SUMITOMO BAKELITE CO.,LTD.

SAFETY DATA SHEET

1. Product and company identification

Chemical description Epoxy Molding Compound

Name of the chemical **SUMIKON® EME-G631B Type D**

Other means of identification

SDS number P005745

Recommended use and Limitations on use

Recommended use For Semiconductors.

Limitations on use For industrial use only.

Name, address and telephone of manufacturer, importer or supplier

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2. Hazards identification

Hazard classification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

*Hazards not stated here are "Not classified", "Not applicable" or "Classification not possible".

Label elements

Symbols None.

Signal word None.

Hazard statement None.

Precautionary statement

Prevention Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.

Response IF exposed or concerned: Get medical advice/attention.

Storage Store in accordance with local/regional/national/international regulation.

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

Other hazards None known.

3. Composition/information on ingredients

Substance or mixture Mixture

Chemical properties	CAS Number	Concentration (%)
Epoxy Resin A	Trade Secret	1 - 5
Epoxy Resin B	Trade Secret	1 - 5
Phenol Resin	Trade Secret	5 - 10
Silica(Amorphous) A	60676-86-0	70 - 80
Silica(Amorphous) B	7631-86-9	5 - 10
Metal Hydroxide	Trade Secret	1 - 5
Carbon Black	1333-86-4	0.1 - 1

Composition comments The range of Concentration is greater than or equal to the lower limit but less than the upper limit. Disclosure of composition information is based on the interpretation of the Regulation of Labeling and Hazard Communication of Hazardous Chemicals.

4. First aid measures

First aid measures for different exposure routes

Inhalation Move to fresh air.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth.
Get medical attention if symptoms occur.

Most important symptoms and effects Irritation of eyes and mucous membranes. Dusts may irritate the respiratory tract, skin and eyes.

Personal protection for first-aid responders First aid personnel must wear protective gloves/protective clothing/eye protection/face protection.
IF exposed or concerned: Get medical advice/attention.
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Notes to physician Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Extinguishing media to avoid Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards during fire fighting Development of hazardous combustion gases or vapours possible in the event of fire.

Special fire fighting procedures Move containers from fire area if you can do so without risk.

Protection of fire-fighters Wear suitable protective equipment.
Use personal protective mask and fight fire from upwind, to avoid fumes upon combustion.

General fire hazards No unusual fire or explosion hazards noted.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

Spill cleanup methods

Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13.

7. Handling and storage

Handling

Technical measures	No specific recommendations.
Local and general ventilation	Provide appropriate exhaust ventilation at places where dust is formed.
Precautions	Minimise dust generation and accumulation.
Safe handling advice	Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Storage

Technical measures	No specific recommendations.
Suitable storage conditions	Keep container tightly closed. Store in a well-ventilated place. Guard against dust accumulation of this material. Store away from incompatible materials (see Section 10 of the SDS). Keep dry and cool below 5°C for quality.
Incompatible materials	Strong oxidising agents. For further information, please refer to section 10 of the SDS.
Safe packaging materials	Store in original tightly closed container.

8. Exposure controls/personal protection

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Occupational exposure limits

OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Components	Type	Value	Form
Carbon Black (CAS 1333-86-4)	TWA	3.5 mg/m3	
Metal Hydroxide	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Taiwan. OELs (Standards of Permissible Exposure Limits at Workplace, OSHA No. 10302007931), as amended

Components	Type	Value	Form
Carbon Black (CAS 1333-86-4)	STEL	7 mg/m3	
Metal Hydroxide	STEL	15 mg/m3	Total dust.
		10 mg/m3	Respirable dust.

Exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Carbon Black (CAS 1333-86-4)	TWA	3 mg/m3	Inhalable fraction.
Metal Hydroxide	TWA	1 mg/m3	Respirable fraction.

