

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 : M883, M884, M885, M886
Name : Monolayer graphene oxide 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
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S3 7HQ, UK
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2. Hazards identification**2.1. Classification of the substance or mixture****Classifications according to Regulation (EC) No. 1272/2008**

Flammable liquids 2 (H225)

Eye Irritation 2 (H319)

Specific target organ toxicity – single exposure 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 Information

None.

2.3. Other hazards

None.

3. Composition/Information on ingredients

3.2 Mixtures

Synonyms : Graphene oxide suspension

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

Component	CAS #	Weight %	CLP Classification
2-Propanol	67-63-0	49-50%	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.

After skin contact

In case of skin contact, wash with soap and flush with copious amounts of water.

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

If swallowed, wash out mouth with water.

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.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus if necessary. During a fire, irritating and highly toxic gases and vapours may be generated by thermal decomposition.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment (see section 8). Avoid formation of 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 formation of vapour or mist. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition and build up of electrostatic charge. Provide exhaust ventilation in places where vapours or mist is formed.

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	1250 mg/m ³ (STEL) 999 mg/m ³ (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, strong 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 – 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.