

## SAFETY DATA SHEET

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



11839 Sorrento Valley Road Suite 901  
 San Diego, CA 92121  
 phone 858-350-9474  
 fax 858-350-9422  
 Email: [support@aculon.com](mailto:support@aculon.com)  
[www.aculon.com](http://www.aculon.com)

### Emergency Telephone Number <sup>[1E]</sup>

CHEMTEL CHEMICAL  
 1-800-255-3924 (US/Canada)  
 +1-813-248-0585 (International)

Revision Date: 06/12/2018

<sup>[1a,b]</sup> <b>TRADE NAME(s)</b>	Metal Repellency Treatment	<sup>[1c]</sup> <b>CHEMICAL FAMILY/ APPLICATION/ RESTRICTIONS</b>	<b>Chemical Mixture Coating</b>
--	----------------------------	---	---------------------------------

### SECTION 2: Hazards identification

#### <sup>[2A]</sup> GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4)  
 Eye irritation (Category 2A)  
 Flammable Liquids (Category 2)  
 Skin irritation (Category 2)  
 Specific target organ toxicity - single exposure (Category 1)  
 Specific target organ toxicity - single exposure (Category 3)

#### <sup>[2B]</sup> LABELING ELEMENTS, Hazard, and Precautionary Statements

Signal word: **Danger** Pictogram(s):



#### Hazard statement(s):

H225 Highly flammable liquid and vapor.  
 H302 Harmful if swallowed.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H335 May cause respiratory irritation.  
 H370 Causes damage to organs

#### Precautionary statement(s)

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
 P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.  
 P305 + P353 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.  
P210 Keep away from heat, sparks, open flames, and hot surfaces. No smoking.

[2C] **HAZARDS NOT OTHERWISE CLASSIFIED:** none known

[2D] **INGREDIENTS OF UNKNOWN ACUTE TOXICITY >= 1%:**

### SECTION 3: Composition/information on ingredients

[3a, b, d] CHEMICAL NAME/SYNONYMS	[3c] CAS NUMBER	EINECS NO.	CONC.*
Ethanol	64-17-5		50 - 52 %
(Mixture of 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane and 4-methoxy-1,1,1,2,2,3,3,4,4-nonfluorobutan)	N/A mixture of 163702-07-6 and 163702-08-7	n/a	42 - 46 %
2 propanol	67-63-0		2 - 3 %
Methanol	67-56-1	200-659-6	2 - 3 %

\* The specific chemical identity and/or percentage of this material has been withheld as a trade secret.

### SECTION 4: First aid measures

[4a] <b>INHALATION</b>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
[4a] <b>SKIN CONTACT</b>	Wash off with soap and plenty of water. Consult a physician.
[4a] <b>EYE CONTACT</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
[4a] <b>INGESTION</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
[4b] <b>MOST IMPORTANT SYMPTOMS &amp; EFFECTS</b>	The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11
[4c] <b>INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED</b>	Note to Physician Symptoms will vary with alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05- 0.15%. Approximately 25% of individuals show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol; 50-95% of individuals are clinically intoxicated at these levels. Severe poisoning occurs when the blood is ethanol level is 0.3-0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration. Avoid the use of depressant drugs and administering excessive amounts of fluids.

### SECTION 5: Firefighting measures

[5a] <b>SUITABLE/ UNSUITABLE EXTINGUISHING MEDIA</b>	SMALL FIRE: Use dry chemicals, CO2, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam. Cool all affected containers with flooding quantities of water.
--	--

<p><sup>[5b]</sup> <b>SPECIFIC HAZARDS IE HAZARDOUS COMBUSTION PRODUCTS</b></p>	<p>Burning may form Carbon oxides. Use water spray to cool unopened containers. May produce a floating fire hazard. Static ignition hazard can result from handling and use. Vapors may settle in low or confined spaces. Vapors may travel to source of ignition and flash back. Alcohols burn with a pale blue flame which may be extremely hard to see under normal lighting conditions. Personnel may only be able to feel the heat of the fire without seeing flames. Extreme caution must be exercised in fighting alcohol fires. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.</p>
<p><sup>[5c]</sup> <b>PRECAUTIONS / SPECIAL PROTECTIVE EQUIPMENT</b></p>	<p>Wear self contained breathing apparatus for fire fighting if necessary.</p>

**SECTION 6: Accidental release measures**

<p><sup>[6a]</sup> <b>PERSON PRECAUTIONS, PPE, EMERGENCY PROCEDURES</b></p>	<p>Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.</p>
<p><sup>[6a]</sup> <b>METHODS &amp; MATERIALS OF CONTAINMENT &amp; CLEANING</b></p>	<p>Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Prevent material from entering storm sewers or waterways.</p>

