

**MATERIAL SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision number: 1

Revision date: 14/02/2017

**1. Identification of the substance/mixture and of the company/undertaking****1.1. Product Details**

Product Code : M892, M893  
Name : Graphene oxide (nitrogen doped) solution  
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals

**1.3. Supplier details**

Supplied by : Ossila Limited  
Kroto Innovation Centre  
Broad Lane, Sheffield  
S3 7HQ, UK  
Telephone : 0114 213 2770  
Email address : info@ossila.com

**2. Hazards identification****2.1. Classification of the substance or mixture****Classifications according to Regulation (EC) No. 1272/2008**

Flammable liquids (Category 2), H225

Eye Irritation (Category 2), H319

Specific target organ toxicity – single exposure (Category 3), Central nervous system, H336

**2.2. Label elements****Labelling according Regulation (EC) No 1272/2008**

Signal word : Danger

**Hazard statement(s)**

H225 : Highly flammable liquid and vapour.

H319 : Causes serious eye irritation.

H336 : May cause drowsiness or dizziness.

**Precautionary statement(s)**

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

P261 : Avoid breathing vapours.

P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements : None.

Restricted to professional users.

### 2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## 3. Composition/Information on ingredients

### 3.2 Mixtures

Synonyms : Graphene Oxide (Nitrogen Doped) suspension

#### Hazardous Ingredients according to Regulation (EC) No 1272/2008

Component	CAS #	Weight %	CLP Classification
2-Propanol	67-63-0	≤ 50 %	Flam. Liq. 2 (H225); Eye Irrit. 2 (H319); STOT SE 3 (H336)

## 4. First aid measures

### 4.1. Description of first aid measures

#### After Inhalation

If inhaled, remove to fresh air. If not breathing give artificial respiration. Call a physician.

#### After skin contact

In case of skin contact, wash with soap and flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### After eye contact

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### After Ingestion

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If swallowed, wash out mouth with water. Call a physician.

### 4.2. Most important symptoms and effects, both acute and delayed

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

### 4.3. Indication of any immediate medical attention and special treatment needed

Contact a poison centre immediately in case of ingestion or inhalation of a large amount of product.

## 5. Fire fighting

### 5.1. Extinguishing media

**Suitable extinguishing media:** Dry chemical, alcohol-resistant foam, carbon dioxide or water spray. Consult with local fire authorities before attempting large scale fire-fighting operations.

### 5.2. Special hazards arising from the substance of mixture

**Hazardous combustion products:** Carbon oxides, nitrogen oxides.

### 5.3. Advice for firefighters

Wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

## 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment (see section 8). Avoid breathing vapours or mist. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations in low areas.

### 6.2. Environmental precautions

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

### 6.3. Containment and cleaning:

Contain and clean up spill if safe to do so using an electrically protected vacuum cleaner or by wet-brushing. Dispose of in a closed container for proper disposal according to local regulations.

## 7. Handling and storage

### 7.1. Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition and avoid the build of electrostatic charge.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry and well-ventilated place inside of a tightly sealed container. Reseal containers that have been opened and keep upright to prevent leakage.

### 7.3. Specific end uses

Use in laboratories.

## 8. Exposure controls / Personal protection

### 8.1. Control parameters

UK – EH40 Workplace Exposure Limits (WEL).

#### Components with workplace control parameters

Component	CAS #	Control parameters
2-Propanol	67-63-0	500ppm (STEL) 1250 mg/m <sup>3</sup> (STEL) 400 ppm (TWA) 999 mg/m <sup>3</sup> (TWA)

TWA - time weighted average; STEL - Short Term Exposure Limit

### Biological occupational exposure limits

This product does not contain any hazardous materials with biological limits.

### 8.2. Exposure controls

#### Engineering measures

Handle in accordance with good industrial engineering/laboratory practices for hygiene and safety. Ensure eyewash stations and safety showers are close to the laboratory workstation. Ensure good general ventilation is present when handling the product.

## Personal protective equipment

**Eyes:** Wear safety glasses with side-shields conforming to appropriate government standards such as NOISH (US) or EN166 (EU).

**Skin:** Handle with appropriate gloves and use proper glove removal technique to avoid skin contact. Dispose of gloves in accordance with applicable laws. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Clothing:** Wear complete suit protecting against chemicals; the type of equipment should be appropriate for the concentration and amount of dangerous substance used.

**Respirators:** Use multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. Use respirators that have been approved under appropriate government standards such as NIOSH (US) or CEN (EU).

## General hygiene measures

Wash thoroughly after handling. Wash contaminated clothing before reuse.

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	:	Dark grey liquid
Odour	:	Alcohol-like
Odour threshold	:	No data available
pH	:	No data available
Melting/freezing point	:	No data available
Boiling point/range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability	:	No data available
Explosive limits	:	No data available
Vapour pressure	:	No data available
Vapour density	:	No data available
Relative density	:	No data available
Solubility(ies)	:	Miscible with water
Partition coefficient: <i>n</i> -octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available

### 9.2. Other safety information

No data available.

## 10. Stability and reactivity

### 10.1 Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal temperatures and pressures under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

No data available.

#### **10.4. Conditions to avoid**

Heat, flames and sparks. Extremes of temperature and direct sunlight.

#### **10.5. Incompatible materials**

Strong oxidising agents, Acid anhydrides, Aluminium, Halogenated compounds, Acids

#### **10.6. Hazardous decomposition products**

No known hazardous decomposition products.

### **11. Toxicological information**

#### **11.1. Information on toxicological effects**

##### **Acute toxicity**

No data available.

##### **Skin corrosion/irritation**

May cause mild skin irritation.

##### **Serious eye damage/eye irritation**

May cause eye irritation.

##### **Respiratory or skin sensitization**

May cause irritation to skin and respiratory tract.

##### **Germ cell mutagenicity**

No data available.

##### **Carcinogenicity**

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.

##### **Reproductive toxicity**

No data available.

##### **Specific target organ toxicity - single exposure**

No data available.

##### **Specific target organ toxicity - repeated exposure**

Inhalation, Oral – May cause drowsiness or dizziness.

##### **Aspiration hazard**

No data available.

##### **Routes of exposure**

Eye contact, ingestion, inhalation, skin contact.

##### **Signs and Symptoms of Exposure**

No data available.

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

### **12. Ecological information**

#### **12.1. Toxicity**

No data available.

#### **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. Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

## 12.6. Other adverse effects

No data available.

## 13. Disposal

### 13.1. Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations and directives on waste and hazardous waste. Offer surplus material to a licensed professional waste disposal professional.

#### Contaminated packaging

Dispose of as unused product.

## 14. Transport

### 14.1 UN number

ADR/RID: 1219

IMDG: 1219

IATA:1219

### 14.2 UN proper shipping name

ADR/RID: Isopropanol solution

IMDG: Isopropanol solution

IATA: Isopropanol solution

### 14.3 Transport hazard class(es)

ADR/RID:3

IMDG: 3

IATA: 3

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

No data available

## 15. Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006, the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available.

### 15.2. Chemical safety assessment

No chemical safety report/assessment was carried out for this product.

## **16. Other information**

### **Warranty**

This material is for research and development use only. The information provided here is based upon the available information from material suppliers but not warranted as complete and is provided only as a guide. Ossila Limited shall not be held responsible for any damage resulting from use or handling of this product.