250 ppm 328 mg/m³

Sk

Long-term exposure limit (8-hour TWA): OSHA 200 ppm 260 mg/m³

ACGIH = American Conference of Governmental Industrial Hygienists.

Sk = Danger of cutaneous absorption.

OSHA = Occupational Safety and Health Administration.

Additional Occupational Exposure Limits

Ingredient comments WEL = Workplace Exposure Limits ACGIH = US Standard.

METHANOL (CAS: 67-56-1)

Biological limit values 15 mg/l

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.

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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	Clear liquid. Aerosol.
Color	Colorless.
Odor	Slight. Ether.
Odor threshold	No information available.
pH	No information available.
Melting point	No information available.
Initial boiling point and range	37°C/99°F @ 101.3 kPa
Flash point	The product is not flammable.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 7.5 %(V) Upper flammable/explosive limit: 9.0 %(V)
Other flammability	The product is not flammable. Aerosol ignition distance: none at 0.0 cm
Vapor pressure	65 kPa @ 25°C
Vapor density	4.0
Relative density	1.31
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.
Explosive properties	No information available.
Comments	Aerosol.
Refractive index	No information available.
Particle size	Not applicable.
Molecular weight	Not applicable.

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Volatility	100%
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.
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. Powdered metal.
Hazardous decomposition products	Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO ₂). Carbon monoxide (CO).

11. Toxicological information

Information on toxicological effects

Other health effects There is no evidence that the product can cause cancer.

Acute toxicity - oral

ATE oral (mg/kg) 2,500.0

Acute toxicity - dermal

ATE dermal (mg/kg) 7,500.0

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 25.78

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-DICHLOROETHYLENE

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Other health effects There is no evidence that the product can cause cancer.

1,1,1,3,3-PENTAFLUOROBUTANE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 2,000.0

Species Rat

ATE oral (mg/kg) 2,000.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 100,000.0

Species Rat

ATE inhalation (vapours mg/l) 100,000.0

Specific target organ toxicity - single exposure

STOT - single exposure LOAEL 75100 ppm, Inhalation,

Specific target organ toxicity - repeated exposure

STOT - repeated exposure NOAEC 6 mg/l, Inhalation, Rat

Target organs Liver Kidneys

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

ATE oral (mg/kg) 5,000.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 5,000.0

Species Rat

ATE dermal (mg/kg) 5,000.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 114.0

Species Rat

ATE inhalation (vapours mg/l) 114.0

Skin corrosion/irritation

Animal data Not irritating. Rabbit

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Human skin model test	Data lacking.
Extreme pH	Not applicable. Not corrosive to skin.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Not irritating. Rabbit
<u>Respiratory sensitization</u>	
Respiratory sensitization	Data lacking.
<u>Skin sensitization</u>	
Skin sensitization	Not sensitizing. - Guinea pig: Not sensitizing.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	This substance has no evidence of mutagenic properties.
Genotoxicity - in vivo	This substance has no evidence of mutagenic properties.
<u>Carcinogenicity</u>	
Carcinogenicity	Does not contain any substances known to be carcinogenic.
IARC carcinogenicity	Not listed.
NTP carcinogenicity	Not listed.
OSHA Carcinogenicity	Not listed.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	No evidence of reproductive toxicity in animal studies.
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Skin Contact	Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.
Eye contact	May cause eye irritation.
Acute and chronic health hazards	There is no evidence that the product can cause cancer.
<u>HFC-134a Tetrafluoroethane</u>	
Other health effects	There is no evidence that the product can cause cancer.
<u>Acute toxicity - inhalation</u>	
Acute toxicity inhalation (LC₅₀ gases ppmV)	567,000.0
Species	Rat
ATE inhalation (gases ppm)	567,000.0
.	
Inhalation	Vapors irritate the respiratory system. May cause coughing and difficulties in breathing.

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Ingestion	May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.
Skin Contact	May cause allergic contact eczema. Contact with liquid form may cause frostbite.
Eye contact	May cause temporary eye irritation.

METHANOL

Acute toxicity - oral

ATE oral (mg/kg) 100.0

Acute toxicity - dermal

ATE dermal (mg/kg) 300.0

Acute toxicity - inhalation

Acute toxicity inhalation
(LC₅₀ vapours mg/l) 87.5

ATE inhalation (vapours
mg/l) 87.5

12. Ecological Information

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

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Ecotoxicity Low acute toxicity to aquatic organisms.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Ecotoxicity It is unlikely that the substance will dissolve in water in amounts big enough to have a toxic effect on fish and daphnies.

