Safety Data Sheet

Document group:	QD28 FC-742-UV- EGC	**Version number:**	5.00
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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 Certonal FC-742- UV Electronic Grade Coating

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

Identified uses

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

Restrictions on Use

Approved commercial use(s): Protective coating on electronic components. 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 an Acota product can vary widely and affect the use and intended application of an 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

Telephone: UK+44(0)1743 466200
E Mail: sales@acota.co.uk
Website: www.acota.co.uk

1.4. Emergency telephone number

UK+44(0)1743 466200

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP REGULATION (EC) No 1272/2008

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.

CLASSIFICATION:
Hazardous to the Aquatic Environment (Chronic), Category 4 - Aquatic Chronic 4; H413

For full text of H phrases, see Section 16.

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

HAZARD STATEMENTS:
H413 May cause long lasting harmful effects to aquatic life.

SUPPLEMENTAL INFORMATION:

Supplemental Hazard Statements:
EUH018 In use, may form flammable/explosive vapour-air mixture.

Supplemental Precautionary Statements:
Provide ventilation adequate to maintain vapor concentration below lower explosive concentration.

2.3. Other hazards None known.

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 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1-ethoxy1,1,2,2,3,3,4,4,4-nonafluoro-butane	(EC-No.) 425-340-0	60 - 98	Aquatic Chronic 4, H413 EUH018
Fluorinated polymer	Trade Secret	2 - 10	Substance not classified as hazardous
2-methoxy-1-methylethyl acetate	(CAS-No.) 108-65-6 (EC-No.) 203-603-9 (REACH-No.) 01-2119475791-29	1 - 4	Flam. Liq. 3, H226 STOT SE 3, H336
acrylic acid	(CAS-No.) 79-10-7 (EC-No.) 201-177-9	< 0.5	Flam. Liq. 3, H226 Acute Tox. 4, H332 Acute Tox. 4, H312
			Acute Tox. 4, H302 Skin Corr. 1A, H314 STOT SE 3, H335 Aquatic Acute 1, H400,M=1 Nota D Aquatic Chronic 2, H411

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

Specific Concentration Limits

Ingredient	Identifier(s)	Specific Concentration Limits
acrylic acid	(CAS-No.) 79-10-7 (EC-No.) 201-177-9	(C >= 1%) STOT SE 3, H335

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
Wash with soap and water. If you feel unwell, get medical attention.

Eye contact
No need for first aid is anticipated.

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.

5.3. Advice for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, 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. 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. No smoking: Smoking while using this product can result in contamination of the tobacco and/or smoke and lead to the formation of hazardous decomposition products. 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 away from heat.

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
2-methoxy-1-methylethyl acetate	108-65-6	UK HSC	TWA:274 mg/m3(50 ppm);STEL:548 mg/m3(100 ppm)	SKIN
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Manufacturer determined	TWA(as total isomers):200 ppm(2160 mg/m3)	
acrylic acid	79-10-7	UK HSC	TWA:29 mg/m3(10 ppm);STEL:59 mg/m3(20 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
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
None required.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended:

Material **Thickness (mm)** **Breakthrough Time** Neoprene. No data available =>8 hours

The glove data presented are based on the substance driving dermal toxicity and the conditions present at the time of testing. Breakthrough time may be altered when the glove is subjected to use conditions that place additional stress on the glove.

Applicable Norms/Standards
Use gloves tested to EN 374

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:
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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Yellow-Orange
Odour	Slight Ether
Odour threshold	*No data available.*
Melting point/freezing point	*Not applicable.*
Boiling point/boiling range	76 ºC
Flammability (solid, gas)	Not applicable.

Flammable Limits(LEL)	210 g/m³ [*Details:*Reference ASTM E681-94]
Flammable Limits(UEL)	1,070 g/m³ [*Details:*Reference ASTM E681-94]
Flash point	No flash point [*Test Method:*Closed Cup] [*Details:*ASTM D3278-96e1]
Autoignition temperature	375 ºC
Decomposition temperature	*No data available.*
pH	
Kinematic Viscosity	*No data available.*
Water solubility	*No data available.*
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Vapour pressure	14,532.1 Pa [@ 25 ºC]
Density	1.4 g/ml
Relative density	1.4 [*Ref Std:*WATER=1]
Relative Vapor Density	*No data available.*

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds	1,288 g/l
Evaporation rate	*No data available.*
Molecular weight	*No data available.*
Percent volatile	89 - 92 %

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
Heat.
Sparks and/or flames.

