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Material Safety Data Sheet

GRAPHENELAB Nano Platelets

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1. Product and Company Identification

Product Name: GLNP Graphene

Synonyms: Graphene, Graphene sheets, Exfoliated Graphite, Pure Graphene, Unoxidised Graphene

CAS NO.: 7782-42-5.

Contacting Information:

Manufacturer: GRAPHENELAB Ltd

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2. Composition/Information on Ingredients:

Carbon >99,6 %

3. Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to upper respiratory tract. The substance may be toxic to cardiovascular system. Repeated or prolonged exposure to the substance can produce target organs damage.

4. First Aid Measures

Eyes: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

5. Fire Fighting Measures

In general, graphene is difficult to combust. Normal care should be taken to avoid dust explosion risk through high concentrations of dust or finely-suspended airborne particles, although graphene dust is not normally considered an explosion hazard. Suitable Extinguishing Media: water, carbon dioxide, dry chemical powder or foam as appropriate for surroundings. Other Combustion Hazards: in the event of combustion or thermal decomposition, this material may release carbon monoxide (CO) or carbon

dioxide (CO₂) or other toxic gases. At temperatures over 300o C. this material may react with potassium, sodium, rubidium, or cesium to create intercalation compounds that may ignite and may react explosively with water. Protective Equipment: As with any fire, wear self-contained breathing apparatus and protective clothing to prevent contact with skin, eyes or lungs.

6. Accidental Release Measures

Spilled or released material should be collected mechanically and disposed of in suitable containers. Use care during cleanup to prevent the creation of concentrations of dust. Personnel: Clean-up personnel should wear suitable protective equipment to prevent inhalation or skin contact. Cleanup personnel should beware of the risk of slippage due to the material's low coefficient of friction. Environmental: Do not discharge into storm or sanitary sewers or groundwater

7. Handling and Storage

This material is stable at room temperature and does not pose a significant risk of combustion. This material should be stored in labeled, closed containers away from sources of ignition or heat. Care should be taken to avoid creating accumulations or concentrations of dust, since any dust can form a potentially explosive mixture in air. Graphene is electrically conductive. Care should be taken, therefore, to avoid accumulations of graphene dusts or powders in places where these accumulations could cause shorting of electrical switches, circuits or components.

Advice on Safe Handling: Provide good ventilation when handling. Personnel should take measures to avoid breathing dust created when handling and should wear suitable protective clothing to prevent skin and eye contact.

8. Exposure Controls, Personal Protection Exposure Guidelines

Graphite (CAS no. 7782-42-5) TWA: ACGIH (TLV): 2.0 mg/m³ respirable OSHA (PEL): 15 ml/m³ respirable Crystalline Silica (CAS no. 14808-60-7) TWA: ACGIH (TLV): 0.025 mg/m³ respirable OSHA (PEL): 10 mg/m³ respirable Personal Protective Equipment Respiratory protection: Protect against inhalation. A respiratory protection program that meets applicable OHSA requirements should be maintained in the workplace. Eye protection: Protect against contact with eyes by wearing suitable safety eyeglasses or chemical protective goggles or other face protection. Skin protection: Protect against skin contact by wearing protective gloves. Protect against skin contact by wearing suitable clothing. Engineering Controls Provide adequate workplace ventilation. If dusts are generated through handling, local exhaust ventilation should be employed.

9. Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Tasteless.

Molecular Weight: 12.01 g/mole

Color: Black

pH (1% soln/water): Not applicable.

Boiling Point: Not available.

Melting Point: 3650°C (6602°F)

Critical Temperature: 681°C (1257.8°F)

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: Not available.
Solubility: Insoluble in cold water.

10. Stability and Reactivity Stability:

The product is stable. Instability Temperature: Not available. Conditions of Instability: Excess heat, incompatible materials. Incompatibility with various substances: Highly reactive with oxidizing agents. Corrosivity: Non-corrosive in presence of glass. Special Remarks on Reactivity: Reacts vigorously with liquid potassium, and potassium peroxide. If graphene contacts liquid potassium, rubidium or caesium at 300 C, intercalation compounds may be formed. Special Remarks on Corrosivity: Not available. Polymerization: Will not occur.

11. Toxicological Information

Routes of Entry: Inhalation. Ingestion. Toxicity to Animals: LD50 (oral, rat): >2000mg/kg (Graphite) LC50 (inhalation, rat): Not available. Chronic Effects on Humans: Causes damage to the following organs: upper respiratory tract. May cause damage to the following organs: cardiovascular system. Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation. Special Remarks on Toxicity to Animals: Not available. Special Remarks on Chronic Effects on Humans: Not available. Special Remarks on other Toxic Effects on Humans: Nuisance dust. Acute Potential Health Effects: Skin: Causes skin irritation. Eyes: Dust causes eye irritation. Inhalation: May be harmful if inhaled. Dust causes respiratory tract and mucous membrane irritation. Ingestion: May be harmful if swallowed. May cause gastrointestinal (digestive) tract irritation with nausea and vomiting. Chronic Potential Health Effects: Inhalation of high concentrations of graphene dust over prolonged periods of time may cause pneumoconiosis. Symptoms can include cough, shortness of breath, and decrease of pulmonary function. Preexisting pulmonary disorders such as emphysema may possibly be aggravated by prolonged exposure to high concentrations of graphene dust. This toxicology of this substance has not been fully investigated

12. Ecological Information

Ecotoxicity: Not available. BOD5 and COD: Not available. Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic. Special Remarks on the Products of Biodegradation: Not available.

13. Disposal Considerations

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulation