

Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

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

1.1. Product identifier

Acota HFE 71 IPA Engineered Fluid

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

Identified uses

For industrial use only. Not intended for use as a medical device or drug.

Restrictions on Use

Acota Engineered Fluids are used in a wide variety of applications, including but not limited to precision cleaning of medical devices and as lubricant deposition solvents for medical devices. When the product is used for applications where the finished device is implanted into the human body, no residual solvent may remain on the parts. It is highly recommended that the supporting test results and protocol be cited during FDA registration.

Acota will not knowingly sample, support, or sell its products for incorporation in medical and pharmaceutical products and applications in which the Acota product will be temporarily or permanently implanted into humans or animals. The customer is responsible for evaluating and determining that a Acota product is suitable and appropriate for its particular use and intended application. The conditions of evaluation, selection, and use of a Acota product can vary widely and affect the use and intended application of a Acota product. Because many of these conditions are uniquely within the user's knowledge and control, it is essential that the user evaluate and determine whether the Acota product is suitable and appropriate for a particular use and intended application, and complies with all local applicable laws, regulations, standards, and guidance.

1.3. Details of the supplier of the safety data sheet

Address: Maesbury Industrial Estate, Maes Y Clawdd, Oswestry SY10 8NN

Email: sales@acota.co.uk

Website: www.acota.co.uk

1.4. Emergency telephone number

+44 (0)1743 466200

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:

This material is not classified as hazardous according to Regulation (EC) No. 1272/2008, as amended, on classification, labelling, and packaging of substances and mixtures.

2.2. Label elements CLP REGULATION (EC) No 1272/2008

Not applicable

SUPPLEMENTAL INFORMATION:
Supplemental Hazard Statements:

EUH018 In use, may form flammable/explosive vapour-air mixture.

EUH210 Safety data sheet available on request.

Supplemental Precautionary Statements:

Provide ventilation adequate to maintain vapor concentration below lower explosive concentration.

Notes on labelling

Updated per Regulation (EC) No. 648/2004 on detergents.

2.3. Other hazards

May cause thermal burns.

SECTION 3: Composition/information on ingredients
3.1. Substances

Not applicable

3.2. Mixtures

Ingredient	Identifier(s)	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Reaction Mass of 1,1,2,3,3,3-hexafluoro1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	(EC-No.) 422-270-2	75 - 100	Substance not classified as hazardous
propan-2-ol	(CAS-No.) 67-63-0 (EC-No.) 200-661-7 (REACH-No.) 01-2119457558-25	4 - 5	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336

Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures
4.1. Description of first aid measures
Inhalation

Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact

Immediately flush skin with large amounts of cold water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Cover affected area with a clean dressing. Get immediate medical attention.

Eye contact

Immediately flush eyes with large amounts of water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Get immediate medical attention.

If swallowed

Rinse mouth. If you feel unwell, get medical attention.

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

No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Exposure to extreme heat can give rise to thermal decomposition. No closed-cup flash point but flam/expl. vapor air mixture Material displays no closed-cup flash point but may form flammable/explosive vapor air mixture. **Hazardous**

Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Fluoride	During combustion.

5.3. Advice for fire-fighters

When fire fighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, tunic and trousers (leggings), bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep away from sparks/flames/extreme heat Keep away from sparks, flames, and extreme heat. Evacuate area. Ventilate the area with fresh air. Observe precautions from other sections.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Eliminate ignition sources when cleaning spill Eliminate all potential ignition sources when cleaning up spill. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified

and authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections

Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid inhalation of thermal decomposition products. Avoid skin contact with hot material. For industrial/occupational use only. Not for consumer sale or use. Store work clothes separately from other clothing, food and tobacco products. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Keep away from sparks/flames/extreme heat Keep away from sparks, flames, and extreme heat.

7.2. Conditions for safe storage including any incompatibilities

Store at temperatures not exceeding 38C/100F Store away from strong bases. Store away from oxidising agents.

7.3. Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
propan-2-ol	67-63-0	UK HSC	TWA:999 mg/m ³ (400 ppm);STEL:1250 mg/m ³ (500 ppm)	

UK HSC : UK Health and Safety Commission

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling **Biological limit**

values

No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from UK HSC

8.2. Exposure controls

8.2.1. Engineering controls

Provide appropriate local exhaust when product is heated. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment. Provide ventilation adequate to maintain vapor concentration below lower explosive concentration.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Full face shield.

Indirect vented goggles.

