

## FC25-06

## 2-(PERFLUOROHEXYL)ETHANE-1-SULFONIC ACID AQUEOUS SOLUTION

Revised 15-November-2016

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 1. IDENTIFICATION OF SUBSTANCE
 

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## Product Identifier

<b>Product Name:</b>	2-(Perfluorohexyl)ethane-1-sulfonic acid, aqueous solution
<b>Brand</b>	Fluoryx Labs
<b>Product code:</b>	FC25-06
<b>CAS No.</b>	See section 3.

## Relevant identified uses of the substance or mixture and uses advised against

Identified uses:	Laboratory chemicals; manufacture of substances
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## Details of the supplier of the safety data sheet

**Fluoryx Labs**  
 3650 Research Way, #22  
 Carson City, NV 89706  
 USA  
 +1 (510) 329-9149 (Telephone)  
 +1 (510) 686-8799 (Fax)  
 +01-813-248-0585 (International)  
 +1-800-255-3924 (USA)

## Emergency call:

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 2. HAZARDS IDENTIFICATION
 

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## Classification of the Substance or Mixture

<b>Hazard:</b>	Corrosive. Harmful if swallowed. Skin Corr. 1B, R34
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## Label Elements

<b>Signal Word:</b>	Danger
<b>Pictogram:</b>	



## Hazard Statements

H314	Causes severe skin burns and eye damage.
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## Precautionary Phrases

P280	Wear protective gloves/protective clothing/eye protection/face protection.
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P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
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P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off
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P304 + P340

immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P501

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Dispose of contents/container to local regulations.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

#### Chemical synonyms(s):

2-(Perfluorohexyl)ethane-1-sulfonic acid;  
1H,1H,2H,2H-Perfluorooctanesulfonic acid;  
2-(Tridecafluorohexyl)ethanesulfonic acid;  
3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctanesulphonic acid

#### Chemical formula:

$\text{HO}_3\text{SCH}_2\text{CH}_2(\text{CF}_2)_6\text{F}$  in  $\text{H}_2\text{O}$ ;  
 $\text{C}_8\text{H}_5\text{F}_{13}\text{O}_3\text{S}$

#### Components

Material	Concentration	CAS #	EINECS #	TSCA Listed
2-(Perfluorohexyl)ethane-1-sulfonic acid	25 – 35%	27619-97-2	248-580-6	Yes
Water	65 – 75%	7732-18-5	231-791-2	Yes
Methanol	0.5 – 2%	67-56-1	200-659-6	Yes

### 4. FIRST AID MEASURES

#### Description of First Aid Measures

##### Ingestion:

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

##### Inhalation:

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Symptoms may be delayed. Call a physician immediately.

##### Skin Contact:

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use.

##### Eye Contact:

IF IN EYES: Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

#### Most Important Symptoms and Effects

Severe burns may occur.

#### Indications of Any Immediate Medical Attention

No additional measures required.

### 5. FIRE FIGHTING MEASURES

#### Flammable Properties:

Flash point:

> 100 °C

Method:

Closed cup

#### Extinguishing Media:

Suitable:

Use extinguishing measures that are appropriate to

<p>Unsuitable:</p> <p><b>Fire fighting instructions:</b></p> <p><b>Special hazards:</b></p> <p><b>Further information:</b></p>	<p>local circumstances and the surrounding environment.</p> <p>None.</p> <p>Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.</p> <p>Corrosive. Emits toxic fumes under fire conditions. The product itself does not burn. Hazardous decomposition products formed under fire conditions. Hazardous combustion products: Hydrogen fluoride, carbon dioxide (CO<sub>2</sub>), carbon monoxide, other hazardous decomposition products may be formed.</p> <p>Evacuate personnel to safe areas. Do not allow run-off from fire fighting to enter drains or watercourses.</p>
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**6. ACCIDENTAL RELEASE MEASURES**

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<b>Personal Precautions:</b>	Evacuate personnel to safe areas. Use personal protective equipment. Ventilate the area.
<b>Environmental Precautions</b>	Do not discharge to drains or rivers. Do not release into environment.
<b>Clean-Up Procedures:</b>	<p>Clean-up methods - small spillage: Dam up. Soak up with inert absorbent material (e.g., sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers.</p> <p>Clean-up methods - large spillage: Neutralize spill with lime or soda ash. Soak up with inert absorbent material (e.g., sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers.</p>

