

SAFETY DATA SHEET

I. PRODUCT AND COMPANY INFORMATION



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Revision Date: 06/12/2018

TRADE NAME(s)	NanoProof® 5.0	CHEMICAL FAMILY APPLICATION	Chemical Mixture Chemical Encapsulant
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II. HAZARDOUS IDENTIFICATION

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Eye irritation (Category 2A), H319
 Causes Skin Irritation (Category 2), H315

LABELING ELEMENTS Hazard and Precautionary Statements

Signal word: Warning

Pictogram(s):



Hazard statement(s):

H315 Causes Skin Irritation
 H319 Causes serious eye irritation.

Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

^[2C] **HAZARDS NOT OTHERWISE CLASSIFIED:** The hazards of this product are associated mainly with its processing. Inhalation of decomposition products in high concentration may cause shortness of breath (lung oedema). Inhalation of aerosol or fine spray mist may cause serious respiratory problems.

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

III. COMPOSITION / INFORMATION ON INGREDIENT(S)

INGREDIENT(S)	CAS NUMBER	EINECS NO.	CONC. *
Proprietary Active Blend*	n/a	n/a	05 - 25 %
3-ethoxy-1,1,1,2,3,4,4,5,5,6,6-dodecafluoro-2-trifluoromethyl-hexane	297730-93-9		75 - 95 %
Proprietary UV Dye*	n/a		< 1%

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

IV. FIRST AID MEASURES

GENERAL ADVICE	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
EYE CONTACT	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
SKIN CONTACT	Wash off with soap and plenty of water. Consult a physician.
INHALATION	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician..
INGESTION	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
MOST IMPORTANT SYMPTOMS & EFFECTS	The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	no data available

V. FIREFIGHTING MEASURES

GENERAL INFORMATION	EXTINGUISHING MEDIA Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
HAZARDOUS COMBUSTION PRODUCTS/FIRE FIGHTING ADVICE	Burning may form Carbon oxides. Use water spray to cool unopened containers.
PRECAUTIONS / SPECIAL PROTECTIVE	Exposure to extreme heat can give rise to thermal decomposition. 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

EQUIPMENT	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.
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VI. ACCIDENTAL RELEASE MEASURES

PERSON-RELATED SAFETY PRECAUTIONS	Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
MEASURES FOR CLEANING/ COLLECTING	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.

VII. HANDLING AND STORAGE

HANDLING PRECAUTIONS	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Do not breathe thermal decomposition products. Avoid skin contact with hot material. For industrial or professional use only. Do not use in a confined area with minimal air exchange. 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. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.
STORAGE PRECAUTIONS	Store in a well-ventilated place. 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.)
STORAGE CONDITIONS	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 oxidizing agents.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

COMPONENT	VALUE	CONTROL PARAMETERS	BASIS	NOTES
3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	TWA	100 ppm	Manufacturer determined	

VENTILATION / 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/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.
RESPIRATORY PROTECTION	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).
SKIN PROTECTION	Wear appropriate protective gloves to prevent skin exposure. The suitability for a specific

	workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Gloves made from the following material(s) are recommended: Polymer laminate.
EYE PROTECTION	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).
CLOTHING	Wear appropriate protective clothing to prevent skin exposure.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Liquid, Clear Greenish color	Solubility (in H₂O)	no data available
Upper/lower flammability or explosive limits:	LEL: no data available UEL: no data available	Initial boiling point and boiling range	no data available
Odor	faint odor	Flash point	no flash point
Vapor pressure	no data available	Evaporation rate	> 20 (BuOAC = 1)
Odor threshold	no data available	Flammability (solid, gas)	no data available
Vapor density	> 1 [Ref Std: AIR=1]	Partition coefficient: n-octanol/water	> 4 [Details: at 30 °C]
pH	not applicable	Auto-ignition temperature	375 °C
Relative Density	1.6 g/ml	Decomposition temperature	no data available
Melting point/freezing point	-138 °C	Viscosity	no data available