Toxicity No data available.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Acute toxicity - fish LC₅₀, 96 hours: 1350 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 220 mg/l, Daphnia magna

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Acute toxicity - fish LC₅₀, 96 hours: 13.9 mg/l, Onchorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates LC₅₀, 48 hours: 11.7 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: >120 mg/l, Algae

HFC-134a Tetrafluoroethane

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Acute toxicity - fish	LC ₅₀ , 96 hours: 450 mg/l, Fish
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 980 mg/l, Daphnia magna

METHANOL

Acute toxicity - fish	LC ₅₀ , 96 hours: >100 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: >10000 mg/l, Daphnia magna

Persistence and degradability

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

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient No information available.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Bio-Accumulative Potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Bio-Accumulative Potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

Partition coefficient Pow: 2.7

HFC-134a Tetrafluoroethane

Partition coefficient Pow: 1.06

METHANOL

Partition coefficient : -0.77

Mobility in soil

Mobility The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Mobility The product has poor water-solubility.

Other adverse effects

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

13. Disposal considerations

Waste treatment methods

FRC GENERAL PURPOSE FLUX REMOVER - FLUX REMOVER C, AEROSOL

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. (IMDG) 1950

UN No. (ICAO) 1950

UN proper shipping name

Proper shipping name (TDG) 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) LIMITED QUANTITY

Transport hazard class(es)

IMDG Class 2.2 LIMITED QUANTITY

ICAO class/division 2.2 LIMITED QUANTITY

ICAO subsidiary risk N/A

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.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. No information required.

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Not listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

trans-DICHLOROETHYLENE

Final CERCLA RQ: 1000(454) pounds (Kilograms)

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METHANOL

Final CERCLA RQ: 5000(2270) pounds (Kilograms)

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Not listed.

SARA 313 Emission Reporting

METHANOL

1.0 %

CAA Accidental Release Prevention

Not listed.

SARA (311/312) Hazard Categories

Acute
Chronic
Pressure

OSHA Highly Hazardous Chemicals

Not listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

METHANOL

Known to the State of California to cause developmental and reproductive toxicity.

California Air Toxics "Hot Spots" (A-I)

METHANOL

Present.

California Air Toxics "Hot Spots" (A-II)

Not listed.

California Directors List of Hazardous Substances

trans-DICHLOROETHYLENE

Present.

Massachusetts "Right To Know" List

trans-DICHLOROETHYLENE

Present.

METHANOL

Present.

Rhode Island "Right To Know" List

METHANOL

Present.

Minnesota "Right To Know" List

HFC-134a Tetrafluoroethane

Present.

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METHANOL

Present.

New Jersey "Right To Know" List

METHANOL

Present.

Pennsylvania "Right To Know" List

trans-DICHLOROETHYLENE

Present.

METHANOL

Present.

Inventories

Canada - DSL/NDSL

DSL

Present.

trans-DICHLOROETHYLENE

DSL

1,1,1,3,3-PENTAFLUOROBUTANE

DSL

HFC-134a Tetrafluoroethane

DSL

METHANOL

DSL

US - TSCA

Present.

trans-DICHLOROETHYLENE

Present.

1,1,1,3,3-PENTAFLUOROBUTANE

Present.

HFC-134a Tetrafluoroethane

Present.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Present.

1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule

(SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal and film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

1,1,1,2,2,3,4,5,5,5-Decafluoropentane 138495-42-8

The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for one of the components in this product. This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D:

FRC GENERAL PURPOSE FLUX REMOVER - FLUX REMOVER C, AEROSOL**METHANOL**

Present.

Korea - KECI**1,1,1,3,3-PENTAFLUOROBUTANE**

Yes

China - IECSC**1,1,1,3,3-PENTAFLUOROBUTANE**

Yes

16. Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	11/14/2017
Revision	65
Supersedes date	8/3/2017
SDS No.	AEROSOL - FRC
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapor. H280 Contains gas under pressure; may explode if heated. H301 Toxic if swallowed. H311 Toxic in contact with skin. H331 Toxic if inhaled. H332 Harmful if inhaled. H370 Causes damage to organs . H412 Harmful to aquatic life with long lasting effects.

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.