STANDARD GRAPHENE

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MATERIAL SAFETY DATA SHEET

Section 1: Identification of the substance & Company

1.1 Product identifiers

Product Name	thermal-treated graphite, reduced graphene oxide(rGO), powder
Product Number	rGO-V50

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

Identified uses	Additive

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	STANDARD GRAPHENE INC. (44412) 314 Fine chemical & Material Technical Institute Jongga-ro 15, Jung-gu, Ulasn, Korea
Phone Number	+82-52-225-3921
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

2.2 Label elements

This substance is not classified as dangerous according to Directive 67/548/EEC.

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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name	thermal-treated graphite, reduced graphene oxide(rGO), powder
CAS No.	90387-90-9
containing(%)	100

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration.
In case of skin contact	Immediately flush skin with plenty of soap and water.
In case of eye contact	Immediately flush eyes with plenty of water for at least 15 minutes.
If swallowed	Rinse mouth with water. Seek medical attention or call poison control.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas. For personal protection see section 8.

6.2 Environmental precautions
Keep out of drains, sewers, ditches, and waterways.

6.3 Methods and materials for containment and cleaning up
Vacuum or sweep material and place in a disposal container. Avoid generating dust.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes.
Keep away from sources of ignition.
Avoid generating dust as the product may form explosive dust/air mixtures.
Good housekeeping is important to prevent accumulation of dust.
Graphite is electrically conductive; care should be taken to avoid accumulation of dust / powder where it may cause electrical shorting.
Use only in well-ventilated areas.
Launder contaminated clothing before reuse.
When using do not eat or drink. Wash hands before eating, drinking, or smoking.

7.2 Conditions for safe storage, including any incompatibilities
Keep out of the reach of children.
Keep container tightly closed and dry. Do not store at temperatures above 49 °C .

7.3 Specific end use(s)
A part from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Personal protective equipment

Eye/face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
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.
Body Protection	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, 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).
Control of environmental exposure	No special environmental precautions required.

SECTION 9: Physical and chemical properties

Appearance	Powder
Color	Gray or black
Odour	Odourless
Odour Threshold	no data available
Physical State	Solid
pH	no data available
Viscosity	no data available
Freezing Point	no data available
Boiling Point	no data available
Flash Point	no data available
Evaporation Rate	no data available
Lower Flammability Limit	no data available
Upper Flammability Limit	no data available
Vapor Pressure	no data available
Vapor Density	no data available
Bulk Density	0.01 - 0.1 g/cm^3
Solubility in Water	Negligible
Coefficient of Water/Oil Distribution	no data available
Auto-ignition Temperature	no data available
Percent Volatile, wt. %	no data available
VOC content, wt. %	no data available

SECTION 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 dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizers. Chlorine trifluoride. Fluorine

10.6 Hazardous decomposition products
May include, and are not limited to: oxides of carbon.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity	no data available
Skin corrosion/irritation	May cause skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin.
Serious eye damage/eye irritation	May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
Respiratory or skin sensitisation	Not hazardous by WHMIS/OSHA criteria.
Germ cell mutagenicity	Not hazardous by WHMIS/OSHA criteria.
Carcinogenicity	no data available
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
Additional Information	RTECS: Not available

SECTION 12: Ecological information

12.1 Toxicity
Product not expected to pose any toxicity hazards to aquatic or terrestrial life.

12.2 Persistence and degradability
Not readily biodegradable

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

Contaminated packaging
Dispose of as unused product

SECTION 14: Transport information

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
no data available

SECTION 15: Regulatory information

15.1 Classification: Non-dangerous

Section 16: OTHER INFORMATION

Disclaimer
The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

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