**SECTION 7: Handling and storage**

<p><sup>[7a]</sup> <b>PRECAUTIONS FOR SAFE HANDLING</b></p>	<p>Do not get on skin or in eyes. Do not inhale vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. Open and handle container with care. Metal containers involved in the transfer of this material should be grounded and bonded.</p>
<p><sup>[7b]</sup> <b>CONDITIONS FOR SAFE STORAGE</b></p>	<p>Keep container tightly closed in a cool, dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Consult local fire codes for additional storage information.</p>

**SECTION 8: Exposure controls/personal protection**

<p><sup>[8a]</sup> COMPONENT</p>	<p>PEL/ TWA/ STEL</p>	<p>CONTROL PARAMETERS</p>	<p>BASIS (ACGIH, OSHA ETC)</p>	<p>NOTES</p>
<p>Ethyl alcohol</p>	<p>STEL</p>	<p>1000 ppm</p>	<p>ACGIH</p>	<p>Upper Respiratory Tract irritation, confirmed animal carcinogen with unknown relevance to humans</p>

Ethyl alcohol	TWA	1000 ppm / 1,900 mg/m3	US (OSHA)	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.
2 Propanol	TWA	200 ppm	ACGIH	
2 Propanol	STEL	400 ppm	ACGIH	
2 Propanol	TWA	400 ppm	US (OSHA)	
Methanol	TWA	200 ppm	ACGIH	
Methanol	TWA	200 ppm	US (OSHA)	
Methanol	STEL	250 ppm	ACGIH	
(Mixture of 2-(difluoromethoxyethyl)-1,1,1,2,3,3,3-heptafluoropropane and 4-methoxy-1,1,1,2,2,3,3,4,4-nonafluorobutane)	TWA	750 ppm	ACGIH TLV	

<b>[8b] VENTILATION / ENGINEERING CONTROLS</b>	General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.
<b>[8c] RESPIRATORY PROTECTION</b>	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
<b>[8c] SKIN PROTECTION</b>	Wear appropriate protective gloves to prevent skin exposure. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Full contact Material: Nitrile rubber Minimum layer thickness: 0.4 mm . This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
<b>[8c] EYE PROTECTION</b>	Wear appropriate protective eyeglasses or chemical safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
<b>[8c] CLOTHING</b>	Wear appropriate protective clothing to prevent skin exposure.

**SECTION 9: Physical and chemical properties**

<b>[9a] Appearance (physical state, color, etc.)</b>	clear solution	<b>[9j] Upper/lower flammability or explosive limits:</b>	Lower: 3.3% UEL: 119%
<b>[9b] Odor</b>	alcohol-like	<b>[9k] Vapor pressure</b>	59.5 hPa (44.6 mmHg) at 20 °C (68 °F) (for 100% ethyl alcohol)

[9c] <b>Odor threshold</b>	no data available	[9i] <b>Vapor density</b>	1.6 (for 100% ethyl alcohol)
[9d] <b>pH</b>	no data available	[9m] <b>Relative Density</b>	0.785 g/mL at 25 °C (77 °F) (for 100% ethyl alcohol)
[9e] <b>Melting point/freezing point</b>	-114°C (-173°F) (for 100% ethyl alcohol)	[9n] <b>Solubility (in H<sub>2</sub>O)</b>	miscible
[9f] <b>Initial boiling point and boiling range</b>	78°C (173°F) (for 100% ethyl alcohol)	[9o] <b>Partition coefficient: n-octanol/water</b>	data not available
[9g] <b>Flash point</b>	54°C (130°F) - closed cup	[9p] <b>Auto-ignition temperature</b>	363°C (685 °F) - (for 100% ethyl alcohol)
[9h] <b>Evaporation rate</b>	Specific data not available - expected to be rapid.	[9q] <b>Decomposition temperature</b>	no data available
[9n] <b>Flammability (solid, gas)</b>	no data available	[9r] <b>Viscosity</b>	no data available

**SECTION 10: Stability and reactivity**

[10a] <b>REACTIVITY</b>	no data available
[10b] <b>CHEMICAL STABILITY</b>	Stable under recommended storage conditions..
[10c] <b>POSSIBILITIES OF HAZARDOUS REACTIONS</b>	none known
[10d] <b>CONDITIONS TO AVOID</b>	Ignition sources, excess heat, incompatible materials
[10e] <b>INCOMPATIBLE MATERIALS</b>	Alkali metals, Ammonia, Oxidizing agents, Peroxides, Strong Inorganic Acids
[10f] <b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	Other decomposition products - no data available In the event of fire: see section 5