10.5 Incompatible materials
None known.

10.6 Hazardous decomposition products

Substance	Condition
Hydrocarbons.	At elevated temperatures. - Extreme conditions of heat
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. - Extreme conditions of heat

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
May be harmful in contact with skin. Contact with the skin during product use is not expected to result in significant irritation.

Eye contact
Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion
May be harmful if swallowed.

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	Dermal		No data available; calculated ATE2,000 - 5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE2,000 - 5,000 mg/kg
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane	Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane	InhalationVapour (4 hours)	Rat	LC50 > 989 mg/l

Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-	Ingestion	Rat	> 2,000 mg/kg
butane			
Fluorinated polymer	Ingestion	Rat	LD50 > 2,000 mg/kg
2-methoxy-1-methylethyl acetate	Dermal	Rabbit	LD50 > 5,000 mg/kg
2-methoxy-1-methylethyl acetate	InhalationVapour (4 hours)	Rat	LC50 > 28.8 mg/l
2-methoxy-1-methylethyl acetate	Ingestion	Rat	LD50 8,532 mg/kg
acrylic acid	Dermal	Rabbit	LD50 > 2,000 mg/kg
acrylic acid	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3.8 mg/l
acrylic acid	Ingestion	Rat	LD50 1,250 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Rabbit	No significant irritation
Fluorinated polymer	Rabbit	No significant irritation
2-methoxy-1-methylethyl acetate	Rabbit	No significant irritation
acrylic acid	Rabbit	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Rabbit	No significant irritation
2-methoxy-1-methylethyl acetate	Rabbit	Mild irritant
acrylic acid	Rabbit	Corrosive

Skin Sensitisation

Name	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Guinea pig	Not classified
2-methoxy-1-methylethyl acetate	Guinea pig	Not classified
acrylic acid	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 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	In Vitro	Not mutagenic
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	In vivo	Not mutagenic

2-methoxy-1-methylethyl acetate	In Vitro	Not mutagenic
acrylic acid	In vivo	Not mutagenic
acrylic acid	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
acrylic acid	Ingestion	Rat	Not carcinogenic
acrylic acid	Dermal	Mouse	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 2-(ethoxydifluoromethyl)1,1,1,2,3,3,3-heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Inhalation	Not classified for development	Rat	NOAEL 260 mg/l	during gestation
2-methoxy-1-methylethyl acetate	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
2-methoxy-1-methylethyl acetate	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
2-methoxy-1-methylethyl acetate	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
2-methoxy-1-methylethyl acetate	Inhalation	Not classified for development	Rat	NOAEL 21.6 mg/l	during organogenesis
acrylic acid	Ingestion	Not classified for female reproduction	Rat	NOAEL 460 mg/kg/day	2 generation
acrylic acid	Ingestion	Not classified for male reproduction	Rat	NOAEL 460 mg/kg/day	2 generation
acrylic acid	Inhalation	Not classified for development	Rat	NOAEL 1.1 mg/l	during organogenesis
acrylic acid	Ingestion	Not classified for development	Rat	NOAEL 53 mg/kg/day	2 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	Inhalation	cardiac sensitisation	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 204 mg/l	17 minutes
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	Inhalation	respiratory irritation	Not classified	Rat	NOAEL 989 mg/l	4 hours

2-methoxy-1-methylethyl acetate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
acrylic acid	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	Inhalation	liver | kidney and/or bladder | respiratory system | heart | endocrine system | gastrointestinal tract | bone marrow | hematopoietic system | immune system | nervous system	Not classified	Rat	NOAEL 263.4 mg/l	4 weeks
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	Ingestion	blood | liver | kidney and/or bladder | heart | endocrine system | bone marrow | hematopoietic system | immune system | nervous system | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2-methoxy-1-methylethyl acetate	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 16.2 mg/l	9 days
2-methoxy-1-methylethyl acetate	Inhalation	olfactory system	Not classified	Mouse	LOAEL 1.62 mg/l	9 days
2-methoxy-1-methylethyl acetate	Inhalation	blood	Not classified	Multiple animal species	NOAEL 16.2 mg/l	9 days
2-methoxy-1-methylethyl acetate	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	44 days

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 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Fathead minnow	Analogous Compound	96 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Water flea	Analogous Compound	48 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Green algae	Endpoint not reached	72 hours	EC50	>100 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Fathead minnow	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Green algae	Analogous Compound	72 hours	EC10	2.37 mg/l
Reaction Mass of 2(ethoxydifluoromethyl) -1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Green algae	Experimental	72 hours	EC10	2.37 mg/l

