

Section 1

Identification of the Material and Supplier

Product: NeuGen Plus
Product Type: Dielectric Fluid
Other Names: Not Applicable
Recommended Use: Insulating fluid for use as a dielectric and cooling medium in power and distribution electrical apparatus and attendant equipment

CONTACT

Supplier: Bioelectric Pty Ltd
Address: 89 Chittering Street, Muchea WA 6501
Telephone: +61 (0) 40 708 4453
Emergency Number: +61 (0) 40 708 4453 (24 hours)

Section 2

Hazards Identification

On the basis of available information, the components of this preparation are not expected to impart hazardous properties to this product or pose an emergency hazard.

General hazard: NON-HAZARDOUS , NON-DANGEROUS

Human health hazards: No specific hazards under normal use conditions

Inhalation: In high concentrations vapours may be irritating to the respiratory system.

Eye Contact: May cause temporary eye irritation.

Skin Contact: Prolonged contact may cause dryness of the skin.

Ingestion: No harmful effects expected in amounts likely to be ingested by accident.

Environmental hazards: Biodegradable

Other information: Not classified as dangerous for supply or conveyance

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Section 3 Composition / Information on ingredients

NeuGen is a proprietary formulation using vegetable oil combined with performance- enhancing additives which have been determined not to be hazardous. On the basis of available information, the components of this preparation are not expected to impart hazardous properties to this product.

Components	
Vegetable Oil	>98%
Additives	< 2%

Section 4 First Aid Measures

NeuGen is not expected to pose an acute hazard under normal conditions of use.

Inhalation: In the unlikely event of dizziness or nausea, remove person to fresh air.

Eye contact: Flush the eyes immediately with large amounts of water with the eyelids held away from the eye to ensure thorough rinsing. Seek medical attention if irritation persists.

Skin contact: Remove by washing with soap and water. Seek medical attention if irritation persists.

Ingestion: If swallowed, observe for signs of stomach discomfort or nausea. Do not induce vomiting. If symptoms persist, seek medical help.

Section 5 Fire Fighting Measures

Flammability: Class K2 Dielectric Fluid

Extinguishing media: CO₂ or dry chemical foam

Special fire fighting procedures: Use approved self-contained breathing apparatus with full facemask and full protective equipment in confined areas. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from the source of ignition. Application of water to flaming oil can cause spreading.

Unusual fire & explosion hazards: None known

Hazardous combustion products: Carbon oxides and hydrocarbons when heated to decomposition



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Section 6 Accidental Release Measures

Personal precautions: Wear appropriate personal protective equipment and avoid contact with skin and eyes.

Environmental precautions: Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Keep the authorities informed if the spill cannot be prevented.

Cleaning measures: Absorb liquid with sand or earth. Sweep up and remove to a suitable, clearly marked container for disposal in accordance with local regulations.

Section 7 Handling and Storage

Storage: Keep in a cool, dry, well-ventilated place. Avoid direct sunlight, heat sources, and strong oxidising agents. Eliminate exposure to oxygen and moisture. Use properly labelled and closable containers. Inspect regularly for deficiencies such as damage or leaks.

Recommended materials: Use mild steel containers lined with high density polyethylene.

Special precautions: Keep in a cool, dry, well-ventilated place. Avoid direct sunlight, heat sources, and strong oxidising agents. Eliminate exposure to oxygen and moisture. Use properly labelled and closable containers. Inspect containers regularly for deficiencies such as damage or leaks.

Section 8 Exposure Control / Personal Protection

Hygienical precautions: Wash hands before eating and drinking. Use local exhaust ventilation if there is a risk of inhalation of vapours, mists or aerosols.

Respiratory protection: Normally not required. If oil mist cannot be controlled, a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be used.

Eye protection: Wear safety glasses or full face shield if splashes are likely to occur.

Hand protection: PVC or nitrile rubber gloves. Penetration time: > 8 hours.

Skin protection: Minimise all forms of skin contact. Wear overalls. Launder overalls regularly.



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Section 9 Physical and Chemical Properties

Test	Method	ASTM D6871-03 Limits	NeuGen Plus Typical Properties
Dielectric Breakdown	ASTM D877 (2.5 mm gap)	30kV	≥ 45kV
Dielectric Breakdown	ASTM D877 (2 mm gap)	35kV	≥ 50kV
Dielectric Breakdown	IEC 60156		≥ 70kV
Dissipation Factor	ASTM D924		
- 25°C		0.20	0.05
- 100°C		4%	<4%
Resistivity (10 ¹² Ωcm)	ASTM D1169-11		
- 25°C		30	21
- 100°C			0.77
Impulse Breakdown	ASTM D3300	130	≥ 135
Gassing Tendency (μL/min)	D2300	≤ 0	≤ -60
Flash Point (°C)	ASTM D92	275	318
Fire Point (°C)	ASTM D92	300	360
Pour Point (°C)	ASTM D97	-10	-15
Viscosity	ASTM D445		
- 0°C		500 cSt	225 cSt
- 20°C		-	80 cSt
- 40°C		50 cSt	39 cSt
- 100°C		15 cSt	8.5 cSt
Neutralization Number	ASTM D974	0.06 mg KOH/g	≤ 0.06 mg KOH/g
Moisture Content	ASTM D1533	200 ppm	≤ 100 ppm
Interfacial Tension	ASTM D971	No required limit	24 mN/m
Colour	ASTM D1500	1.0	L0.5
Appearance	IEC 60296	Bright and Clear	Transparent Straw
Density g/mL (15°C)	ASTM D1298	0.96	0.91
Shrimp Toxicity	ESA SOP 107		Non Toxic
Biodegradability	CEC-L-33-A-97		> 95%

Section 10 Stability and Reactivity

Stability - NeuGen is stable under normal operating conditions

Conditions to avoid: Strong oxidizing agents

Hazardous decomposition products: Not expected to form during normal storage

Hazardous reactions: None

Hazardous polymerization: Will not occur



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Section 11 **Toxicological Information**

NeuGen is recognised as virtually non-toxic under ESA SOP 107.

NeuGen is not known to be associated with carcinogenic effects nor considered to be a mutagenic hazard.

Section 12 **Ecological Information**

NeuGen is a biodegradable product in accordance with CEC-L-33-A-94 with >95% biodegradability.

The product is liquid under most environmental conditions and shares physical hazards common to all oils such as coating.

Section 13 **Disposal Considerations**

NeuGen is not considered a hazardous waste.

Recycle or dispose of in accordance with prevailing regulations, preferably to a recognised collector or contractor. Incinerate or landfill in accordance with local regulations. Do not pour into drains or waterways.

Section 14 **Transport Information**

NeuGen is not dangerous for conveyance under UN, IMO, ADR/RID and IATA/ICAO codes.



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Section 15 **Regulatory Information**

NeuGen is not listed as a designated hazardous substance under NOHSC : 1005 nor classified as a hazardous substance under NOHSC: 1008.

NeuGen is not classified as dangerous substance under ADG Codes.

Section 16 **Other Information**

Technical information is available at www.bioelectric.com.au

This document contains important information on appropriate conditions for storing, handling and usage of the product. The information in this document must be passed on to the people within your organization, who are responsible for giving advice on safety. Information in this document is to be made available for all who handle the product.

The Material Safety Data Sheet has been prepared in order to help users of NeuGen. The data contained herein is, to the best of our knowledge, accurate as of the date of preparation of this sheet.

Effective Date: 1st March 2012

Lorica Storey
Corporate Services Director

End of MSDS