**SECTION 11: Toxicological information**

[11a] <b>LIKELY ROUTES OF EXPOSURE</b>	<p>INHALATION: is not expected if proper ventilation or personal protective equipment is used while working with this product</p> <p>INGESTION: Ingestion is not expected if proper industrial hygiene practices are followed, including no eating, drinking, or smoking while working with chemicals</p> <p>SKIN: is not expected if proper personal protective equipment (gloves and protective clothing) is used while working with this product</p> <p>EYE CONTACT: is not expected if proper personal protective equipment (safety glasses or goggles) is used while working with this product</p>
[11b] <b>SYMPTOMS RELATED TO PHYSICAL, CHEMICAL &amp; TOXIC CHARACTERISTICS</b>	<p>INHALATION: Toxic if inhaled. Upper respiratory tract irritation, drowsiness and dizziness may occur.</p> <p>INGESTION: Toxic if swallowed. Short term overexposure can cause drunkenness, depression of the central nervous system, nausea, vomiting, diarrhea, liver damage, and death.</p> <p>SKIN: Toxic if absorbed through the skin. May cause dermatitis by defatting the skin from prolonged or repeated contact.</p> <p>EYE CONTACT: Can cause eye irritation.</p>
[11d] <b>DELAYED /</b>	Reproductive toxicity: Human - female - Oral. Effects on Newborns - measured low apgar scores

<p><b>IMMEDIATE EFFECTS, CHRONIC EFFECTS FROM SHORT/LONG TERM EXPOSURE</b></p>	<p>and showed signs of alcohol dependence.</p> <p>Specific target organ toxicity - single exposure: Ethanol: Inhalation - May cause respiratory irritation. - Lungs. Methanol May cause damage to organs 2 Propanol: Inhalation - May cause drowsiness or dizziness. - Central Nervous System</p> <p>Specific target organ toxicity - repeated exposure: Standard Draize skin test (rabbit) - Dose: 20 mg/24 hrs Reaction: Moderate Repeated exposure may cause skin dryness or cracking.</p> <p>Aspiration hazard: no data available</p>
<p><sup>[11D]</sup> <b>NUMERICAL MEASURES OF TOXICITY</b></p>	<p>ACUTE TOXICITY ESTIMATES:</p> <p>Acute toxicity (Ethanol)                  LD50 Oral - rat: 7060 mg/kg                  LC50 Inhalation - rat - 10 h - 20000 ppm BWT                  LDLo Oral Human - 1400 mg/kg BWT</p> <p>Acute toxicity (Methanol)                  LD50 Oral - rat: 1187 - 2769 mg/kg                  LC50 Inhalation - rat - 6 h - 87.6 mg/L                  LD50 Dermal - rabbit - 17,100 mg/kg                  LDlo Oral - Human - 143 mg/kg Signs and symptoms of dyspnea and gastrointestinal disturbances such as nausea, vomiting , and diarrhea.</p> <p>Acute toxicity (2 Propanol)                  LD50 Oral - rat: 5045 mg/kg (Behavioral abnormalities observed such as altered sleep time and decreased activity.)                  LC50 Inhalation - rat - 8 h - 16000 mg/L                  LD50 Dermal - rabbit - 12,800 mg/kg</p>
<p><sup>[11e]</sup> <b>CARCINOGENICITY</b></p>	<p>Carcinogenicity: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH,NTP, or EPA classification.</p> <p>IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Isopropanol)                  NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.                  OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.</p>

**SECTION 12: Ecological information**

<p><sup>[12a]</sup> <b>ECOTOXICITY</b></p>	<p>Ethanol</p> <p>Toxicity to fish: LC50 / 96 HOUR Oncorhynchus mykiss (rainbow trout) &gt; 10,000 mg/l                  LC50 / 96 HOUR Pimephales promelas (fathead minnow) &gt; 13,400 mg/l                  Toxicity to daphnia and other aquatic invertebrates: No data available                  Toxicity to algae EC50 - Growth inhibition / 96 HOURS Chlorella vulgaris (Fresh water algae) 1,000 mg/l</p> <p>2 Propanol:</p> <p>Toxicity to fish: LC50 / 96 hours Pimephales promelas: 9,640 mg/L                  Toxicity to daphnia and other aquatic invertebrates: EC50 / 24 h / Water Flea - 5,102 mg/L, Immobilization EC50 / 24h / Water flea - 6,851 mg/L                  Toxicity to algae EC50 - EC50 / 72 hours Desmodesmus subspicatus &gt; 2,000 mg/L</p> <p>Methanol:</p> <p>Toxicity to fish:LC50 / 96 hours Lepomis macrochirus: 15,400 mg/L / LC50 / 96 hours Fathead minnow: 29,400 mg/L                  Toxicity to daphnia and other aquatic invertebrates: EC50/ 48 hours / Water flea - &gt; 10,000.00 mg/L</p>
--	---

