



NANOTECHNOLOGIC ADDITIVE FOR CONCRETE WITH GRAPHENE OXIDE



SAFETY DATA SHEET

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1 Identification of the chemical hazardous substance / mixture and of the company / undertaking

1.1 Name of the hazardous chemical substance or mixture: Nanotechnologic additive for concrete with Graphene Oxide.

1.2 Other means of identification: Graphene oxide aqueous dispersion.

1.3 Recommended uses of the hazardous chemical mixture, and restrictions on use.

- All types of concrete.
- Conventional concrete, polymeric concrete, concrete with reinforcement, reinforced concrete, structural mortar, prefabricated, concrete tubes, etc.
- Not suitable for human consumption

1.4 Details of the supplier or manufacturer.

Energeia Fusion, S.A. de C.V. Cerrada de Salamanca 4, Col. Roma, Alc. Cuauhtémoc, CDMX, 06700.

Telephone number: +52 55 8172 1721

E-mail: contact@graphenemex.com

Monday to Friday from 8:00 to 17:00 h

1.5 Telephone number in case of emergency: SETIQ 800 00 21 400 (Mexico)

2 Hazards identification

2.1 Classification of the hazardous chemical substance or mixture

The nanotechnologic additive for concrete with graphene oxide is classified as a non-hazardous substance. The product is mainly composed of water and graphene oxide with a specialized functionalization as an active compound and whose concentration does not exceed the composition limit values in the mixture for each class of health hazard, in accordance with the NOM-018-STPS-2015 and in accordance with the criteria for mixtures of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).



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2.2 Signaling elements of the GHS, including precautionary advice and precautionary pictograms

Pictogram



Signal Word

Attention

Identification code: H

Code	Hazard statement
H303	May be harmful if swallowed.
H333	May be harmful if inhaled.

Identification code: P

Code	Precautionary advice
P261	Avoid breathing dusts/fumes/gases/mists/vapours/aerosols.
P262	Wash hands thoroughly after handling.
P272	Contaminated work clothing must not leave the workplace.
P280	Wear gloves, protective clothing, eye and face protection equipment.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P305 + P351 + P338	In case of contact with eyes: Rinse carefully with water for several minutes. Remove contact lenses, if you have them and it is easy to do so. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/attention.

2.3 Other hazards not classified

No data available.

3 Composition / Information on ingredients

3.1 Substances

Not applicable



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3.2 For mixtures

Nanotechnologic additive for concrete with Graphene Oxide

Components	CAS No.	EC No.	Weight %
Distilled water	7732-18-5	231-791-2	>95
Graphene Oxide	7782-42-5	947-768-1	<5
Stabilizers	-	-	<1

The product does not contain components that contribute to the classification of the substance according to the composition limit values of NOM-018-STPS-2015.

4 First aid measures

4.1 Description of first aid measures

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Skin contact Wash off immediately with plenty of water for at least 15 minutes.
If skin irritation persists, call a physician.

Ingestion If large quantity is consumed, seek medical attention.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Protection of First - aiders Use personal protective equipment.

4.2 Most important symptoms and effects, acute and chronic

Acute: No data available

Chronic: No data available

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically



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5 Fire- fighting measures

5.1 Suitable Extinguishing Media.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment, such as CO₂, extinguishing powder or water spray.

Fight larger fires with water spray.

- Extinguishing media which shall not be used for safety reasons. No data available.

5.2 Specific dangers of the hazardous chemical substance or mixture.

In case of fire, the following may be released: Carbon monoxide, carbon dioxide

- Special Hazard. None

5.3 Special measures to be followed by fire- fighting groups.

- Special protective equipment for fire-fighters.

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA Flammability 0

HMIS Flammability 0

6 Measures to be taken in case of accidental spill or leak

6.1 Personal precautions, protective equipment, and emergency procedures:

Use personal protective equipment. Avoid contact with skin and eyes.

- Collect and dispose of with absorbent material.

- Store in appropriate and closed containers for disposal.

See Section 12 for additional information.

6.2 Environmental precautions.

Prevent entry into waterways, sewers, basements, or confined areas.

6.3 Methods and materials for the containment and cleaning of spills and leaks.

Prevent further leakage or spillage if safe to do so.

- Use personal protective equipment.

- Take up mechanically and collect in suitable container for disposal.

- Avoid dust formation.



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7 Handling and storage

7.1 Precautions for safe handling.

- Handle in accordance with good industrial hygiene and safety practice.
- Avoid contact with eyes and skin.
- Wear personal protective equipment.

7.2 Conditions for safe storage, including any incompatibilities.

- Storage class (TRGS 510): 12: Non-Combustible Liquids
- It must be stored tightly closed in a dry, cool, and ventilated place protected from direct sunlight.
- Store away from oxidizing agents, halogens, acids, flammable and explosive substances.
- Take measures to prevent the accumulation of electrostatic discharges.
- Keep out of the reach of children.

8 Exposure controls / Personal protection

8.1 Control parameters.

Contains no substances with occupational exposure limit values.

8.2 Appropriate technical controls.

- Handle with proper industrial hygiene precautions and respect safety practices.
- Showers, eyewash stations and ventilation system in good condition.

