

## SAFETY DATA SHEET

### Section 1. PRODUCT AND COMPANY INFORMATION



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Revision Date: 04/12/2023

<sup>[1a,b]</sup> <b>TRADE NAME(s)</b>	Aculon® NanoProof® 3-001X NanoProof® 3-002; NanoProof® 3-01; NanoProof® 3-02; NanoProof® 3-04; NanoProof® 3-08; NanoProof® 3-10	<sup>[1c]</sup> <b>CHEMICAL FAMILY/ APPLICATION/ RESTRICTIONS</b>	<b>Chemical Mixture Coating Solution</b>
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### Section 2. HAZARDOUS IDENTIFICATION

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

Skin Irritation 2, H315  
 Eye Irritation 2, H319  
 STOT SE 3a, H335

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

**Signal word: Warning**



**Pictogram(s):**

**Hazard statement(s):**

H335: May cause respiratory irritation.  
 H319: Causes serious eye irritation.  
 H315: Causes skin irritation.

**Precautionary statement(s):**

P261 Avoid breathing vapours.  
 P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

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

### Section 3. COMPOSITION / INFORMATION ON INGREDIENT(S)

[3a,b,d] CHEMICAL NAME/SYNONYMS	[3C] CAS NUMBER	EINECS NO.	CONC.*
1,1,2,2-Tetrafluoroethyl 2,2,2-trifluoroethyl ether	406-78-0	n/a	35 - 65%
Methyl nonafluoroisobutyl ether	163702-08-7	n/a	10 - 40%
3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	297730-93-9	n/a	0 - 25%
Methyl nonafluorobutyl ether	163702-07-6	605-340-9	0 - 20%
Proprietary Polymer	n/a	n/a	0.1 - 11%

\* 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>	Remove person to fresh air. If you feel unwell, get medical attention.
[4a] <b>SKIN CONTACT</b>	Wash with soap and water. If signs/symptoms develop, get medical attention.
[4a] <b>EYE CONTACT</b>	Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.
[4a] <b>INGESTION</b>	Rinse mouth. Do not induce vomiting. Get immediate medical attention.
[4b] <b>MOST IMPORTANT SYMPTOMS &amp; EFFECTS</b>	See Section 11.1. Information on toxicological effects.
[4c] <b>INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED</b>	Not applicable

### Section 5. FIREFIGHTING MEASURES

[5a] <b>SUITABLE/ UNSUITABLE EXTINGUISHING MEDIA</b>	Non-combustible. Use a fire fighting agent suitable for surrounding fire.
[5b] <b>SPECIFIC HAZARDS IE HAZARDOUS COMBUSTION PRODUCTS</b>	Exposure to extreme heat can give rise to thermal decomposition.
[5c] <b>PRECAUTIONS / SPECIAL PROTECTIVE EQUIPMENT</b>	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, 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

<p><sup>[6a]</sup> <b>PERSON PRECAUTIONS, PPE, EMERGENCY PROCEDURES</b></p>	<p>Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.</p>
<p><sup>[6a]</sup> <b>METHODS &amp; MATERIALS OF CONTAINMENT &amp; CLEANING</b></p>	<p>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 authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible.</p>

**Section 7. HANDLING AND STORAGE**

<p><sup>[7a]</sup> <b>PRECAUTIONS FOR SAFE HANDLING</b></p>	<p>Do not breathe thermal decomposition products. Avoid skin contact with hot material. For industrial or professional use only. Store work clothes separately from other clothing, food and tobacco products. Avoid release to the environment. Avoid contact with oxidizing 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.</p>
<p><sup>[7b]</sup> <b>CONDITIONS FOR SAFE STORAGE</b></p>	<p>Keep the container tightly closed. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidizing agents.</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>1,1,2,2-Tetrafluoroethyl 2,2,2-trifluoroethyl ether</p>	<p>TLV-TWA &amp; STEL</p>	<p>N/E</p>	<p>ACGIH</p>	
<p>1,1,2,2-Tetrafluoroethyl 2,2,2-trifluoroethyl ether</p>	<p>AEL</p>	<p>50 PPM (8h-TWA)</p>	<p>AEL is the Acceptable Exposure Limit set by the solvent manufacturer</p>	
<p>3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethylhexane</p>	<p>TWA</p>	<p>100 ppm</p>	<p>solvent manufacturer determined</p>	
<p>Methyl nonafluorobutyl ether</p>	<p>TWA</p>	<p>750 ppm</p>	<p>ACGIH TLV</p>	<p>163702-07-6</p>
<p>Methyl nonafluoroisobutyl ether</p>	<p>TWA</p>	<p>750 ppm</p>	<p>ACGIH TLV</p>	<p>163702-08-7</p>

[8b] <b>VENTILATION / ENGINEERING CONTROLS</b>	Provide appropriate local exhaust.. For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. If ventilation is not adequate, use respiratory protection equipment.
[8c] <b>RESPIRATORY PROTECTION</b>	If using spray application and local ventilation is not available use respiratory protection against mists (Organic Vapor Cartridges) with particulates filters..
[8c] <b>SKIN PROTECTION</b>	Wear protective gloves.
[8c] <b>EYE PROTECTION</b>	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
[8c] <b>CLOTHING</b>	Wear appropriate protective clothing to prevent skin exposure.

