

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 HFE7300 Engineered Fluid

REACH registration number	CASRN	EC Number	Ingredient Name
01-0000019452-72-0000	132182-92-4	ELINCS 459-520-5	Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-methoxy-4-(trifluoromethyl)-

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

Identified uses

Heat transfer agent; Cooling agent; electrical insulator; solvent; laboratory chemical – Industrial use & professional use only

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 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 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 substance or mixture

Address: Acota Limited, Centrepoint, Knights Way, Shrewsbury SY1 3BF. UK

E Mail: 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
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4(trifluoromethyl)-	132182-92-4	459-520-5	99 - 100

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	132182-92-4	ELINCS 459-5205		99 - 100	Substance with a Community level exposure limit in the workplace

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

Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye contact

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If swallowed

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

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

Material will not burn.

5.2. Special hazards arising from the substance or mixture

Exposure to extreme heat can give rise to thermal decomposition.

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

Evacuate area. 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. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

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. 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.)

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Store away from heat. 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

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
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-(trifluoromethyl)-	132182-92-4	Manufacturer determined	TWA:100 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.

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

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: Safety glasses with side shields.

Applicable Norms/Standards

Use eye protection conforming to EN 166

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	No data available

Applicable Norms/Standards

Use gloves tested to EN 374 If this product is used in a manner

that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended:
Neoprene apron.

Respiratory protection

Under normal use conditions, airborne exposures are not expected to be significant enough to require 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

Physical state	Liquid.
Specific Physical Form:	Liquid.
Appearance/Odour	Clear, colourless liquid. Faint odour.
Odour threshold	<i>No data available.</i>
pH	<i>Not applicable.</i>
Boiling point/boiling range	97.8 °C
Melting point	-38 °C
Flammability (solid, gas)	Not applicable.
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	No flash point
Autoignition temperature	408 °C [<i>Details:</i> per ASTM E-659 method]
Flammable Limits(LEL)	None detected
Flammable Limits(UEL)	None detected
Vapour pressure	5,584.8 Pa [@ 20 °C]
Relative density	1.67 [<i>Ref Std:</i> WATER=1]
Water solubility	0.295 ppm [@ 20 °C]
Solubility- non-water	0.067 Slight (less than 10%) [<i>Details:</i> Solubility of water in Acota 7300 (ppm)]
Partition coefficient: n-octanol/water	4.3 [<i>Details:</i> (log Kow)]
Evaporation rate	0.07

Vapour density	0.014 [@ 25 °C]
Decomposition temperature	> 200 °C [<i>Details: (anhydrous conditions)</i>]
Viscosity	< 5 mPa-s [@ 25 °C]
Density	1.67 g/ml

9.2. Other information

EU Volatile Organic Compounds	1,600 g/l
Molecular weight	<i>No data available.</i>
Percent volatile	100 %

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is considered to be non reactive under normal use conditions

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
Toxic vapour, gas, particulate.	At elevated temperatures. - extreme conditions of heat

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

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 Acota 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

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
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4(trifluoromethyl)-	Dermal	Rat	LD50 > 2,000 mg/kg
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4(trifluoromethyl)-	Inhalation Vapour (4 hours)	Rat	LC50 > 430 mg/l
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4(trifluoromethyl)-	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-(trifluoromethyl)-	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-(trifluoromethyl)-	Rabbit	No significant irritation

Skin Sensitisation

Name	Species	Value
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-(trifluoromethyl)-	Mouse	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
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-(trifluoromethyl)-	In Vitro	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
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-methoxy-4-(trifluoromethyl)-	Inhalation	Not classified for reproduction and/or development		NOEL 10,000 ppm	
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-methoxy-4-(trifluoromethyl)-	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	28 days

Target Organ(s)

Specific Target Organ Toxicity - single exposure

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

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	Inhalation	hematopoietic system liver kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 143 mg/l	5 days
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	Ingestion	liver kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 150 mg/kg/day	28 days
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	Ingestion	endocrine system bone, teeth, nails, and/or hair hematopoietic system heart immune system nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 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.

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

Acute aquatic hazard:

No toxicity at limit of water solubility.

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4-(trifluoromethyl)-	132182-92-4	Green algae	Experimental	72 hours	EC50	>100 mg/l
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4-(trifluoromethyl)-	132182-92-4	Ricefish	Experimental	96 hours	LC50	>100 mg/l
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4-(trifluoromethyl)-	132182-92-4	Water flea	Experimental	48 hours	EC50	>100 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	132182-92-4	Experimental Photolysis		Photolytic half-life (in air)	2.63 years (t 1/2)	Other methods
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	132182-92-4	Experimental Biodegradation	28 days	BOD	0 % weight	OECD 301D - Closed bottle test

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	132182-92-4	Experimental Bioconcentration		Log Kow	4.3	Estimated: Octanol-water partition coefficient

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

Material	CAS Nbr	Ozone Depletion Potential	Global Warming Potential
Pentane, 1,1,1,2,2,3,4,5,5,5decafluoro-3-methoxy-4(trifluoromethyl)-	132182-92-4	0	310

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. 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)

070103*	Organic halogenated solvents, washing liquids and mother liquors
14 06 02*	Other halogenated solvents and solvent mixtures

SECTION 14: Transportation information

Not hazardous for transportation

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 the Korea Chemical Control Act. 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. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. 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 substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information**Revision information:**

- Section 7: Precautions safe handling information information was modified.
- Section 8: glove data value information was added.
- Section 8: Personal Protection - Skin/body information information was added.
- Section 8: Personal Protection - Skin/hand information information was modified.
- Section 8: Skin protection - protective clothing information information was added.
- Section 8: Skin protection - recommended gloves text information was added.
- Section 11: Health Effects - Eye information information was modified.
- Section 11: Health Effects - Inhalation information information was modified.
- Section 11: Reproductive and/or Developmental Effects text information was deleted.

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



Specialty material solutions

HFE 7300 Engineered Fluid

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.

Acota United Kingdom MSDSs are available at www.Acota.com/uk