8.3 Individual protection measures, such as personal protective equipment, PPE.

Eye Protection	Wear safety glasses.
Respiratory protection	Use masks and components verified and approved according to the applicable standards.
Hand protection	Wear gloves.
Skin and body protection	Select a protection for the body according to the quantity and concentration of the product to be used.
Hygiene measures	Handle with proper industrial hygiene precautions, and respect conventional safety practices.
Environmental exposure controls	Do not allow material to contaminate ground water system.

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9 Physical and chemical properties

Physical state: Fluid liquid	Explosion limits: No data available
Colour: Dark gray	Flammability: 0
Odor: Odorless	Solubility: Soluble in water
Relative density: 1.01	pH: 6.5- 7.5
Freezing point: 0 °C (32 °F)	Vapor pressure: Not available
Boiling point: Not available	*Compatible with conventional additives
Flash point: Not available	

10 Stability and reactivity

10.1 Reactivity: No data available

10.2 Chemical stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions: No data available.

10.4 Conditions to avoid: Extreme temperatures.

10.5 Incompatible Materials: Strong oxidizing agents, halogens, and acids.

10.6 Hazardous Decomposition Products: No data available.

11 Toxicological information

No experimental data is available of the product itself regarding toxicological properties.

11.1 Information on the probable routes of entry.

11.2 Symptoms related to the physical, chemical, and toxicological characteristics.

11.3 Immediate and delayed effects, as well as chronic effects produced by short or long-term exposure.



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Acute toxicity

Inhalation. May be harmful if inhaled.

Eye contact. Contact with the eyes may be harmful.

Skin contact. May cause slight skin irritation.

Ingestion. May be harmful if swallowed

Chronic toxicity

Sensitization. No data available.

CMR effects (carcinogenicity, mutagenicity, and toxicity for reproduction).

No data available.

Specific Target Organ Systemic Toxicity- Single Exposure.

No data available.

Specific Target Organ Toxicity-Repeated Exposure.

No data available.

11.4 Numerical measures of toxicity (such as acute toxicity estimates).

DL50 Oral (rat): >2000 mg/kg. Estimated graphite.

LD50 Dermal. Undetermined.

CL50 Inhalation. Undetermined.

11.5 Interactive Effects. No data available.

11.6 Other information. No data available.

12 Ecotoxicological information

12.1 Toxicity: The chemical, physical and toxicological properties, as well as its effects on the environment have not been studied. Prevent product from meeting wastewater, soil, aquifers.

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.



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13 Disposal considerations

13.1 Disposal Methods

- The generation of waste should be avoided or minimized whenever possible.

A. Product: Observe all state and local regulations regarding the protection of the environment. For the disposal of this product, contact an authorized professional service.

B. Contaminated packaging: Dispose of as unused product through an authorized professional service.

C. Non-contaminated packaging: They can be treated as normal or recycled waste.

14 Transport information

14.1 UN number: Not regulated.

14.2 Proper Shipping Name: Not regulated.

14.3 Transport related class: Not regulated.

14.4 Packing group: Not regulated

14.5 Environmental risks: No applicable

Ground transportation

ADR/RID:

Hazard class: Not regulated.

Packing group: Not regulated.

ID number: Not regulated.

Hazard label: Not identified.

Expedition technical determination: Not applicable



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Marine transport

IMDG:

Hazard class: Not regulated.

Packing group: Not regulated.

ID number: Not regulated.

Hazard label: Not identified.

Expedition technical determination: Not applicable

Air Transport

IATA/ICAO:

Hazard class: Not regulated.

Packing group: Not regulated.

ID number: Not regulated.

Hazard label: Not identified.

Expedition technical determination: Not applicable

14.6 Special precautions for user: Non-flammable. Transport in closed containers that are upright and secure. The multimodal shipping description is provided for informational purposes and does not consider the container sizes. The shipping description for a particular means of transport does not mean that the product is properly packaged for this means of transport. Ensure that the people who transport the product know what to do in the event of an accident or spill.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code:

Non relevant.

15 Regulatory information

15.1 Safety, health, and environmental regulations/legislation specific for the substance or mixture International Inventories:

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. Registration, Evaluation, Authorization and Restriction of Chemical Products (REACH) and NOM-018-STPS-2015.

Chemical safety assessment: A chemical safety assessment of the product has not been carried out.



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16 Other information including that relating to the preparation and updating of safety data sheets

Risk Combination Phrases

R36/37/38 - Irritating to eyes, respiratory system, and skin.

Hazard Statements.

H320 - Causes eye irritation. H316 - Causes mild skin irritation.

H303 - May be harmful if swallowed. H333 - May be harmful if inhaled.

H335 - May cause respiratory irritation.

Legal note

The information contained in this document is considered correct and is not intended to be exhaustive, so it should only be used as guide. It is based on the current state of our knowledge and is applicable to the product with respect to appropriate safety precautions. This safety data sheet does not represent a guarantee of the properties of the product.

The toxicological properties of the product described have not been studied in depth, therefore, generic data on graphite, the main raw material for the production of graphenic materials, has been used to prepare this safety data sheet. Users must be trained for the correct interpretation of the technical information, as well as for the use, storage, and disposal of the product.

Energeia Fusion, S.A. de C.V., is not responsible for the damages resulting from the incorrect interpretation of the information in this document, as well as the improper handling of the described product.

For more information contact contact@graphenemex.com

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