

1. Chemical Product and Company Identification

Product Name: Perficio™ 011 Life Extension Fluid

Other names: None

Intended Use: Additive for power cable

HMIS Codes Health: 2 Flammability: 2 Physical Hazard: 1

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2. Composition Information on Ingredients

Chemical Family: Organosilane

Ingredient Name	CAS No	Concentration
2-ethyl-1-hexanol	104-76-7	<8% _w
phenylmethyldimethoxysilane	3027-21-2	<90% _w
TINUVIN® 123	129757-67-1	<3% _w
dodecylbenzene sulfonic acid	27176-87-0	<0.2% _w
ferrocene	102-54-5	<0.2% _w
methanol	67-56-1	<1% _w
benzene	71-43-2	<0.01% _w

Please note that contact with water or moisture can result in the release of methanol.

3. Hazardous Identification

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

Skin: May cause moderate irritation.

Inhalation: Vapor may irritate nose and throat. Vapor overexposure may cause drowsiness.

Oral: Overexposure by ingestion may cause effects similar to those listed under repeated exposure.

Prolonged/Repeated Exposure Effects (not possible when used for intended purpose and with Novinium Rejuvenation Instructions available at www.novinium.com/instructions.aspx)

Skin: No known applicable information.

Inhalation: Product generates methyl alcohol which may cause blindness and damage to nervous system.

Oral: Product generates methyl alcohol which may cause blindness and possibly death if swallowed.

Benzene

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC.

MUTAGENIC EFFECTS: Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female [POSSIBLE].

Benzene is toxic to blood, bone marrow, central nervous system(CNS).

Benzene may be toxic to liver, Urinary System.

Repeated or prolonged exposure to benzene can produce target organs damage.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

4. First Aid Measures

Inhalation: Move exposed individual to fresh air. Administer Oxygen, if needed. Call physician.

Skin Contact: Flush with water, and then wash with soap and water.

Eye Contact: In case of contact, immediately flush eyes with flowing water for at least 15 minutes.

Ingestion: Get medical attention.

Note to Physicians: This product reacts with water and moisture to form methanol. The combination of visual disturbances, metabolic acidosis, and formic acid in urine is evidence of methanol poisoning. The therapeutic intravenous administration of ethanol (10mls/hr) allows methanol to be preferentially oxidized and reduces production of methanol metabolites. Acidosis must be treated with intravenous administration of sodium bicarbonate and methanol elimination may be increased by hemodialysis, as indicated. Treatment should be based on blood methanol levels and acid-base balance.

5. Fire Fighting Measures

Flash Point, TCC: $>61^{\circ}\text{C}$ (142°F)

Auto ignition: not determined

Do NOT use water jet; use dry chemicals

Suitable fire-extinguishing media: [OK] water fog, [OK] CO₂, [OK] foam, [OK] dry chemicals

Note: Avoid eye and skin contact. Do not breathe fumes or inhale vapors. Irritating fumes and organic acid vapors may be formed when material is exposed to elevated temperature or open fires.

Keep containers cool.

6. Accidental Release Measures

Avoid all sources of ignition (e.g. naked lights, unprotected light bulbs, electric hand tools).

Ventilate the area and avoid breathing vapors.

Recommended disposal: In a well ventilated area with adequate personal protection, hydrolyze material by mixing with cold water. Resulting waste is a viscous liquid containing methanol. Follow all chemical pollution control regulations for land fill.

Wear protective clothing when dealing with spillage or fire.

For confined areas use self contained breathing apparatus.

Dispose of wastes and empty containers in accordance with regulations made under the control of pollution acts and environmental protection acts.

Using adequate eye protection, collect spillage, where practicable, using absorbent material, and transfer to a suitable container for hydrolysis and disposal.

7. Handling and Storage

Handling:	<p>Keep away from heat, sparks, and flame. Keep container closed. The product may charge electrostatically. Operators should wear clothing which does not generate static (at least 60% natural fiber) and antistatic foot wear. Do not breathe (vapor, mist, gas). Use only with ventilation. Do not get in eyes, or skin, or on clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Protection as shown in "Exposure controls/ Personal protection".</p>
Storage:	<p>Store in sealed containers. Avoid prolonged or repeated contact with skin and inhalation. Keep away from heat, sparks, and flame. Store in a well-ventilated, dry place away from sources of heat and direct sunshine.</p>

8. Exposure Controls/Personal Protection

Engineering Measures: Prevent vapor build up by providing adequate ventilation during and after use.

An eye wash facility should be readily available.

