

SAFETY DATA SHEET

PRODUCT NAME: EME-G770H
Type C
MSDS NO.: MSDS-EME-959
DATE PREPARED: Jun. 3,2010 according to 2001/58/EC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EME-G770H
Type C

CHEMICAL NATURE: EPOXY MOLDING COMPOUND

APPLICATION: Encapsulation of Semiconductors (or electronic devices and so forth) for electrical, physical and chemical protection.

MANUFACTURER: SUMITOMO BAKELITE CO., LTD.
TENNOZ PARK SIDE BLDG., 5-8, HIGASHI-SHINAGAWA 2-CHOME,
SHINAGAWA-KU, TOKYO, 140-0002 JAPAN PHONE: 81-3-5462-4267

SUPPLIER: SUMITOMO BAKELITE CO., LTD.
TENNOZ PARK SIDE BLDG., 5-8, HIGASHI-SHINAGAWA 2-CHOME,
SHINAGAWA-KU, TOKYO, 140-0002 JAPAN PHONE: 81-3-5462-4267

EMERGENCY ASSISTANCE (Please contact any of manufacture's following sales offices)

| NAME & EMERGENCY PHONE NUMBER | ADDRESS |
|--|--|
| SUMITOMO PLASTICS AMERICA, INC. PHONE: 408-243-8402 (USA) | 900 Lafayette Street Suite#510 Santa Clara, CA 95050 |
| SUMITOMO BAKELITE SINGAPORE PTE.LTD. PHONE: 6755-5550 (SINGAPORE) | 1 Senoko South Road Singapore 758069 |
| N.V. SUMITOMO BAKELITE EUROPE S.A. PHONE: 02-709-2139 (BELGIUM) | Regus Pegasus Park Pegasuslaan 5 1831 Diegem, Belgium |
| SUMITOMO BAKELITE (SUZHOU) CO., LTD. PHONE: 0512-67613850 (CHINA) | 140 Jinjihu Road, China-Singapore Suzhou Industrial Park, Suzhou, China, 215021 |
| SUMITOMO BAKELITE (TAIWAN) CO., LTD. PHONE: 07-787-1285 (TAIWAN) | No.1 Hwa Syi Road, Ta Fa Industrial District, Ta Liao, Kaohsiung, Taiwan |
| CHEMTREC PHONE: 800-424-9300 (USA) 24 hours EVERYDAY | |

2. COMPOSITION/INFORMATION ON INGREDIENTS

| COMPONENTS | (CAS NO.) | BY WEIGHT (%) |
|--------------|----------------|---------------|
| Epoxy Resin | (Trade secret) | 1 - 5 |
| Phenol Resin | (Trade secret) | 1 - 5 |
| Carbon Black | (1333-86-4) | 0.1 - 0.5 |
| Silica Fused | (60676-86-0) | 85 - 95 |

Labeling according to EC directives

Hazardous components: Epoxy Resin A ($\geq 1.0\%$, $< 2.5\%$)
EINECS No.: 500-033-5
Hazardous symbol: Xi (Irritant), Risk phrase: 43

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3. HAZARDS IDENTIFICATION

--- EMERGENCY OVERVIEW ---

Black tablet with slight antiseptic odor. Prolonged exposure may cause skin irritation. Self extinguishing and not ordinarily an emergency problem. Epoxy Resin is a substrate known to be positive by Ames test. Water, foam, carbon dioxide and dry chemicals can be used on fire.

POTENTIAL HEALTH EFFECTS:

- EYE : Solid or dusts may cause irritation or corneal injury due to mechanical action.
- SKIN : Prolonged exposure may cause skin irritation. A single, Prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
- INGESTION : Small amounts swallowed during normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.
- INHALATION : May cause bronchitis (SiO₂).

4. FIRST AID MEASURES

- EYE CONTACT : Flush affected eyes with large amount of water, also under the eyelids for at least 15 minutes. Get medical attention.
- SKIN CONTACT : Wash immediately with plenty of water or shower with soap.
If irritation occurs, get medical attention.
- INGESTION : Immediately give plenty of water. Get medical attention.
- INHALATION : Remove to fresh air in case of accidental inhalation of vapors or dusts.
Get medical attention.

NOTE TO PHYSICIANS

: Treat Symptomatically.

Treatment may vary with condition of victim and specifics of incident.

5. FIRE FIGHTING MEASURES

- EXTINGUISHING MEDIA : Suitable for water, foam, carbon dioxide or dry chemicals.
- FIRE FIGHTING EQUIPMENT : Wear full bunker gear including a positive pressure self contained breathing apparatus in any closed space.