Biological limit values

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

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	For prolonged or repeated skin contact use suitable protective gloves. Use protective gloves as required.
Other	Use personal protective equipment as required.
Respiratory protection	Wear respirator with dust filter.
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.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Tablet. Powder.
Colour	Black.
Odour	Epoxy.
Odour threshold	Not available.
Melting point/freezing point	Not available.
pH	Not available.
Boiling point, initial boiling point, and boiling range	Not available.
Flammability (solid, gas)	Not available.
Flash point	Not available.
Decomposition temperature	Not available.
Auto-ignition temperature	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Evaporation rate	Not available.
Other data	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
Specific gravity	1.8 - 2.2

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials. Keep away from heat, moisture and sunlight for quality.
Incompatible materials	Strong oxidising agents. Strong acids, alkalies and oxidizing agents.
Hazardous decomposition products	Toxic gas.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system. Prolonged inhalation may be harmful.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Expected to be a low ingestion hazard.
Symptoms	Irritation of eyes and mucous membranes. Dusts may irritate the respiratory tract, skin and eyes

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Carbon Black (CAS 1333-86-4)		
Acute		
Oral		
LD50	Rat	> 8000 mg/kg *
Metal Hydroxide		
Acute		
Oral		
LD50	Rat	> 5000 mg/kg *
Silica(Amorphous) A (CAS 60676-86-0)		
Acute		
Oral		
LD50	Rat	> 22500 mg/kg *
Silica(Amorphous) B (CAS 7631-86-9)		
Acute		
Oral		
LD50	Rat	>= 22500 mg/kg

Routes of exposure	Inhalation. Skin contact. Eye contact.

Respiratory or skin sensitisation

Respiratory sensitisation	Not available.
Skin sensitisation	This product is not expected to cause skin sensitisation.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Risk of cancer cannot be excluded with prolonged exposure.

ACGIH Carcinogens

Carbon Black (CAS 1333-86-4)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Metal Hydroxide (CAS Trade Secret)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Carbon Black (CAS 1333-86-4)	2B Possibly carcinogenic to humans.
Silica(Amorphous) A (CAS 60676-86-0)	3 Not classifiable as to carcinogenicity to humans.

Silica(Amorphous) B (CAS 7631-86-9)	3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not available.
Chronic toxicity or long-term toxicity	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
Bioaccumulation	Not available.
Mobility in soil	No data available for this product.
Other hazardous effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal considerations

Residual waste	Dispose in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
Local disposal regulations	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Specific precautions	Keep cool below 5°C. Keep containers tightly closed. And avoid leaks, spills or collapse of cargo to avoid damage to containers.

15. Regulatory information

Applicable regulations	This safety data sheet was prepared in accordance with the Rules on Hazardous Communication of Dangerous Materials and Toxic Materials. All components are on the Taiwan's existing chemicals inventory list.

Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Not listed.

Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace

Carbon Black (CAS 1333-86-4)	Listed.
Metal Hydroxide (CAS Trade Secret)	Listed.

GHS Classification List: GHS implementation phase 1, 2 and 3 (CLA No. 0980145063, 0990146707, and 1020146801)

Carbon Black (CAS 1333-86-4)	CARBON BLACK (Priority Management Chemicals: Priority 2)

Regulation of Labeling and Hazard Communication of Dangerous and Toxic Substances: Dangerous Materials Classification

Not listed.

Regulation of Labeling and Hazard Communication of Dangerous and Toxic Substances: Toxic Materials Classification

Not listed.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto Protocol

Not applicable.

Basel Convention

Not applicable.

16. Other information

References

•ACGIH (2017)
•EPA: AQUIRE database
•NLM: Hazardous Substances Data Base
HSDB® - Hazardous Substances Data Bank
•IARC (vol. 1~117)
•Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
•Taiwan. OELs. (Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace)
•Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)
•Taiwan. CNS15030 Z1051: Classification and Labeling of Chemicals
•UN. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) ST/SG/AC.10/30/Rev.4
•Japan. GHS Classifications of Regulated Chemicals (NITE)

Disclaimer

SUMITOMO BAKELITE CO., LTD. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

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