SAFETY DATA SHEET

GRAPHENE OXIDE
DATE OF ISSUE: 20 APRIL 2016

NO COUNTRY SPECIFIC DATA

PRODUCT AND COMPANY IDENTIFICATION

Product Name: TGF
Product Number: Lot TGF 16074
Recommended Use: Laboratory & Research
Manufacture of substances
Emergency Phone Numbers:
(USA) +1 (888)-836-1111

Distributor: 1st Graphene
Addresss: 13032 Barrett Ln
Santa Ana, CA 92705 United States
Telephone: +1 (888) 836-1111
E-Mail: info@1stgraphene.com
Web Site: www.1stgraphene.com

COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical Name	Other Name	CAS #	C(wt%)	O(wt%)	S(wt%)
REDUCED GRAPHENE OXIDE	Graphene Flake		92-97	5-9	< 2

HAZARDS IDENTIFICATION

Hazard Risk: Possible irritant on contact with skin, upon eye contact or if inhaled or ingested.
Potential Acute Health Effects: Not Available
Carcinogenic Effects: Not Available
Toxicity: Substance may be toxic to upper respiratory tract and cardiovascular system. Repeated or prolonged exposure may lead to organ damage.

FIRST AID MEASURES

Skin Contact: Wash with soap and water. Dry and treat with skin lotion. Seek medical attention if indicated.
Eye Contact: Remove any contacts, flush eyes with water for 15 minutes. Seek medical attention if indicated.
Inhalation: Relocate to area with clean air. Call EMS for possible artificial respiration or supplemental oxygen.
Ingestion: Call EMS. Do not induce vomiting, do not administer anything by mouth without medical attention.
Indication of Immediate Medical Attention: Call EMS or transport to nearest medical emergency room.

NO COUNTRY SPECIFIC DATA

FIRE FIGHTING MEASURES

Suitable (unsuitable) extinguishing media: water, carbon dioxide, dry chemical powder and foam are appropriate extinguishing media. Be sensitive to use extinguishing media considerate of the surrounding area.
Specific Hazards arising from the chemical: Graphene Oxide may release carbon dioxide, carbon monoxide and other toxic gases in the event of combustion. In the event a condition involving combustion reaches a temperature of more than 300° C graphene oxide may react with potassium sodium, rubidium or cesium to create intercalation compounds that may ignite and may react explosively with water.
Special protective equipment and precautions for fire fighters: Wear appropriate fire protective clothing and use self-contained breathing apparatus. Wear eye and skin protective devices to prevent contact with skin, eyes or lungs.
Other: Although generally difficult to combust care should be taken when storing or working with graphene oxide to avoid dust and other explosion risks. Potassium salt residue in graphite oxide can render the material highly flammable. While graphene oxide is purified many times, storage with strong oxidants should be avoided.

ACCIDENTAL RELEASE MEASURES

Spilled or released graphene oxide and clean up personnel clothing should be collected and disposed of in suitable sealed bio-hazard containers. Care should be taken to avoid creating explosive dust situations.
DO NOT dispose of any accidental release materials, waste or clean up clothing or materials into any public waste system. Notify the plant environmental officer and follow their instructions for disposal.

HANDLING AND STORAGE

Precautions for safe handling: Keep, handle and transport in tightly sealed containers to avoid accidental spillage.
Precautions for safe storage. Store in cool and well-ventilated space. Do not store with or near combustible materials.

EXPOSURE CONTROLS AND PERSONAL PROTECTION

Skin Contact: Handle wearing gloves and use caution when removing gloves to avoid contact with skin. Dispose of contaminated gloves in accordance with U.S. and EU workplace regulations.
Eye Contact: Always wear approved eye protection such as safety glasses and face shields when handling graphene oxide.
Body Protections: Appropriate protective clothing should be worn to avoid accidental spillage on street clothing and exposed skin. U.S. and EU workplace protection guidelines should be followed.
Respiratory Protection: Respiratory protection is generally not required. Care should be taken to use respirators and closed circuit breathing apparatus when in areas of high concentration or dust

NO COUNTRY SPECIFIC DATA

PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Powder, black/brown color
Odor: No data available
Odor Threshold: No data available
pH: No data available
Melting/Freezing Point: No data available
Initial boiling point and 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
Vapor pressure: No data available
Vapor density: No data available
Relative density: ~ 1.8 g/cm3
Solubility: 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
Molecular mass: No data available

STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions: Stable when stored as directed.
Conditions to avoid: No data available.
Incompatible materials: Strong oxidizing agents.
Hazardous decomposition: No data available. (otherwise see accidental discharge and fire fighting measures)

ECOLOGICAL INFORMATION

Aquatic and Terrestrial Ecotoxicity: No data available
Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil: No data available
Other adverse effects: No data available

NO COUNTRY SPECIFIC DATA

TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure: No data available.
Health Hazards Information
*** Acute toxic:** No data available.
*** Skin corrosive/irritant:** No data available.
*** Serious eye damage/eye irritation:** No data available.
*** Respiratory sensitization:** No data available.
*** Skin sensitization:** No data available.
*** Carcinogenicity:** No possible or confirmed human carcinogen indicated at equal or greater than 0.1%
*** Germ Dell Mutagenicity:** 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.

DISPOSAL CONSIDERATIONS

Disposal method: Disposal should be done in a sealed bio-hazard container and removed by a suitable disposal company.

Disposal precautions: When handling product , packaging, cleaning materials, protective clothing or contaminated items always put into a sealed bio-hazard container and contact a suitable disposal company for removal.

TRANSPORT INFORMATION

UN number:
ADR/RID – **IMDG –** **IATA –**
UN proper shipping name:
- **ADR/RID –** Not dangerous goods.
- **IMDG –** Not dangerous goods.
- **IATA –** Not dangerous goods.

Transport hazard class:
ADR/RID – **IMDG –** **IATA –**
Packing group:
ADR/RID – **IMDG –** **IATA –**
Marine pollution: No

Special precaution which a user to be aware of or need to comply with in connection with transport or conveyance either within or outside premises: No data available.

NO COUNTRY SPECIFIC DATA

REGULATORY INFORMATION

Industrial Safety and Health Act: User must contact their local government agency to be sure to comply with all EU, US and local environmental laws and regulations.
Toxic Chemical Control Act: User must contact their local government agency to be sure to comply with all EU, US and local environmental laws and regulations.
Waste Management Act: User must contact their local government agency to be sure to comply with all EU, US and local environmental laws and regulations.
Other requirements in domestic and foreign countries: EU, US and local environmental laws and regulations must be followed. Local government agencies should be contacted for guidance.

OTHER INFORMATION

Information source and references: Grapheneall Co Ltd, other industry and available government resources were used for research and guides in preparing this MSDS.

Issuing date: 20 APRIL 2016

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Other: Information contained herein is believed to be correct and to comply with all required laws, regulations and rules governing the topics included herein. Each user, transport company, waste disposal contractor or other person or company coming in contact with graphene flake is solely responsible for following these guidelines and their local laws and regulations regarding the safe handling, transport and disposal of graphene oxide. 1st Graphene shall not be held liable for any misuse, inappropriate storage, illegal or improper transport, improper cleanup or disposal or claims of ignorance with regard to the material and guidelines set forth herein.