

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 Certonal FC-736

REACH registration number	CASRN	EC Number	Ingredient Name
01-0000016878-53-0001		422-270-2	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

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 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 Acota 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 an Acota 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: Acota Limited, 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

Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
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	100

Notes on labelling

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

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
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		100	Substance not classified as hazardous

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

No need for first aid is anticipated.

Skin contact

No need for first aid is anticipated.

Eye contact

No need for first aid is anticipated.

If swallowed

No need for first aid is anticipated.

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

Hazardous Decomposition or By-Products**Substance**

Carbon monoxide
Carbon dioxide.
Hydrogen Fluoride

Condition

During combustion.
During combustion.
During combustion. - At elevated temperatures.

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**

Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Observe precautions from other sections.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

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 release to the environment. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) 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.

7.2. Conditions for safe storage including any incompatibilities

Store away from acids. 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

No occupational exposure limit values exist for any of the components listed in Section 3 of this Safety Data Sheet.

Biological limit values

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

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.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

None required.

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

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.

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

Appearance

Physical state

Liquid.

Colour

Colourless

Specific Physical Form:

Liquid.

Odor

Slight Ether

Odour threshold

No data available.

pH

Not applicable.

Boiling point/boiling range

61 °C [@ 101,324.72 Pa]

Melting point

-135 °C

Flammability (solid, gas)

Not applicable

Explosive properties

Not classified

Oxidising properties

Not classified

Flash point

No flash point

Autoignition temperature

405 °C [Details:(ASTM E659-84)]

Flammable Limits(LEL)

None detected

Flammable Limits(UEL)

None detected

Vapour pressure

26,931 Pa [@ 25 °C]

Relative density

1.5 [Ref Std:WATER=1]

Water solubility

< 12 ppm

Solubility- non-water

No data available.

Partition coefficient: n-octanol/water

3.9 [Details:30 °C]

Evaporation rate

49 [Ref Std:BUOAC=1]

Vapour density

8.6 [Ref Std:AIR=1]

Decomposition temperature

Not applicable.

Viscosity

0.6 mPa-s [@ 23 °C]

Density

1.5 g/ml

9.2. Other information

EU Volatile Organic Compounds 1,500 g/l

Molecular weight *No data available.*

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

None known.

10.5 Incompatible materials

Strong acids.

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. - extreme conditions of heat

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 Toxicological effects

Signs and Symptoms of Exposure

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

Inhalation

No known health effects.

Skin contact

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

No known health effects.

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
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	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-1-methoxybutane	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-1-methoxybutane	Ingestion	Rat	LD50 > 5,000 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

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

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

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

Carcinogenicity

For the component/components, either no data is currently available or the data is 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-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	Inhalation	Not classified for female reproduction	Rat	NOAEL 129 mg/l	1 generation
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	Inhalation	Not classified for male reproduction	Rat	NOAEL 129 mg/l	1 generation
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	Inhalation	Not classified for development	Rat	NOAEL 307 mg/l	during gestation

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 1,1,2,2,3,3,4,4,4-nonafluoro-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 1,1,2,2,3,3,4,4,4-nonafluoro-1methoxybutane	Inhalation	cardiac sensitisation	Not classified	Dog	NOAEL 913 mg/l	10 minutes

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 1,1,2,2,3,3,4,4,4-nonafluoro-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 1,1,2,2,3,3,4,4,4-nonafluoro-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 1,1,2,2,3,3,4,4,4-nonafluoro-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-1-methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1-methoxybutane	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
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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.

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 Chronic

aquatic hazard:

No toxicity at limit of water solubility. Endpoint not reached at limit of water solubility.

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-1-methoxybutane	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-1-methoxybutane	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	Experimental	72 hours	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-1methoxy-2-(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane	422-270-2	Experimental Photolysis		Photolytic half-life (in air)	2.9 years (t 1/2)	Other methods
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	422-270-2	Experimental Biodegradation	28 days	BOD	22 % BOD/ThBOD	OECD 301D - Closed bottle test

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-	422-270-2	Experimental Bioconcentration		Log Kow	4.0	Other methods



(trifluoromethyl)propane and 1,1,2,2,3,3,4,4,4nonafluoro-1methoxybutane						
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12.4. Mobility in soil

Please contact manufacturer for more details

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. Other adverse effects

No information available.

SECTION 13: Disposal considerations

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
- 14 06 02* Other halogenated solvents and solvent mixtures

SECTION 14: Transportation information

Acota Certonal FC-736
Not hazardous for transportation

Not restricted for transport

SECTION 15: Regulatory information

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

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out for this substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

Revision information:

Section 1: Address Change

Section 2: CLP Classification Statements information was added. Label: CLP Classification information was deleted.

Section 4: First aid for eye contact information information was modified.

Section 4: First aid for ingestion (swallowing) information information was modified.

Section 4: First aid for inhalation information information was modified.

Section 4: First aid for skin contact information information was modified.

Section 5: Fire - Extinguishing media information information was modified.

Section 5: Hazardous combustion products table information was modified.

Section 6: Accidental release environmental information information was modified

Section 6: Accidental release personal information information was modified.

Section 7: Conditions safe storage information was modified.

Section 7: Precautions safe handling information information was modified.

Section 8: Eye protection information information was added.

Section 8: Eye/face protection information information was deleted.

Section 8: Personal Protection - Eye information information was deleted.

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

Section 9: Colour information was added. Section 09: Odour information was added.

Sections 3 and 9: Odour, colour, grade information information was deleted.

Section 10: Hazardous decomposition or by-products table information was modified.

Section 11: Classification disclaimer information was modified.

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

Section 11: Reproductive and/or Developmental Effects text information was deleted.

Section 12: Chronic aquatic hazard information information was added.

Section 13: 13.1. Waste disposal note information was modified.

Section 13: Standard Phrase Category Waste GHS information was modified.

Section 14: Transportation classification information was modified.

Section 15: Regulations - Inventories information was deleted.

Section 16: UK disclaimer information was deleted.



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