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**7. HANDLING AND STORAGE**

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<b>Personal Precautions:</b>	Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. Avoid the formation or spread of mists in the air. Avoid contact with skin, eyes and clothing.
<b>Protection Against Fire And Explosion:</b>	To avoid thermal decomposition, do not overheat. Thermal decomposition can lead to release of irritating gases and vapors. Contact with metals may lead to the formation of hydrogen and nitrous gases - explosion hazard. Do not spray on a naked flame or any incandescent material.
<b>Storage Conditions:</b>	Keep tightly closed in a well-ventilated place. Store at > 5 °C. Avoid freezing.
<b>Suitable Packaging:</b>	Must only be kept in original packaging.

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**8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**


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Chemical Name	Occupational Exposure Limits	Type	Regulation
Methanol	250 ppm (skin)	STEL	US. ACGIH Threshold Limit Values (2011)
	200 ppm	TWA	US. ACGIH Threshold Limit Values (2011)
	200 ppm, 262 mg/m <sup>3</sup>	TWA	Singapore. PELs. (Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order) (2006)
	250 ppm, 328 mg/m <sup>3</sup>	STEL	Singapore. PELs. (Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order) (2006)

**Engineering Controls:**

Safety shower, eye bath, and self-contained breathing apparatus on hand in case of emergency. Mechanical exhaust required.

**Personal Protective Equipment****Eye/face protection:**

Wear chemical splash goggles in combination with a full-length face shield or an acid hood.

**Respiratory protection:**

In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

**Protective clothing:**

Where there is potential for skin contact, have available and wear as appropriate impervious gloves, apron, pants, and jacket.

**Hand protection:**

Compatible chemical-resistant gloves.

**General hygiene measures:**

Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**


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<b>Molecular Weight</b>	428.17 g/mol
<b>Appearance and Color</b>	Colorless to light brown clear liquid
<b>Odor</b>	None
<b>Boiling Point</b>	100 °C @ 760 mm Hg (1 atmosphere)
<b>Melting Point</b>	5 °C
<b>pH</b>	1
<b>Vapor Pressure</b>	23.4 hPa (20 °C)
<b>Vapor Density (Air = 1)</b>	Not available
<b>Saturated Vapor Conc.</b>	Not available
<b>Density</b>	1.15 g/mL @ 20 °C
<b>Flash Point</b>	None below the boil (closed cup)
<b>Thermal Decomposition</b>	> 200 °C.
<b>Explosion Limits</b>	None
<b>Refractive Index</b>	Not available

**Solubility in Water**

Completely soluble

**10. STABILITY AND REACTIVITY**

<b>Stability:</b>	Stable in sealed containers under normal conditions.
<b>Conditions to Avoid:</b>	Strong oxidizing agents and metals. Corrosive to metals such as iron, aluminium and copper.
<b>Materials to Avoid:</b>	To avoid thermal decomposition, do not overheat. Do not freeze.
<b>Hazardous Decomposition Products:</b>	In combustion, emits toxic fumes including carbon monoxide, carbon dioxide, and hydrogen fluoride. Other hazardous decomposition products may be formed. Hydrogen produced by reaction with metals.
<b>Hazardous Polymerization Reactions:</b>	Will not polymerize.

**11. TOXICOLOGICAL INFORMATION**

<b>Acute Oral Toxicity</b> <b>Acute Oral Toxicity (Methanol)</b>	Rat, LD50: 1,871 mg/kg. Estimate: 100 mg/kg
<b>Acute Inhalation Toxicity</b> <b>2-(Perfluorohexyl)ethane-1-sulfonic acid</b> <b>Methanol</b>	Estimate 4 hour/rat: 1.5 mg/L dust. Estimate 3 mg/L Animals (unspecified species). Target organs: central nervous system (narcosis), eye effects.
<b>Acute Dermal Toxicity</b> <b>Methanol</b>	Estimate 300 mg/kg Animals (unspecified species). Target organs: central nervous system (narcosis), eye effects.
<b>Skin Irritation</b> <b>General</b>	Not tested on animals. Classification – corrosive. Result: causes severe burns.
<b>2-(Perfluorohexyl)ethane-1-sulfonic acid</b>	Not tested on animals. Classification – corrosive. Result: causes severe burns. Method: In Vitro Membrane Barrier Test Method for Skin Corrosion – CORROSITEX. Information given is based on data obtained from similar substances.
<b>Methanol</b>	Rabbit. Classification: not classified as irritant. Result: slight or no skin irritation.
<b>Eye Irritation</b> <b>General</b>	Not tested on animals. Classification: causes severe burns. Result: risk of serious damage to eyes.
<b>2-(Perfluorohexyl)ethane-1-sulfonic acid</b>	Rabbit. Classification: corrosive. Result: corrosive information given is based on data obtained from similar substances.
<b>Methanol</b>	Rabbit. Classification: not classified as irritant. Result: slight irritation.