Exposure Limit:

Ingredient	ACGIH TLV (TWA)	ACGIH TLV (STEL)	OSHA (PEL)
phenylmethyldimethoxysilane (CAS 3027-21-2)	see methanol comments		
methanol (CAS 67-56-1)	200 ppm-skin	250 ppm	260 mg/m ³
ferrocene (CAS 102-54-5)	10 mg/m ³		
benzene (CAS 71-43-2)	0.5 ppm	2.5 ppm	1 ppm

Note: (TWA) = time weighted average; (STEL) = short term exposure limit; (PEL) = permissible exposure limit; (TLV) = threshold limit value; (ACGIH) = American Conference of industrial Hygienists

Personal protection:

Respiratory protection:	Under normal operating circumstances (i.e. when Novinium Rejuvenation Instructions are followed) there are no significant vapors released. If an accidental release does occur and the product is used outdoors or where there otherwise is adequate ventilation respiratory protection is not required. For inadequately ventilated areas in the case of a spill, wear NIOSH standard-approved appropriate equipment.
Hand protection:	Wear impervious disposable gloves made from plastic or latex.
Eye protection:	Wear safety glasses with side shields or chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material. Do NOT wear contact lenses.

9. Physical and Chemical Properties

Physical State:	Liquid
Color:	orange
Odor:	Aromatic
pH:	Not applicable
Boiling point:	> 90°C
Flash point:	> 61°C (142°F)
Ignition temperature:	Not determined
Lower explosive limit:	Not determined
Vapor pressure:	Not determined
Specific density:	1.0
Vapor density:	>1
Solubility in water:	Insoluble, reacts
Percentage volatile:	NA

10. Stability and Reactivity

Stability:	Stable under recommended storage and handling conditions (see "Storage and Handling")
Conditions to avoid:	Avoid contact with heat, sparks, or open flame. Avoid contact with oxidizing agents.
Materials to avoid:	Keep away from water. Reacts with water and moisture in air to liberate methanol.
Hazardous decomposition products:	methanol, silicon dioxide

11. Toxicological Information

There are no data available on the product itself.

Toxicological information of ingredients:

Phenylmethyldimethoxysilane – Eye irritant

Methanol – oral LD₅₀ (mouse) = 7,300 mg/kg, dermal LD50 (rabbit) = 14,200 mg/kg, inhalation (rat) LC₅₀ = 64,000 ppm/4H

Chronically long term effect: No data

Benzene – ORAL (LD50): Acute: 930 mg/kg [Rat]. 4700 mg/kg [Mouse].

DERMAL (LD50): Acute: 9400 mg/kg [Rabbit]. VAPOR (LC50): Acute:

10000 ppm 7 hours [Rat].

12. Ecological Information

Environmental Fate and Distribution

This product hydrolyses in water or moist air, releasing methanol and organosilicones.

Environmental Effects

No adverse effects on aquatic organisms are predicted.

Bioaccumulation: No bioaccumulation potential.

Fate and Effects in Waste Water Treatment Plants

No adverse effects on bacteria are predicted.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993 and can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. Disposal Considerations

The product should not be allowed to enter drains and watercourses.

All notification, clean-up, and disposal should be carried out in accordance with federal, state, and local regulations.

Preferred method of waste disposal is incineration, or biological treatment in federal/state approved facility.

Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts.

14. Transport Information

DOT Shipping Name: Chemicals n.o.i (non-hazardous)
DOT Hazard Class: None
DOT Label: None
DOT ID No.: None
Storage: See section on Storage and Handling
Packaging: Non-bulk (Non-regulated)
IATA: Non-regulated for air transport

15. Regulatory Information

Contents of the MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (Canada CPR) and the MSDS contains all of the information required by the Controlled Products Regulations.

TSCA Status: All chemical substances in this material are included on, or exempted from, listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances: None

Section 304 CERCLA Hazardous Substances:

CAS Number	Wt %	Component Name
67-56-1	<5	methanol
71-43-2	<0.01	benzene

Section 312 Hazard Class:

Acute: Yes
Chronic: Yes
Fire: Yes
Pressure: No
Reactive: No

Section 313 Toxic Chemicals:

None present, or none present in regulated quantities.

16. Supplemental State Compliance Information

CAS No.	<u>Component Name</u>	<u>State Compliance Information</u>
67-56-1	methanol	<p>Listed in State Right to Know for CA, MA, NJ, PA, MN, FL</p> <p>CERCLA 304: RQ 5k lbs.</p> <p>Section 302: RQ 5k lbs. TPQ none DOT 5k lbs.</p> <p>SARA: Flammable, Acute</p> <p>Canada: DSL/NDSL listed</p> <p>Hazard Symbol: TF Risk: 11 23/24/25, 39 23/24/25</p> <p>WGK listed: 1</p> <p>TSCA listed</p> <p>Clean Air Act: Listed as HAP (Hazardous Air Pollutant), no class 1 or class 2 ozone depletion.</p> <p>Clean Water Act: no priority pollutants</p>
71-43-2	benzene	Listed in State Right to Know for CA, MA, PA

The information contained in this document has been gathered from reference materials and/or test data and is to our best knowledge and belief accurate and reliable. Such information is offered solely for your consideration, identification, and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. There are no warranties expressed or implied with respect to the use of such information and we assume no responsibility therefore.

It is advised that users carry out their own tests to determine the safety and suitability of each product or combination of products for their end use.

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