Applicable Norms/Standards

Use eye/face protection conforming to EN 166

Skin/hand protection

Chemical protective gloves are not required under normal use conditions. However, when the product is subjected to extreme heat, HF may be formed. For those cases, neoprene gloves and apron are recommended.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

During heating: Use a positive pressure supplied-air respirator if there is a potential for over exposure from an uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

Half facepiece or full facepiece air-purifying respirator suitable for organic vapours

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards

Use a respirator conforming to EN 140 or EN 136: filter type A

Thermal hazards

Wear heat insulating gloves when handling hot material to prevent thermal burns.

Applicable Norms/Standards

Use gloves tested to EN 407

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Liquid.
Colour	Colourless
Odor	Slight Alcohol
Odour threshold	<i>No data available.</i>
Melting point/freezing point	<i>Not applicable.</i>
Boiling point/boiling range	54 °C
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	4 % [<i>Details:</i> Tested according to ASTM Method E681-94]
Flammable Limits(UEL)	16.7 % [<i>Details:</i> Tested according to ASTM Method E681-94]
Flash point	No flash point [<i>Details:</i> Tested according to ASTM method D56-87]
Autoignition temperature	443 °C [<i>Details:</i> ASTM E659 Method]
Decomposition temperature	<i>Not applicable.</i>

pH

Kinematic Viscosity	6.75675675675676 mm ² /sec
Water solubility	Slight (less than 10%)
Solubility- non-water	<i>No data available.</i>
Partition coefficient: n-octanol/water	<i>No data available.</i>
Vapour pressure	27,597.7 Pa [@ 25 °C]
Density	1.48 g/ml
Relative density	1.48 [Ref Std: WATER=1]
Relative Vapor Density	7.1 [Ref Std: AIR=1]

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds	1,480 g/l
Evaporation rate	58 [Ref Std:BUOAC=1]
Molecular weight	<i>No data available.</i>
Percent volatile	100 %

SECTION 10: Stability and reactivity

10.1 Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

Sparks and/or flames.

10.5 Incompatible materials

Strong bases.

Strong oxidising agents.

10.6 Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	At elevated temperatures. - extreme conditions of heat
Carbon dioxide.	At elevated temperatures. - extreme conditions of heat
Hydrogen Fluoride	At elevated temperatures. - extreme conditions of heat
Perfluoroisobutylene (PFIB).	At elevated temperatures. - extreme conditions of heat
Toxic vapour, gas, particulate.	At elevated temperatures.

Refer to section 5.2 for hazardous decomposition products during combustion.

If the product is exposed to extreme conditions of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from internal hazard assessments.

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

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation

Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin contact

Thermal burns: Signs/symptoms may include intense pain, redness and swelling, and tissue destruction.

Eye contact

Thermal burns: Signs/symptoms may include severe pain, redness and swelling, and tissue destruction.

Ingestion

Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	Dermal		LD50 estimated to be > 5,000 mg/kg
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	Inhalation Vapour (4 hours)	Rat	LC50 > 1,000 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	Ingestion	Rat	LD50 > 5,000 mg/kg
propan-2-ol	Dermal	Rabbit	LD50 12,870 mg/kg
propan-2-ol	Inhalation Vapour (4 hours)	Rat	LC50 72.6 mg/l
propan-2-ol	Ingestion	Rat	LD50 4,710 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	Rabbit	No significant irritation
propan-2-ol	Multiple animal species	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	Rabbit	No significant irritation
propan-2-ol	Rabbit	Severe irritant

Skin Sensitisation

Name	Species	Value
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	Guinea pig	Not classified
propan-2-ol	Guinea pig	Not classified

Respiratory Sensitisation

For the component/components, either no data is currently available or the data is not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	In Vitro	Not mutagenic
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	In vivo	Not mutagenic
propan-2-ol	In Vitro	Not mutagenic
propan-2-ol	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
propan-2-ol	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	Inhalation	Not classified for female reproduction	Rat	NOAEL 129 mg/l	1 generation
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	Inhalation	Not classified for male reproduction	Rat	NOAEL 129 mg/l	1 generation
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1-methoxybutane	Inhalation	Not classified for development	Rat	NOAEL 307 mg/l	during gestation
propan-2-ol	Ingestion	Not classified for development	Rat	NOAEL 400 mg/kg/day	during organogenesis

propan-2-ol	Inhalation	Not classified for development	Rat	LOAEL 9 mg/l	during gestation
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Target Organ(s)
Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	Inhalation	nervous system	Not classified	Dog	LOAEL 913 mg/l	10 minutes
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	Inhalation	cardiac sensitisation	Not classified	Dog	NOAEL 913 mg/l	10 minutes
propan-2-ol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
propan-2-ol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
propan-2-ol	Inhalation	auditory system	Not classified	Guinea pig	NOAEL 13.4 mg/l	24 hours
propan-2-ol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	Inhalation	liver	Not classified	Rat	NOAEL 155 mg/l	13 weeks
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	Inhalation	bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 129 mg/l	11 weeks
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	Inhalation	heart skin endocrine system gastrointestinal tract hematopoietic system immune system muscles nervous system eyes kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 155 mg/l	13 weeks

Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,3,4,4,4nonafluoro-1methoxybutane	Ingestion	endocrine system liver heart hematopoietic system immune system nervous system eyes kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
propan-2-ol	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 12.3 mg/l	24 months
propan-2-ol	Inhalation	nervous system	Not classified	Rat	NOAEL 12 mg/l	13 weeks
propan-2-ol	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 400 mg/kg/day	12 weeks

Aspiration Hazard

For the component/components, either no data is currently available or the data is not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from Acota assessments.

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	422-270-2	Green Algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	422-270-2	Water flea	Analogous Compound	48 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	422-270-2	Fathead minnow	Endpoint not reached	96 hours	LC50	>100 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	422-270-2	Fathead minnow	Endpoint not reached	96 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	422-270-2	Green algae	Experimental	72 hours	EC50	>100 mg/l

Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	422-270-2	Water flea	Experimental	48 hours	EC50	>100 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	422-270-2	Green Algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	422-270-2	Green algae	Experimental	72 hours	NOEC	100 mg/l
propan-2-ol	67-63-0	Bacteria	Experimental	16 hours	LOEC	1,050 mg/l
propan-2-ol	67-63-0	Crustacea	Experimental	24 hours	LC50	>10,000 mg/l
propan-2-ol	67-63-0	Green Algae	Experimental	72 hours	EC50	>1,000 mg/l
propan-2-ol	67-63-0	Medaka	Experimental	96 hours	LC50	>100 mg/l
propan-2-ol	67-63-0	Water flea	Experimental	48 hours	EC50	>1,000 mg/l
propan-2-ol	67-63-0	Green algae	Experimental	72 hours	NOEC	1,000 mg/l
propan-2-ol	67-63-0	Water flea	Experimental	21 days	NOEC	100 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	422-270-2	Experimental Photolysis		Photolytic half-life (in air)	2.9 years (t 1/2)	Non-standard method
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	422-270-2	Experimental Biodegradation	28 days	BOD	22 % BOD/ThBOD	OECD 301D - Closed bottle test
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	422-270-2	Analogous Compound Biodegradation	28 days	BOD	22 % BOD/ThBOD	OECD 301D - Closed bottle test
propan-2-ol	67-63-0	Experimental Biodegradation	14 days	BOD	86 % BOD/ThBOD	OECD 301C - MITI test (I)

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	422-270-2	Experimental Bioconcentration		Log Kow	4.0	Non-standard method
Reaction Mass of 1,1,2,3,3,3-hexafluoro-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	422-270-2	Analogous Compound Bioconcentration		Log Kow	4.0	
propan-2-ol	67-63-0	Experimental Bioconcentration		Log Kow	0.05	Non-standard method

12.4. Mobility in soil

No test data available.

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Endocrine disrupting properties

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations
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13.1 Waste treatment methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

This product has been classified as a non-hazardous waste. Prior to disposal, consult all applicable authorities and regulations to insure proper classification. Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. Empty and clean product containers may be disposed as non-hazardous waste. Consult your specific regulations and service providers to determine available options and requirements.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of Acota, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)

070103* Organic halogenated solvents, washing liquids and mother liquors

SECTION 14: Transportation information

Not hazardous for transportation.

	Ground Transport (ADR)	Air Transport (IATA)	Marine Transport (IMDG)
14.1 UN number	No data available.	No data available.	No data available.
14.2 UN proper shipping name	No data available.	No data available.	No data available.
14.3 Transport hazard class(es)	No data available.	No data available.	No data available.
14.4 Packing group	No data available.	No data available.	No data available.
14.5 Environmental hazards	No data available.	No data available.	No data available.
14.6 Special precautions for user	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.
14.7 Transport in bulk according to Annex II of Marpol 73/78 and IBC Code	No data available.	No data available.	No data available.
Control Temperature	No data available.	No data available.	No data available.
Emergency Temperature	No data available.	No data available.	No data available.
ADR Tunnel Code	No data available.	Not applicable.	No data available.
ADR Classification Code	No data available.	No data available.	No data available.
ADR Transport Category	No data available.	No data available.	No data available.
ADR Multiplier	No data available.	No data available.	No data available.
IMDG Segregation Code	No data available.	No data available.	No data available.

