

1. Chemical Product and Company Identification

Product Name: N-Rex™ Life Extension Fluid

Other names: None

Intended Use: Molecular desiccation for power cable

HMIS Codes Health: 2 Flammability: 3 Physical Hazard: 1

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2. Composition Information on Ingredients

Chemical Family: organic solvent and organosilane

Ingredient Name	CAS No	Concentration
tetraglyme	143-24-8	<80% _w
ferrocene	102-54-5	1% _w
dimethyldiethoxysilane	78-62-6	20% _w
alkylbenzenesulfonic acid	68584-22-5	0.2% _w
ethanol	64-17-5	<1% _w

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

3. Hazardous Identification

- Harmful if swallowed.
- May cause moderate irritation to skin. Prompt and thorough washing with soap and water will reduce or eliminate potential dermal effects.
- Irritating to respiratory tract. Inhalation may irritate the respiratory tract. Prolonged inhalation may cause drowsiness.
- Direct contact with eyes may cause moderate irritation.

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. Get medical attention.

Ingestion: Never give fluids or induce vomiting if patient is unconscious or having convulsions. To conscious individual give one full cup of water to dilute ingested material. Get medical attention.

5. Fire Fighting Measures

Flash Point: 24°C (75°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 ethanol. 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.

Keep away from drains, surface and ground water, and soil.

Do not allow spills to enter drains or watercourses.

Refer to "Exposure controls--Personal protection" and "Disposal Considerations".

7. Handling and Storage

Store in sealed containers. Minimize contact with atmospheric moisture.

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)
ferrocene (CAS 102-54-5)	10 mg/m ³		
ethanol (CAS 64-17-5)	1000 ppm	1000 ppm	1000 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

Handling:	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".
Storage:	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.

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 when fluid is inadvertently spilled.
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:	Reddish orange
Odor:	Solvent
pH:	Not applicable
Boiling point:	> 110°C
Flash point:	24°C (>75°F)
Ignition temperature:	Not determined
Lower explosive limit:	Not determined
Vapor pressure:	Not determined
Specific density:	~ 1
Vapor density:	>1
Solubility in water:	Slightly soluble, reacts slowly
Percentage volatile:	~99%

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 ethanol.
Hazardous decomposition products:	ethanol, silicon dioxide

11. Toxicological Information

There are no data available on the product itself.

Toxicological information of ingredients:

Acute toxicity:

Ethanol – Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Ethanol exhibits teratogenicity in human women at TDLo = 41 gm/kg (41 weeks after conception).

Ferrocene – oral LD₅₀ (mouse) = 832 mg/kg, oral LD₅₀ (rat) = 1320 mg/kg

Local effects:

Eye irritant: dimethyldiethoxysilane, ferrocene

Chronically long term effect: No data

12. Ecological Information

Prevent spills from entering sewers, watercourses, or low areas to avoid pollution.

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:	dimethyldiethoxysilane
DOT Hazard Class:	3
DOT Label:	Flammable Liquid
DOT ID No.:	UN2380
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.

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: None

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>
102-54-5	ferrocene	Listed in State Right to Know for CA, MA, NJ, PA, MN, FL Canada DSL/NDSL Listed Clean Air Act: None Clean Water Act: None WGK Not Listed TSCA Listed OSHA Not highly hazardous Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

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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