

SAFETY DATA SHEET

XG Sciences Developmental Thermal Paste

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Developmental Thermal Paste
Product Use: Thermal Interface Material
Manufacturer/Supplier: XG Sciences, Inc.
3101 Grand Oak Dr.
Lansing, MI
48911
Phone Number: 517-703-1110
Emergency Phone: CHEMTREC (USA): (800) 424-9300
ChemTrec International: (+)1 (703) 527-3877
Date of Preparation: April 30, 2016

Section 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

2.1 GHX Classification of the substance

Acute aquatic toxicity (Cat 1), H400

Chronic aquatic toxicity (Cat 1), H410

2.2 GHS Label Elements

Pictogram



Signal word Warning

Hazard statements H410 Very toxic to aquatic life with long last effects

Precautionary statements

P273 Avoid release to the environment

P501 Dispose of contents / container to an approved waste disposal plant.

2.3 Likely Routes of Exposure: Skin contact, eye contact.

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: Not applicable under normal conditions of use.

Inhalation: Not applicable under normal conditions of use. Inhalation may cause lung irritation.

Chronic Effects: Prolonged or repeated contact may cause skin irritation.

2.4 Signs and Symptoms: Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. Symptoms may include redness, edema, drying, defatting, and cracking of the skin.

Potential Environmental Effects: May cause adverse effects in the aquatic environment. See Section 12 for more information.

SAFETY DATA SHEET

XG Sciences Developmental Thermal Paste

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS #	Wt. %
Zinc Oxide	1314-13-2	0-90%
Graphite	7782-42-5	0-50%
Proprietary Fillers (non-toxic)*		0-90%

*The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Section 4: FIRST AID MEASURES

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if worn. If irritation persists, get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.

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

Ingestion: If swallowed, rinse mouth with water. Seek medical attention or call poison control.

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

Note to Physicians: Symptoms may not appear immediately.

Section 5: FIRE FIGHTING MEASURES

Flammability: May be combustible at high temperature. May be slightly flammable in the presence of open flames, sparks, or oxidizing materials.

Means of Extinction:

Suitable Extinguishing Media: Dry chemical powder, water spray, foam, or fog.

Unsuitable Extinguishing Media: Not available.

Products of Combustion: May include, and are not limited to: oxides of carbon.

Explosion Data:

Sensitivity to Mechanical Impact: Not available.

Sensitivity to Static Discharge: Not available.

Protection of Firefighters: Keep upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental Precautions: Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.

Methods for Containment: Contain spill, then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for Clean-Up: Contain spill with absorbent materials, scoop up, and place in a sealed metal container for proper disposal. Spills of this material are a slipping hazard.

Other Information: Not available

SAFETY DATA SHEET

XG Sciences Developmental Thermal Paste

Section 7: HANDLING AND STORAGE

Handling:

Avoid contact with skin and eyes. Keep away from sources of ignition. Use only in well-ventilated areas. Launder contaminated clothing before reuse. While using, do not eat or drink. Wash hands before eating, drinking, or smoking.

Storage:

Keep out of the reach of children. Keep container tightly closed and dry. Do not store at temperatures above 49 °C / 120 °F.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Ingredient	OSHA-PEL	ACGIH-TLV
Zinc Oxide	15 mg/m ³ (dust)	10 mg/m ³ (dust)
Aluminum	15 mg/m ³ (dust)	10 mg/m ³ (dust)
Graphite	15 mg/m ³ total; 5 mg/m ³ respirable fraction	2 mg/m ³
Proprietary Fillers (non-toxic)	NA	NA

Engineering Controls: Use ventilation adequate to keep exposures below recommended exposure limits.

Personal Protective Equipment:

Eye/Face Protection: Wear eye/face protection.

Hand Protection: Wear suitable gloves.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Wear appropriate respiratory protection if ventilation is inadequate.

General Hygiene Considerations: Handle according to established industrial hygiene and safety practices.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Paste/grease.
Color:	Gray or blue-gray.
Odor:	Odorless.
Odor Threshold:	Not available.
Physical State:	Solid-liquid mixture.
pH:	Not available.
Viscosity:	Not available.
Freezing Point:	Not available.
Boiling Point:	>200 °C
Flash Point:	Not available.
Evaporation Rate:	Not available.
Lower Flammability Limit:	Not available.

SAFETY DATA SHEET

XG Sciences Developmental Thermal Paste

Upper Flammability Limit:	Not available.
Vapor Pressure:	Not available.
Vapor Density:	Not available.
Specific Gravity:	2.2-2.8 g/cm ³
Solubility in Water:	Partial.
Coefficient of Water/Oil Distribution:	Not available.
Auto-ignition Temperature:	Not available.
Percent Volatile, wt. %:	Not available.
VOC content, wt. %:	Not available.

Section 10: STABILITY AND REACTIVITY

Stability: Stable under normal storage conditions.

Conditions of Reactivity: Heat. Incompatible materials.

Incompatible Materials: Strong oxidizers, strong acids, alkali and alkaline earth metals, chlorine.

Hazardous Decomposition Products: May include, and are not limited to oxides of carbon.

Possibility of Hazardous Reactions: No dangerous reaction known under conditions of normal use.

Section 11: TOXICOLOGY INFORMATION

EFFECTS OF ACUTE EXPOSURE

- Eye:** May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
- Skin:** May cause skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin.
- Ingestion:** Not applicable under normal conditions of use. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

EFFECTS OF CHRONIC EXPOSURE

- Target Organs:** Not available.
- Chronic Effects:** Not hazardous by WHMIS/OSHA criteria.
- Carcinogenicity:** Not hazardous by WHMIS/OSHA criteria.
- Mutagenicity:** Not hazardous by WHMIS/OSHA criteria.
- Reproductive Effects:** Not hazardous by WHMIS/OSHA criteria.
- Developmental Effects:**
- Teratogenicity:** Not hazardous by WHMIS/OSHA criteria.
 - Embryotoxicity:** Not hazardous by WHMIS/OSHA criteria.
- Respiratory Sensitization:** Not hazardous by WHMIS/OSHA criteria.

SAFETY DATA SHEET

XG Sciences Developmental Thermal Paste

Skin Sensitization: Not hazardous by WHMIS/OSHA criteria.

Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Avoid runoff into sewers and ditches that lead to waterways.

Persistence / Degradability: Long-term degradation products may arise. These products are less hazardous than the product itself.

Bioaccumulation / Accumulation: Not available.

Mobility in Environment: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions:

This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

Section 14: TRANSPORTATION INFORMATION

DOT Classification

Not regulated

TDG Classification

Not regulated

Section 15: REGULATORY INFORMATION

Federal Regulations

US: MSDS prepared pursuant to the Hazard Communication Standard (CFR29 1910.1200).

State Regulations

California Proposition 65:

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Global Inventories

Ingredient	Canada DSL/NDSL	USA TSCA
Glycerol	DSL	Yes
Zinc Oxide	DSL	Yes
Aluminum Oxide	DSL	Yes
Boron Nitride	DSL	Yes
Aluminum	DSL	Yes
Silver	DSL	Yes
Graphite	DSL	Yes
Proprietary Fillers (non-toxic)		

HMIS - Hazardous Materials Identification System

Health - 1

Flammability - 1

Physical Hazard - 0

PPE - G

NFPA - National Fire Protection Association:

Health - 1

Fire - 1

Reactivity - 0

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

WHMIS Classification(s): Not controlled.

SAFETY DATA SHEET

XG Sciences Developmental Thermal Paste

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.

Expiry Date: August 27, 2017

Version #: 1.0