Fluorinated polymer	Trade Secret		Data not available or insufficient for classification			N/A
2-methoxy-1methylethyl acetate	108-65-6	Activated sludge	Experimental	30 minutes	EC10	>1,000 mg/l
2-methoxy-1methylethyl acetate	108-65-6	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
2-methoxy-1methylethyl acetate	108-65-6	Rainbow trout	Experimental	96 hours	LC50	134 mg/l
2-methoxy-1methylethyl acetate	108-65-6	Water flea	Experimental	48 hours	EC50	370 mg/l
2-methoxy-1methylethyl acetate	108-65-6	Green algae	Experimental	72 hours	NOEC	1,000 mg/l
2-methoxy-1methylethyl acetate	108-65-6	Water flea	Experimental	21 days	NOEC	100 mg/l
acrylic acid	79-10-7	Green algae	Experimental	72 hours	EC50	0.13 mg/l
acrylic acid	79-10-7	Rainbow trout	Experimental	96 hours	LC50	27 mg/l
acrylic acid	79-10-7	Water flea	Experimental	48 hours	EC50	95 mg/l
acrylic acid	79-10-7	Green algae	Experimental	72 hours	EC10	0.03 mg/l
acrylic acid	79-10-7	Water flea	Experimental	21 days	NOEC	3.8 mg/l
acrylic acid	79-10-7		Experimental	7 days	LD50	>=98 mg per kg of bodyweight
acrylic acid	79-10-7		Experimental	48 hours	NOEC	0.9 mg/l
acrylic acid	79-10-7	Activated sludge	Experimental	30 minutes	NOEC	100 mg/l
acrylic acid	79-10-7	Redworm	Experimental	14 days	LC50	>1,000 mg/kg (Dry Weight)
acrylic acid	79-10-7	Soil microbes	Experimental	28 days	NOEC	100 mg/kg (Dry Weight)

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Estimated Photolysis		Photolytic half-life (in air)	0.55 years (t 1/2)	Non-standard method
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Estimated Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301D - Closed bottle test
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Analogous Compound Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301D - Closed bottle test
Fluorinated polymer	Trade Secret	Data not availblinsufficient			N/A	

2-methoxy-1-methylethyl acetate	108-65-6	Experimental Biodegradation	28 days	BOD	87.2 % BOD/ThBOD	OECD 301C - MITI test (I)
acrylic acid	79-10-7	Estimated Photolysis		Photolytic half-life (in air)	3.2 days (t 1/2)	
acrylic acid	79-10-7	Experimental Biodegradation	28 days	Percent degraded	81 % BOD/ThBOD	OECD 301D - Closed bottle test
acrylic acid	79-10-7	Experimental Biodegradation	3 days	Percent degraded	72.9 %CO2 evolution/THCO2 evolution	

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Reaction Mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3heptafluoropropane and 1ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Fluorinated polymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2-methoxy-1-methylethyl acetate	108-65-6	Experimental Bioconcentration		Log Kow	0.36	Non-standard method
acrylic acid	79-10-7	Experimental Bioconcentration		Log Kow	0.46	OECD 107 log Kow shke flsk mtd

12.4. Mobility in soil

Material	Cas No.	Test type	Study Type	Test result	Protocol
acrylic acid	79-10-7	Experimental	Koc	-6 l/kg	40CFR796.2750 Sed/Soil
		Mobility in Soil			Adsorp

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

Material	CAS Nbr	Ozone Depletion Potential	Global Warming Potential
reaction mass of 2(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4nonafluoro-butane	425-340-0	0	

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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 drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

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)

070703* 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

Carcinogenicity

Ingredient	CAS Nbr	Classification	Regulation
acrylic acid	79-10-7	Gr. 3: Not classifiable	International Agency for Research on Cancer

Global inventory status

Contact Acota for more information. The components of this material are in compliance with the provisions of the Korea Chemical Control Act. Certain restrictions may apply. Contact the selling division for additional information. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC 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

EUH018	In use, may form flammable/explosive vapour-air mixture.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.

H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

Revision information:

EU Section 09: pH information information was added.
Section 1: Restrictions on use information information was modified.
Label: CLP Precautionary - Disposal information was deleted.
Label: CLP Supplemental Precautionary Statements information was deleted.
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: SCL table information was added.
Section 03: Substance not applicable information was added.
Section 04: Information on toxicological effects information was modified.
Section 5: Fire - Advice for fire fighters information 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: glove data value information was added.
Section 8: glove data value information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 9: Evaporation Rate information information was deleted.
Section 9: Explosive properties information information was deleted.
Section 9: Flash point information information was modified.
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 - 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: Mobility in soil information 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:Bioccumulative 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.