

Safety Data Sheet

NEUROFLUOR™ NEUO
EFFECTIVE DATE: 2016-11-17

1 Product and Company Identification

- 1.1 **Product Name:** NeuroFluor™ NeuO
- 1.2 **Product Identifier:** Dimethyl Sulfoxide >99%
- 1.3 **Catalog Number:** 01801
- 1.4 **Product Use:** Laboratory reagent
- 1.5 **Manufacturer/Supplier:** STEMCELL Technologies
 Suite 500-1618 Station Street
 Vancouver, British Columbia V6A 1B6 Canada
- 1.6 **In Case of Emergency Call:** 1-800-667-0322

2 Hazards Identification

2.1 Classification of the substance or mixture

Flammable liquids (Category 4)

2.2 Label elements

Pictogram None

Signal word Warning

Hazard statement(s)

H227 Combustible liquid.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P370+378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

2.3 **Other hazards** No data available

3 Composition / Information on Ingredients

3.1 Substances

Molecular formula C₂₉H₂₈BF₂N₇O₂

Molecular weight 555.40

Hazardous Components (Chemical Name)	CAS #	Concentration	EC #
dimethyl sulfoxide	67-68-5	>99%	200-664-3
NeuO	1616355-50-0, 1668597-38-3	0.0056%	No data available

4 First Aid Measures

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4.1 Description of first aid measures

4.1.1 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.2 In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

4.1.3 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes as a precaution.

4.1.4 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5 Fire Fighting Measures

5.1 Extinguishing Media

5.1.1 Suitable Extinguishing Media

Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

5.1.2 Unsuitable Extinguishing Media

No data available

5.2 Special hazards arising from the substance or mixture

5.2.1 Flammable Properties and Hazards

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

5.2.2 Flash Pt

No data available

5.2.3 Autoignition Pt

No data available

5.2.4 Explosive Limits

LEL: No data available

UEL: No data available

5.2.5 Hazardous Combustion Products

Carbon oxides, sulphur oxides

5.3 Fire Fighting Instructions

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

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6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

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 (see section 13).

Keep in suitable, closed containers for disposal.

7 Handling and Storage

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

8 Exposure Controls/Personal Protection

8.1 Exposure limits

Components with workplace control parameters

Component	CAS #	Value	Control parameters	Basis
dimethyl sulfoxide	67-68-5	TWA	250.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

8.2 Engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

8.3 Personal protective equipment

8.3.1 Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.3.2 Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.3.3 Respiratory protection

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Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.3.4 General hygiene considerations

General industrial hygiene practice.

8.3.5 Environmental exposure controls

Do not let product enter drains.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Dark, yellow-orange liquid
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Density	No data available
Relative vapour density	No data available
Solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

10 Stability and Reactivity

10.1 Reactivity	No data available
10.2 Chemical stability	No data available
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	Heat, flames and sparks.
10.5 Incompatible materials	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents
10.6 Hazardous decomposition products	Hazardous decomposition products formed under fire conditions - Carbon oxides, sulphur oxides

Safety Data Sheet**NEUROFLUORTM NEUO****EFFECTIVE DATE: 2016-11-17****11 Toxicological Information****11.1 Acute toxicity (dimethyl sulfoxide)**

Oral: LD50 Oral - Rat - 14,500 mg/kg
Inhalation: LC50 Inhalation - Rat - 4 h - 40,250 ppm
Dermal: LD50 Dermal - Rabbit - > 5000 mg/kg
Other: No data available

11.2 Skin corrosion/irritation

No data available

11.3 Serious eye damage/eye irritation

No data available

11.4 Respiratory and/or skin sensitization

No data available

11.5 Germ cell mutagenicity (dimethyl sulfoxide)

Genotoxicity in vitro - Mouse – lymphocyte
Cytogenetic analysis
Genotoxicity in vitro - Mouse – lymphocyte
Mutation in mammalian somatic cells
Genotoxicity in vivo - Rat - Intraperitoneal
Cytogenetic analysis
Genotoxicity in vivo - Mouse - Intraperitoneal
DNA damage

11.6 Carcinogenicity (dimethyl sulfoxide)

Carcinogenicity - Rat - Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Carcinogenicity - Mouse - Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and Appendages: Other: Tumors.
IARC: 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: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

11.7 Reproductive toxicity (dimethyl sulfoxide)

Reproductive toxicity - Rat – Intraperitoneal
Effects on Fertility: Abortion.
Reproductive toxicity - Rat - Intraperitoneal
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

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Reproductive toxicity - Rat - Subcutaneous

Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Reproductive toxicity - Mouse – Oral

Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Developmental Toxicity - Mouse - Intraperitoneal

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

11.8 Specific target organ toxicity - single exposure

No data available

11.9 Specific target organ toxicity - repeated exposure

No data available

11.10 Aspiration hazard

No data available

11.11 Potential health effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Aggravated Medical Condition: Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body.

11.12 Signs and symptoms of exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Effects due to ingestion may include: (Nausea, Fatigue, Headache (dimethyl sulfoxide)

Eyes - Eye disease - Based on Human Evidence (dimethyl sulfoxide)

11.13 RTECS

No data available

12 Ecological Information

12.1 Toxicity

Toxicity to fish (dimethyl sulfoxide)

LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/L - 96 h

LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/L - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 24,600 mg/L - 48 h (OECD Test Guideline 202)

Toxicity to algae

EC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/L - 72 h (OECD Test Guideline 201)

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12.2 Persistence and degradability	No data available
12.3 Bioaccumulative potential	No data available
12.4 Mobility in soil	No data available
12.5 Other adverse effects	No data available

13 Disposal Considerations

13.1 Waste disposal method

Offer surplus and non-recyclable solutions to a licensed disposal company. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

13.2 Contaminated packaging

Dispose of as unused product.

14 Transport Information

14.1 UN number	DOT	1993
	ADR/RID	Not dangerous goods
	IMDG	Not dangerous goods
	IATA	Not dangerous goods
14.2 UN proper shipping name	DOT	Combustible liquid, n.o.s. (Dimethyl sulfoxide)
	ADR/RID	Not dangerous goods
	IMDG	Not dangerous goods
	IATA	Not dangerous goods
14.3 Transport hazard class(es)	DOT	NONE
	ADR/RID	Not dangerous goods
	IMDG	Not dangerous goods
	IATA	Not dangerous goods
14.4 Packing group	DOT	III
	ADR/RID	Not dangerous goods
	IMDG	Not dangerous goods
	IATA	Not dangerous goods
14.5 Environmental hazards	DOT	Marine pollutant: No
	ADR/RID	Not dangerous goods
	IMDG	Not dangerous goods
	IATA	Not dangerous goods
14.6 Special precautions	No data available	

15 Regulatory Information

15.1 USA
SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

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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:

Dimethyl sulfoxide: Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Component	CAS #	Revision Date
dimethyl sulfoxide	67-68-5	2007-03-01

New Jersey Right To Know Components

Component	CAS #	Revision Date
dimethyl sulfoxide	67-68-5	2007-03-01

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.

15.2 EU

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

15.3 Canada

WHMIS Classification: B3 Combustible Liquid

This SDS was prepared in accordance with Hazardous Products Regulations (HPR) and WHMIS 2015.

16 Other Information

16.1 Prepared by: Quality Control, STEMCELL Technologies Inc.

16.2 Revision: 1_0_0

16.3 Notice: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Safety Data Sheet (SDS) is current as of the Effective Date shown in this document and may be subject to amendment by STEMCELL Technologies Inc.

16.4 Disclaimer: **THIS PRODUCT IS FOR RESEARCH USE ONLY. NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES.**