

SAFETY DATA SHEET

1 IDENTIFICATION

1.1 Product Identifier

Product Name

Graphene oxide Powder

Product Number

10002

Brand

enyGy

1.2 Other means of identification

Graphene oxide, graphite oxide, GO

1.3 Recommended use of the chemical and restrictions on use

Laboratory chemical, manufacture carbon materials. For R&D use only. Not for pharmaceutical, household or other uses.

1.4 Details of supplier

Company details

enyGy

6/45 Duerdin St,

Notting Hill VIC

3168,

Australia

Telephone

+ 61 425 254 882

Email

yufei.wang@enygy.com

1.5 Emergency phone number

enyGy

+61 425 254 882

Poisons Information
Centre

13 11 26

2 HAZARDS IDENTIFICATION

2.1 Classification of hazardous chemical

Skin irritant (category 2)

Respiration sensitization

(category 1) Eye irritant (category

2)

Contains engineered/manufactured nanomaterials. Caution: Hazards not fully characterised

2.2 Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H315: *Causes skin irritation*

H319: *Causes serious eye irritation*

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled

Prevention – Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P280	Wear protective gloves/protective clothing/eye protection.
P285	In case of inadequate ventilation wear respiratory protection.

Response– Precautionary statement(s)

P302 + P352	IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention
P362	Take off contaminated clothing and wash before reuse.
P304 + P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician

Storage – Precautionary statement(s)

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
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Disposal – Precautionary statement(s)

P501	Dispose of contents/container to an approved waste disposal plant
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3 COMPOSITION AND INFORMATION ON INGREDIENTS

Substance	Graphene oxide
Description	Graphene oxide flakes. Graphene oxide is a type of oxidized carbon material, arranged in sheets of hexagonal carbon rings.
Formula	C _x O _y H _z
CAS-No.:	-
EC/List-No:	942-699-3

4 FIRST AID MEASURES

4.1 Description of first aid measures

General advice	<ul style="list-style-type: none"> Move person away from contamination area if safe to do so. Wear gloves and appropriate PPE to prevent further contamination
In case of skin contact	<ul style="list-style-type: none"> Immediately remove all contaminated clothing Flush skin and hair with running water, soap is recommended Seek medical attention if irritation occurs

In case of eye contact

- Flush eyes immediately with fresh running water
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye by occasionally lifting the upper and lower eyelids
- Seek medical attention

	<ul style="list-style-type: none">Remove contact lenses if easy to do so. Otherwise this should be undertaken by skilled personnel
If inhaled	<ul style="list-style-type: none">Move person to fresh air, away from contaminated areaLay patient down and keep them warm, calm and restedProsthesis such as false teeth should be removed prior to first aid proceduresApply artificial respiration if not breathingTransport to hospital or doctor
If ingested	<ul style="list-style-type: none">Rinse mouth with water and then give a glass of waterFirst aid generally not required but if doubt, call Poisons Information Centre or a doctor

4.2 Symptoms caused by exposure

The most important known symptoms are described on label and Section 2. Also beware of the staining of clothing and contact surfaces.

4.3 Medical attention and special treatment

No data available.

5 FIREFIGHTING MEASURES

5.1 Suitable extinguishing equipment

Substance is non-combustible, use agent most appropriate to extinguish fire in local area. This can include water spray, foam, dry chemical powder, CO₂ etc. For intensely hot fires (> 1500°C), sand should be used to cover and isolate this material

5.2 Specific hazards arising from the chemical

Combustion products include carbon monoxide (CO) and carbon dioxide (CO₂). No data available on other decomposition products.

5.3 Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus for firefighting where necessary. Avoid contamination with oxidizing agents (ie: nitrates, oxidizing acids, chlorine bleaches etc.) as ignition can occur

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas.. See Section 8 for more details.

6.2 Environmental precautions

Do not allow material to enter drains.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid all personal contact and provide appropriate exhaust ventilation at places where dust is formed. Open container slowly, use care when taking out material.

7.2 Conditions for safe storage, including any incompatibles

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

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters

We are unaware of any exposure limits or standards.

8.2 Engineering controls

Use in a well-ventilated area and adhere to general industry hygiene practice.

8.3 Personal protective equipment

Eye and face protection	Use eye protection such as safety glasses as recommended by the appropriate government standards (AS/NZS 1336, AS/NZS 1337).
Skin protection	Handle with gloves at all times, inspect gloves for holes and damage prior to use. Use proper glove removal technique to avoid touching skin with this product. A lab coat or similar impervious clothing is also recommended to avoid chemical staining and skin contact.
Inhalation protection	Respiratory protection is required. Use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic physical and chemical properties

Appearance	Form: powder Colour: brown, black
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting/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
Vapour density	No data available
Relative density	1.8 g/cm ³
Solubility (H ₂ O)	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

9.2 Additional physical/chemical information

No data available

10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable at room temperature in closed containers and normal storage and handling conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

Other decomposition products - No data

available In the event of fire: see section 5

11 TOXICOLOGICAL INFORMATION

11.1 Toxicological effects

Acute toxicity	No data available
Skin corrosion/irritation	Practical experience predicts that slight skin irritation or inflammation may occur in some individuals after direct contact. Skin contact should not have harmful health effects though beware of entry through open wounds, lesions or abrasions.
Serious eye damage/irritation	Practical experience predicts that eye irritation will occur upon exposure. Prolonged exposure could cause a burning sensation.
Respiratory or skin sensitisation	Practical experience predicts that inhalation is harmful to respiratory system
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	No data available
Aspiration hazard	No data available

11.2 Information on possible routes of exposure

Skin and eye contact, and inhalation represents the most common possible routes of exposure. Beware of touching eyes/face with contaminated gloves.

11.3 Early onset symptoms related to exposure

Skin, eye and respiration irritation

11.4 Delayed health effects from exposure

No data available

11.5 Exposure levels and health effects

No data available

11.6 Interactive effects

No data available

12 ECOLOGICAL INFORMATION

12.1 Ecotoxicity

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 Other adverse effects

No data available

13 DISPOSAL CONSIDERATIONS

13.1 Safe handling and disposal methods

Dispose of unused material to a licensed chemical disposal company in a suitable, inert container with a tightly closed lid and contents clearly labelled.

13.2 Disposal of any contaminated packaging

Wash out residual material and collect waste in inert container for disposal. The rinsed container can be dried and disposed of as unused product.

13.3 Environmental regulations

No data available

14 TRANSPORT INFORMATION

UN number	No data available
Proper shipping name or Technical name	Graphene Oxide powder Non dangerous goods

Transport hazard class	No data available
Packing group	No data available
Environmental hazards	No data available
Special precautions for use	No data available
Additional information	No data available
Hazchem or emergency action code	No data available

15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

Standard for the Uniform Scheduling of Medicines and Poisons:

No data available

16 OTHER INFORMATION

This information is prepared by enyGy from in-house testing and expertise and the aid of information from:

- ChemWatch Review SDS: Graphene Oxide (Chemwatch: 25-3227)
- Sigma-Aldrich SDS: Graphene Oxide powder (Product number: 796034)
- European Chemicals Agency: Graphene Oxide (EC/List No.:

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The above information is believed to be correct but does not purport to be all inclusive and should be used as a guide. Please ensure that the SDS documentation is up to date, email info@enygy.com for more information or inquiries to the safe use of this product.