**Sensitization**

**General**

Local lymph node test (mice). Classification: did not cause sensitization on laboratory animals. Result: animal test did not cause sensitization by skin contact.

**Methanol**

Maximization Test (guinea pig). Classification: not a skin sensitizer. Result: did not cause sensitization on laboratory animals.

**Repeated Dose Toxicity**

Oral - gavage rat. Exposure time: 90 days. Increased liver weight  
Dermal - rabbit. Exposure time: 90 days. No toxicologically significant effects were found.

**Mutagenicity Assessment**

**General**

Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Did not show mutagenic effects in animal experiments.

**Methanol**

Overall weight of evidence indicates that the substance is not mutagenic. Did not cause genetic damage in animals. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others. Genetic damage in cultured bacterial cells was observed in some laboratory tests but not in others.

**Carcinogenicity Assessment**

**Methanol**

Overall weight of evidence indicates that the substance is not carcinogenic.

**Toxicity to Reproduction Assessment**

**Methanol**

Evidence suggests the substance is not a reproductive toxin in animals.

**Assessment Teratogenicity**

**Methanol**

Evidence suggests the substance is not a developmental toxin in animals.

**Human Experience**

Excessive exposures may affect human health, as follows:  
Eye contact: damage, burn, corrosion, blurred vision  
Ingestion: mucous membrane irritation.  
Discomfort. Shortness of breath.

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**12. ECOLOGICAL INFORMATION**

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**Elimination information (persistence and degradability)**

**Biodegradability**

The surfactant contained in this mixture does not comply with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents.

**Ecotoxicity Effects**

**General**

Toxicity to fish: LC50/96 h/Oncorhynchus mykiss (rainbow trout): > 107 mg/l

**Methanol**

LC50/96 h/Pimephales promelas (fathead minnow): 28,100 mg/l

**Toxicity to Algae**

<b>General</b>	ErC50/72 h/Pseudokirchneriella subcapitata (green algae): > 96 mg/l
<b>Methanol</b>	LC50/96 h/Selenastrum capricornutum (green algae): 22,000 mg/l
<b>Aquatic toxicity</b>	
<b>General</b>	EC50/48 h/Daphnia magna (Water flea): > 109 mg/l
<b>Methanol</b>	EC50/48 h/Daphnia: > 10,000 mg/l

**13. DISPOSAL CONSIDERATIONS**

**Disposal Operations:** In accordance with local and national regulations. Follow all chemical pollution control regulations.

**14. TRANSPORTATION INFORMATION**

<b>Mode</b>	DOT/IMDG/IATA
<b>UN Number</b>	1760
<b>Class (Subsidiary)</b>	8
<b>Proper Shipping Name</b>	Corrosive liquid, n.o.s. (Polysulfonic acid)
<b>Hazard Label (Subsidiary)</b>	Corrosive liquid



<b>Packing Group</b>	III
<b>Hazchem Code</b>	2X
<b>Marine pollutant</b>	No

**15. SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS**

<b>US National regulatory information</b>	Not regulated
<b>Regulations in other countries</b>	
Symbol(s)	C Corrosive Xn Harmful
Hazardous components:	3,3,4,4,5,5,6,6,7,7,8,8-Tridecafluorooctanesulphonic acid Methanol
R-phrase(s):	R35 Causes severe burns. R22 Harmful if swallowed.
S-phrase(s):	S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S60 This material and its container must be disposed of as hazardous waste.

**16. OTHER INFORMATION**

**HMIS codes:** Health: 3

Flammability: 0

Reactivity: 1

**Legal Disclaimer:**

For R&D use only. Not for drug, household, or other uses. The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. Unless noted to the contrary, the technical information applies only to pure product.

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