X. STABILITY AND REACTIVITY

REACTIVITY	no data available
CHEMICAL STABILITY	Stable under recommended storage conditions.
CONDITIONS TO AVOID	None known, Excess Moisture in the solution should be avoided
INCOMPATIBLE MATERIALS	Strong oxidizing agents, strong acids, strong bases.
HAZARDOUS DECOMPOSITION PRODUCTS	At extreme conditions of heat the hazardous decomposition products include Hydrogen Fluoride and/or Perfluoroisobutylene Refer to section 5.2 for hazardous decomposition products during combustion.
HAZARDOUS POLYMERIZATION	Has not been reported

XI. TOXICOLOGY INFORMATION

GENERAL INFORMATION POTENTIAL HEALTH EFFECTS: SIGNS AND SYMPTOMS OF	The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole. Inhalation: May be harmful if inhaled. Material may be destructive to the tissue of the mucous membranes and
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EXPOSURE	<p>upper respiratory tract. Signs/symptoms may include cough, shortness of breath, nausea, vomiting, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.</p> <p>Skin Contact: May be harmful if absorbed through skin. May cause irritation or skin burns.</p> <p>Eye Contact: Causes serious eye irritation or burns. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.</p> <p>Ingestion: May be harmful if swallowed.</p> <p>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.</p>																		
Acute Toxicity	<table border="1"> <tr> <td data-bbox="300 609 711 735">3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane</td> <td data-bbox="711 609 1076 735">Dermal</td> <td data-bbox="1076 609 1219 735">Rat</td> <td data-bbox="1219 609 1531 735">LD50 > 2,000 mg/kg</td> </tr> <tr> <td data-bbox="300 735 711 861">3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane</td> <td data-bbox="711 735 1076 861">Inhalation-Vapor (4 hours)</td> <td data-bbox="1076 735 1219 861">Rat</td> <td data-bbox="1219 735 1531 861">LC50 > 50 mg/l</td> </tr> <tr> <td data-bbox="300 861 711 987">3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane</td> <td data-bbox="711 861 1076 987">Ingestion</td> <td data-bbox="1076 861 1219 987">Rat</td> <td data-bbox="1219 861 1531 987">LD50 > 2,000 mg/kg</td> </tr> <tr> <td data-bbox="300 987 711 1050">Proprietary Active Blend</td> <td data-bbox="711 987 1076 1050"></td> <td data-bbox="1076 987 1219 1050"></td> <td data-bbox="1219 987 1531 1050">No data available</td> </tr> </table>			3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Dermal	Rat	LD50 > 2,000 mg/kg	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Inhalation-Vapor (4 hours)	Rat	LC50 > 50 mg/l	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Ingestion	Rat	LD50 > 2,000 mg/kg	Proprietary Active Blend			No data available
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Proprietary Active Blend			No data available																
Skin Corrosion /Irritation	<table border="1"> <tr> <td data-bbox="300 1113 711 1239">3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane</td> <td data-bbox="711 1113 976 1239">Rabbit</td> <td colspan="2" data-bbox="976 1113 1531 1239">No significant irritation</td> </tr> <tr> <td data-bbox="300 1239 711 1302">Proprietary Active Blend</td> <td data-bbox="711 1239 976 1302"></td> <td colspan="2" data-bbox="976 1239 1531 1302">No data available</td> </tr> </table>			3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Rabbit	No significant irritation		Proprietary Active Blend		No data available									
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Proprietary Active Blend		No data available																	
Serious Eye Damage/ Irritation	<table border="1"> <tr> <td data-bbox="300 1365 711 1491">3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane</td> <td data-bbox="711 1365 976 1491">Rabbit</td> <td colspan="2" data-bbox="976 1365 1531 1491">No significant irritation</td> </tr> <tr> <td data-bbox="300 1491 711 1554">Proprietary Active Blend</td> <td data-bbox="711 1491 976 1554"></td> <td colspan="2" data-bbox="976 1491 1531 1554">No data available</td> </tr> </table>			3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Rabbit	No significant irritation		Proprietary Active Blend		No data available									
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Proprietary Active Blend		No data available																	
Skin Sensitization	<table border="1"> <tr> <td data-bbox="300 1617 711 1743">3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane</td> <td data-bbox="711 1617 976 1743">Guinea pig</td> <td colspan="2" data-bbox="976 1617 1531 1743">Not sensitizing</td> </tr> <tr> <td data-bbox="300 1743 711 1806">Proprietary Active Blend</td> <td data-bbox="711 1743 976 1806"></td> <td colspan="2" data-bbox="976 1743 1531 1806">No data available</td> </tr> </table>			3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Guinea pig	Not sensitizing		Proprietary Active Blend		No data available									
3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Guinea pig	Not sensitizing																	
Proprietary Active Blend		No data available																	
Respiratory																			