6. ACCIDENTAL RELEASE MEASURES

- PERSONAL PRECAUTION : Use personal protective equipments. Avoid dust formation.
- ENVIRONMENTAL PRECAUTIONS : Do not flush into surface water or sanitary sewer system.
- METHODS FOR CLEANING UP : Clean contaminated surface thoroughly.

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7. HANDLING AND STORAGE

HANDLING : Avoid contact with eyes and skin, and avoid breathing dust or vapors. Provide appropriate exhaust ventilation at places where dust is formed.

STORAGE : Keep containers tightly closed in a cool, well-ventilated space.
Keep dry and cool below 5°C for quality.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

| COMPONENTS | EXPOSURE GUIDELINES (mg/m ³) | |
|--------------|--|------------|
| | ACGIH (TLV-TWA) | OSHA (PEL) |
| Silica Fused | 0.1 (Respirable) | 80 |
| Epoxy Resin | Not listed | Not listed |
| Phenol Resin | Not listed | Not listed |
| Carbon Black | 3.5 | 3.5 |

ENGINEERING MEASURES:

Ensure adequate ventilation, especially in confirmed areas.

PERSONAL PROTECTIVE EQUIPMENTS:

Respiratory protection - For most conditions, no respiratory protection should be needed; however, in dusty atmospheres or insufficient ventilation, wear a suitable respiratory equipment or NIOSH // OSHA approved respirator to protect from dust.

Hand protection - Impervious gloves (chemical-resistant gloves).

Eye protection - Safety glasses with side shields.

Skin and body protection - Chemical-resistant apron.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE : Black tablet with slight antiseptic odor.

pH : Not applicable

BOILING POINT : Not applicable

DECOMPOSITION TEMPERATURE : (Softening point) 75°C - 95°C

FLASH POINT : No information available.

AUTOIGNITION TEMPERATURE : No information available.

EXPLOSION PROPERTIES : No information available.

VAPOR PRESSURE : Not applicable

VAPOR DENSITY (AIR=1) : Not applicable

SPECIFIC GRAVITY : 1.8 - 2.2

SOLUBILITY IN WATER : Insoluble in water

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10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:

Stable under recommended storage condition.

CONDITIONS TO AVOID:

Keep away from heat, moisture and sunlight for quality.

MATERIALS TO AVOID:

Oxidizing agents, acids and alkali.

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon dioxide. Thermal decomposition can lead to release of irritating gases and vapors such as methane, ammonia, Phenol, carbon monoxide and hydrocarbon compounds.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY : Silica fused: oral-rat LD50: 3,160 mg/kg
Epoxy resin: oral-rat LD50: 11 g/kg

LOCAL EFFECTS : No information available.

SENSITIZATION : No information available.

CHRONIC TOXICITY : Potential carcinogen by IARC;
Silica fused: Group 3
Carbon black: Group 2B

12. ECOLOGICAL INFORMATION

MOBILITY : No data is available on product itself.

ECOTOXICITY : Waste water from subsequent processing should be given appropriate treatment in line with local regulations.

13. DISPOSAL INFORMATION

WASTE FROM RESIDUES:

Can burn in a chemical incinerator equipped with an afterburner and scrubber in compliance with government or local disposal regulations, also contaminated packaging do so.

14. TRANSPORT INFORMATION

Not a hazardous material for DOT (Department of transportation) shipping.

Not dangerous by any mode of international transport.

UN No.: None assigned.

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15. REGULATORY INFORMATION

TSCA (TOXIC SUBSTANCES CONTROL ACT):

The ingredients of this product are all on the 8(b) inventory list.

EINECS (EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES):

This product complies with the provisions of the European Inventory.

| | | |
|------------|--------------|---|
| EINECS No. | Silica Fused | 262-373-8 |
| | Phenol Resin | Monomers are all on the inventory list. |
| | Carbon Black | 215-609-9 |
| NLP No. | Epoxy Resin | 500-033-5 |

Labeling according to EC Directives:

| | |
|----------------|--|
| Hazard Symbol: | Xi-Irritant |
| Risk Phrase: | R43-May cause sensitization by skin contact. |
| Safety Phrase: | none |

16. OTHER INFORMATION

DISCLAIMER: The information present herein was prepared for your reference to be best of knowledge. It is given in good faith but no warranty expressed or implied is made.

DATA PREPARED BY: SUMITOMO BAKELITE CO., LTD.
QA DEPARTMENT, UTSUNOMIYA PLANT