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Global inventory status**

Contact Acota for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

15.2. Chemical Safety Assessment

A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information**List of relevant H statements**

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Revision information:

EU Section 09: pH information information was added.
Section 1.3 Address changed
Section 02: CLP Classification Statements information was added.
Label: CLP Classification information was deleted.
Label: CLP Supplemental Precautionary Statements information was deleted.
Section 2: Other hazards phrase information was modified.
Section 02: SDS Elements: CLP Supplemental Precautionary Statements information was added.
Section 03: Composition table % Column heading information was added.
Section 3: Composition/ Information of ingredients table information was modified.
Section 03: Substance not applicable information was added.
Section 4: First aid for eye contact information information was modified.
Section 4: First aid for skin contact information information was modified.
Section 04: Information on toxicological effects information was modified.
Section 5: Fire - Special hazards information information was modified.
Section 6: Accidental release clean-up information information was modified.
Section 6: Accidental release personal information information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Eye protection information information was deleted.
Section 8: Eye/face protection information information was added.
Section 8: Personal Protection - Eye information information was added.
Section 8: Personal Protection - Respiratory Information information was modified.

Section 8: Personal Protection - Skin/hand information information was modified.

Section 9: Evaporation Rate information information was deleted.

Section 9: Explosive properties information information was deleted.

Section 09: Kinematic Viscosity information information was added.

Section 9: Melting point information information was modified.

Section 9: Oxidising properties information information was deleted.

Section 9: pH information information was deleted.

Section 9: Property description for optional properties information was modified.

Section 9: Vapour density value information was added.

Section 9: Vapour density value information was deleted.

Section 9: Viscosity information information was deleted.

Section 11: Classification disclaimer information was modified.

Section 11: Health Effects - Eye information information was modified.

Section 11: Health Effects - Skin information information was modified.

Section 11: No endocrine disruptor information available warning information was added.

Section 12: 12.6. Endocrine Disrupting Properties information was added.

Section 12: 12.7. Other adverse effects information was modified.

Section 12: Component ecotoxicity information information was modified.

Section 12: Contact manufacturer for more detail. information was deleted.

Section 12: No Data text for mobility in soil information was added.

Section 12: No endocrine disruptor information available warning information was added.

Section 12: Persistence and Degradability information information was modified.

Section 12: Bioaccumulative potential information information was modified.

Section 14 Classification Code – Main Heading information was added.

Section 14 Classification Code – Regulation Data information was added.

Section 14 Control Temperature – Main Heading information was added.

Section 14 Control Temperature – Regulation Data information was added.

Section 14 Disclaimer Information information was added.

Section 14 Emergency Temperature – Main Heading information was added.

Section 14 Emergency Temperature – Regulation Data information was added.

Section 14 Hazard Class + Sub Risk – Main Heading information was added.

Section 14 Hazard Class + Sub Risk – Regulation Data information was added.

Section 14 Hazardous/Not Hazardous for Transportation information was added.

Section 14 Multiplier – Main Heading information was added.

Section 14 Multiplier – Regulation Data information was added.

Section 14 Other Dangerous Goods – Main Heading information was added.

Section 14 Other Dangerous Goods – Regulation Data information was added.

Section 14 Packing Group – Main Heading information was added.

Section 14 Packing Group – Regulation Data information was added.

Section 14 Proper Shipping Name information was added.

Section 14 Regulations – Main Headings information was added.

Section 14 Segregation – Regulation Data information was added.

Section 14 Segregation Code – Main Heading information was added.

Section 14 Special Precautions – Main Heading information was added.

Section 14 Special Precautions – Regulation Data information was added. Section

14 Transport Category – Main Heading information was added.

Section 14 Transport Category – Regulation Data information was added.

Section 14 Transport in bulk – Regulation Data information was added.

Section 14 Transport in bulk according to Annex II of Marpol and the IBC Code – Main Heading information was added.

Section 14 Tunnel Code – Main Heading information was added.

Section 14 Tunnel Code – Regulation Data information was added.

Section 14 UN Number Column data information was added.

Section 14 UN Number information was added.

Section 15: Regulations - Inventories information was added.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.