SAFETY DATA SHEET

1. Identification

Product identifier Graphene

Other means of identification

Product code TG-P10050

Recommended use Graphene

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier T Global Technology (Europe and North America) Ltd

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2. Hazard(s) identification

Emergency overview Low hazard under normal conditions.

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

GHS-classification Not classified.

Label elements

Hazard symbol None.

Signal word Not applicable.

Hazard statement Not applicable.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash thoroughly after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements

Hazard(s) not otherwise classified (HNOC)

Supplemental information This product is not hazardous according to OSHA 29 CFR 1910.1200 requirements, therefore a hazard label does not apply.

3. Composition/information on ingredients

Substance/mixture Mixture

Chemical name	CAS Number	Concentration (%)
Acrylic Resin	9003-1-4	3~4
polyethylene terephthalate	25038-59-9	1.5~2.5
Copper foil	7440-50-8	87~93
Thermally conductive material	No CAS No	4~5

4. First-aid measures

Inhalation Move to fresh air. Get medical attention if symptoms occur.

Skin contact Wash skin with soap and water. Get medical attention if irritation persists after washing.

Eye contact Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion Rinse mouth thoroughly. Get medical attention if any discomfort occurs.

Most important symptoms/effects, acute and delayed

Under normal conditions of intended use, this material does not pose a risk to health

Indication of immediate medical attention and special treatment needed

Treat symptomatically.

General information Get medical attention if any discomfort develops

5. Fire-fighting measures

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical None

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the

general fire precautions indicated in the workplace.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk.

General fire hazards This product is not flammable.

6. **Accidental release measures**

Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Sweep up or gather material and place in appropriate container for disposal.

For waste disposal, see section 13 of the SDS.

Environmental precautions Environmental Manager must be informed of all major spillages.

7. **Handling and storage**

Precautions for safe handling

Provide adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Observe good industrial hygiene practices. Wear appropriate personal protective equipment (See Section 8).

Conditions for safe storage, including any incompatibilities

Store in closed original container in a dry place. Store away from incompatible materials.

8. **Exposure controls/personal protection**

Occupational exposure limits No occupational exposure limits noted for the ingredient(s).

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Follow standard monitoring procedures.

Appropriate engineering controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below

goggles.

recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection	Risk of contact: Wear approved safety
Skin protection	
Hand protection	Use suitable protective gloves if risk of skin contact. Suitable gloves can be recommended by the glove supplier.
Other	If prolonged or repeated contact is likely, chemical resistant clothing is recommended.
Respiratory protection	In case of inadequate ventilation, use respiratory protection.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state	Solid
Form	Solid
Color	Black
Odor	Not relevant.
Odor threshold	Not relevant.
pH	Not relevant.
Melting point/freezing point	Not relevant.
Initial boiling point and boiling range	Not relevant.
Flash point	Not relevant.
Evaporation rate	Not relevant.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower(%)	Not relevant.
Flammability limit - upper(%)	Not relevant.
Explosive limit - lower (%)	Not relevant.
Explosive limit - upper (%)	Not relevant.
Vapor pressure	Not relevant.
Vapor density	Not relevant.
Solubility(ies)	
Solubility (water)	Insoluble (<0.1%)
Solubility (solvents)	Not relevant.
Partition coefficient	Not relevant.
Auto-ignition temperature	Not relevant.
Decomposition temperature	Not relevant.
Viscosity	Not relevant.
Other information	
Bulk density	Not available.
Density	Not relevant
Explosive properties	Not relevant.
Oxidizing properties	Not relevant.
VOC	Not relevant.

10. **Stability and reactivity**

Reactivity Chemical stability

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

Conditions to avoid

Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products None.

11. **Information on likely routes of exposure**

Inhalation Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract.

Skin contact Prolonged skin contact may cause temporary irritation.

Eye contact May cause eye irritation on direct contact.

Ingestion Ingestion may cause irritation and malaise.

Symptoms related to the physical, chemical and toxicological characteristics

Under normal conditions of intended use, this material does not pose a risk to health.

Skin corrosion/irritation

Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation

Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin

Specific target organ toxicity - single exposure Not classified.

sensitization.

Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

Inhalation of carbon black dust may cause cancer, however due to the physical form of the product, inhalation of dust is not likely.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects None known.

Further information None known.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous.

Persistence and degradability No data available.

Bioaccumulative potential No data available.

Mobility in soil The product is insoluble in water.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code

The waste code should be assigned in discussion

between the user, the producer and the waste disposal company.

Waste from residues / unused products

Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. **Transport information**

DOT	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

This substance/mixture is not intended to be transported in bulk.

15. **Regulatory information**

Trash Clearance Act., Air Pollution Protection Act., Enforcement Rules of the Labor Safety and Health Law, Prevention and Control of Water Pollution Act.

16. **References**

EPA: AQUIRE database

IARC Monographs. Overall Evaluation of Carcinogenicity

NLM: Hazardous Substances Data Base

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