**IX. PHYSICAL AND CHEMICAL PROPERTIES**

[9a] <b>Appearance (physical state, color, etc.</b>	Liquid, Clear Colorless	[9j] <b>Upper/lower flammability or explosive limits:</b>	None detected
[9b] <b>Odor</b>	alcohol-like	[9k] <b>Vapor pressure</b>	no data available
[9c] <b>Odor threshold</b>	no data available	[9l] <b>Vapor density</b>	no data available
[9d] <b>pH</b>	Not Applicable	[9m] <b>Relative Density</b>	1.5
[9e] <b>Melting point/freezing point</b>	-91 °C	[9n] <b>Solubility (in H<sub>2</sub>O)</b>	No Data Available
[9f] <b>Initial boiling point and boiling range</b>	56 °C [@ 760 mmHg]	[9o] <b>Partition coefficient: n-octanol/water</b>	no data available
[9g] <b>Flash point</b>	No flash point	[9p] <b>Auto-ignition temperature</b>	no data available
[9h] <b>Evaporation rate</b>	No data available	[9q] <b>Decomposition temperature</b>	Not Applicable
[9i] <b>Flammability (solid, gas)</b>	Not Applicable	[9r] <b>Viscosity</b>	no data available

**X. STABILITY AND REACTIVITY**

[10a] <b>REACTIVITY</b>	This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.		
[10b] <b>CHEMICAL STABILITY</b>	Stable.		
[10c] <b>POSSIBILITIES OF HAZARDOUS REACTIONS</b>	Hazardous polymerization will not occur.		
[10d] <b>CONDITIONS TO AVOID</b>	None known.		
[10e] <b>INCOMPATIBLE MATERIALS</b>	Strong acids, Strong oxidizing agents		
[10f] <b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	Hydrogen Fluoride                      At Elevated Temperatures - extreme conditions of heat  If the product is exposed to extreme condition of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur.		

**Section 11. TOXICOLOGY INFORMATION**

[11a] <b>LIKELY ROUTES OF EXPOSURE</b>	<p><b>INHALATION:</b> Vapors may cause irritation of the respiratory system. There may be irritation of the throat with a feeling of tightness in the chest. Exposure may cause coughing or wheezing.</p> <p><b>INGESTION:</b> There may be soreness and redness of the mouth and throat.</p>
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	SKIN: There may be irritation and redness at the site of contact. EYE CONTACT: There may be irritation and redness. The eyes may water profusely.
<sup>[11b]</sup> <b>SYMPTOMS RELATED TO PHYSICAL, CHEMICAL &amp; TOXIC CHARACTERISTICS</b>	INHALATION: Vapors may cause irritation of the respiratory system. There may be irritation of the throat with a feeling of tightness in the chest. Exposure may cause coughing or wheezing. INGESTION: There may be soreness and redness of the mouth and throat. SKIN: There may be irritation and redness at the site of contact. EYE CONTACT: There may be irritation and redness. The eyes may water profusely.
<sup>[11d]</sup> <b>DELAYED / IMMEDIATE EFFECTS, CHRONIC EFFECTS FROM SHORT/LONG TERM EXPOSURE</b>	Reproductive toxicity: no data available Specific target organ toxicity - single exposure: no data available Specific target organ toxicity - repeated exposure: no data available Aspiration hazard: no data available
<sup>[11D]</sup> <b>NUMERICAL MEASURES OF TOXICITY</b>	Acute Toxicity No data available
<sup>[11e]</sup> <b>CARCINOGENICITY</b>	Carcinogenicity: Data not available

**Section 12. ECOLOGICAL INFORMATION**

<sup>[12a]</sup> <b>ECOTOXICITY</b>	No data available
<sup>[12b]</sup> <b>PERSISTENCE AND DEGRADABILITY</b>	No data available
<sup>[12c]</sup> <b>BIOACCUMULATIVE POTENTIAL</b>	No data available
<sup>[12d]</sup> <b>MOBILITY IN SOIL</b>	No data available
<sup>[12e]</sup> <b>OTHER ADVERSE EFFECTS (OZONE LAYER ETC.)</b>	No data available

**Section 13. DISPOSAL CONSIDERATIONS**

<sup>[13]</sup> 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 halogen acid (HCl/HF/HBr). 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.

Contaminated Packaging Disposal:

**Section 14. TRANSPORTATION INFORMATION**

[14a] UN/NA	[14b] UN/NA PROPER SHIPPING NAME	[14ca] TRANSPORT HAZARD CLASS	[14d] PACKING GROUP

<b>US DOT/IATA</b>	Not regulated as a hazardous material by DOT, IMO, or IATA
[14d] <b>ENVIRONMENTAL HAZARDS</b>	Not regulated
[14f] <b>BULK TRANSPORT (MARPOL 73/78/IBC CODE)</b>	Not regulated
[14g] <b>SPECIAL PRECAUTIONS</b>	Not regulated

**Section 15. REGULATORY INFORMATION**

**US**

<b>EPA</b>	Solvent is considered VOC free
<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>	
<b>Sara 311/312 Hazards</b>	Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - No
<b>Massachusetts Right To Know Components</b>	Not listed
<b>Pennsylvania Right To Know Components</b>	Not listed
<b>New Jersey Right To Know Components</b>	Not listed
<b>California Prop. 65 Components</b>	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**XVI. OTHER INFORMATION**

Revision Date: see the top of each page of this SDS

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.

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