Sensitization	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane		No data available or insufficient for classification			
	Proprietary Active Blend		No data available			
Germ Cell Mutagenicity	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane		In Vitro	Not mutagenic		
	Proprietary Active Blend			No data available		
Carcinogenicity	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane		No data available or insufficient for classification			
	Proprietary Active Blend		No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP or OSHA			
Reproductive Toxicity	Name	Route	Value	Species	Test Result	Exposure Duration
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Ingestion	Not toxic to female reproduction	Rat	NOAEL 1,000 mg/kg/day	prematuring & during gestation
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Ingestion	Not toxic to male reproduction	Rat	NOAEL 1,000 mg/kg/day	prematuring & during gestation
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Inhalation	Not toxic to male reproduction	Rat	NOAEL 69 mg/l	5 days
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-trifluoromethyl-hexane	Ingestion	Not toxic to development	Rat	NOAEL 1,000	prematuring &

	decafluoro-2-trifluoromethyl-hexane					mg/kg/day	during gestation
	Proprietary Active Blend						No Data Available
Specific Target Organ Toxicity - single exposure	Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-decafluoro-2-trifluoromethyl-hexane	Inhalation	respiratory irritation	All data are negative	Rat	NOAEL 207 mg/l	5 days
	Proprietary Active Blend					No data available	
Specific Target Organ Toxicity - repeated exposure	Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-decafluoro-2-trifluoromethyl-hexane	Inhalation	liver/kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 169 mg/l	5 days
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-decafluoro-2-trifluoromethyl-hexane	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	28 days
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-decafluoro-2-trifluoromethyl-hexane	Inhalation	heart endocrine system hematopoietic system nervous system Kidney and/or bladder	All data are negative	Rat	NOAEL 1,000 mg/kg/day	28 days

	Proprietary Active Blend					No data available	
Aspiration Hazard							
	3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-tri fluoromethyl-hexane				Not an aspiration hazard		
	Proprietary Active Blend				No data available		

XII. ECOLOGICAL INFORMATION

ECOTOXICITY	No data available
ENVIRONMENTAL	No data available
PHYSICAL	No data available

XIII. DISPOSAL CONSIDERATIONS

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.

XIV. TRANSPORTATION INFORMATION

US DOT/IATA/EU/ EC Label for Conveyance: None	
US DOT/IATA IMDG	Not regulated for transport

XV. REGULATORY INFORMATION

US	
TSCA	Polymer is TSCA exempt under EPA polymer exemption. Other materials

	are TSCA listed. The components are REACH registered or pre-registered as appropriate
OSHA	This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard.
SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
The following components are subject to reporting levels established by SARA Title III, Section 313	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313
Sara 311/312 Hazards	Immediate Hazard
Massachusetts Right To Know Components	not listed
Pennsylvania Right To Know Components	not listed
New Jersey Right To Know Components	not listed
California Prop. 65 Components	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: 06/12/2018 Updated Emergency Contact
 06/06/2018 Updated Emergency Contact
 08/06/15 Original Issue
 07/10/17 updated with NFPA HFR rating
 12/04/17 updated TSCA status

NFPA H 3, F 1, R 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 WARRANT 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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