	Toxicity to algae EC50 -EC50 / 96 hours Scenedesmus capricornutum: 22,000 mg/L
<sup>[12b]</sup> <b>PERSISTENCE AND DEGRADABILITY</b>	Ethanol: Biodegradation is expected. 2 Propanol: No data available Methanol: 72% - Readily biodegradable.
<sup>[12c]</sup> <b>BIOACCUMULATIVE POTENTIAL</b>	Ethanol: Bioaccumulation is unlikely 2 Propanol: No data available Methanol: Bioaccumulation: Carp / 72d / BCF: 1.0
<sup>[12d]</sup> <b>MOBILITY IN SOIL</b>	No data available
<sup>[12e]</sup> <b>OTHER ADVERSE EFFECTS (OZONE LAYER ETC.)</b>	Methanol: BOD: 600 mg/g - 1120 mg/g COD: 1420 mg/g

**SECTION 13: Disposal considerations**

<sup>[13]</sup>Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging Disposal: Treat as material or dispose of according to local regulations.

**SECTION 14: Transport information**

<sup>[14a]</sup> UN/NA	<sup>[14b]</sup> UN/NA PROPER SHIPPING NAME	<sup>[14ca]</sup> TRANSPORT HAZARD CLASS	<sup>[14d]</sup> PACKING GROUP
UN 1993	Flammable Liquid, n.o.s. (Ethanol)	3	III

<b>US DOT/IATA</b>	UN 1993, Flammable Liquid, n.o.s. (Ethanol) 3, III
<sup>[14d]</sup> <b>ENVIRONMENTAL HAZARDS</b>	Marine Pollutant:no
<sup>[14f]</sup> <b>BULK TRANSPORT (MARPOL 73/78/IBC CODE)</b>	<b>IMDG:</b> UN 1993, Flammable Liquid, n.o.s. (Ethanol) 3, III
<sup>[14g]</sup> <b>SPECIAL PRECAUTIONS</b>	none known

**SECTION 15: Regulatory information**

**US**

<b>TSCA</b>	The components in this mixture are listed on the US inventory.
<b>OSHA</b>	This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard.
<b>SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES</b>	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
<b>The following components are subject to reporting levels established by SARA Title III, Section 313</b>	2- Propanol, CAS# 67-63-0 Revision Date 1987-01-01 Methanol, CAS 67-56-1 Revision Date 2007-07-01
<b>Sara 311/312 Hazards</b>	Fire Hazard, Acute Health Hazard, Chronic Health Hazard

<b>Massachusetts Right To Know Components</b>	Ethanol CAS 64-17-5 Revision Date 2007-03-01 2- Propanol, CAS# 67-63-0 Revision Date 1987-01-01 Methanol CAS 67-56-1 Revision Date 2007-07-01
<b>Pennsylvania Right To Know Components</b>	Ethanol CAS 64-17-5 Revision Date 2007-03-01 2- Propanol, CAS# 67-63-0 Revision Date 1987-01-01 Methanol CAS 67-56-1 Revision Date 2007-07-01
<b>New Jersey Right To Know Components</b>	Ethanol CAS 64-17-5 Revision Date 2007-03-01 2- Propanol, CAS# 67-63-0 Revision Date 1987-01-01 Methanol CAS 67-56-1 Revision Date 2007-07-01
<b>California Prop. 65 Components</b>	This product contains the following chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm: Ethanol CAS 64-17-5 Revision Date 2009-12-11 Methanol CAS 67-56-1 Revision Date 2012-03-16

### SECTION 16: Other information

Revision Date:06/12/2018 ver 3 Updated Emergency Contact and Trademarks  
08/08/16 ver 2 updated section headings  
06/30/15 ver 1

HMIS Rating  
Health hazard: 2  
Chronic Health Hazard: \*  
Flammability: 3  
Physical Hazard 0  
NFPA Rating  
Health hazard: 2  
Fire Hazard: 3  
Reactivity Hazard: 0

INFORMATION CONTAINED IN THIS SAFETY DATA SHEET IS FOR USE BY TECHNICALLY QUALIFIED PERSONNEL AT THEIR DISCRETION AND RISK. ALL STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON TESTS AND DATA WHICH WE BELIEVE TO BE RELIABLE, BUT THE ACCURACY OR COMPLETENESS THEREOF IS NOT GUARANTEED AND NO WARRANTY OF ANY KIND IS MADE WITH RESPECT THERETO. SINCE THE COMPANY SHALL HAVE NO CONTROL OF THE USE OF THE PRODUCT DESCRIBED HEREIN, THE COMPANY ASSUMES NO LIABILITY OF LOSS OR DAMAGE INCURRED FROM THE PROPER OR IMPROPER USE OF SUCH PRODUCT.

#### **DISCLAIMER**

This material must be handled by/under direct supervision of technically qualified persons. Not for drug, household or other uses.