

4. First aid measures

First aid measures for different exposure routes

Inhalation	If dust from the material is inhaled, remove the affected person immediately to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Rinse skin with water/shower.
Eye contact	Rinse with water.
Ingestion	If ingestion of a large amount does occur, call a poison control centre immediately.

Most important symptoms and effects Not available.

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.

Notes to physician Symptoms may be delayed.

5. Fire-fighting measures

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

Extinguishing media to avoid None known.

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

Special fire fighting procedures Cool containers exposed to flames with water until well after the fire is out.

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

6. Accidental release measures

Personal precautions Avoid inhalation of dust from the spilled material.
Wear a dust mask if dust is generated above exposure limits.

Environmental precautions Not available.

Spill cleanup methods If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product.
Sweep up or vacuum up spillage and collect in suitable container for disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. Avoid the generation of dusts during clean-up.
Following product recovery, flush area with water. For waste disposal, see section 13.

7. Handling and storage

Handling

Technical measures None known.

Local and general ventilation Provide adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed. In case of insufficient ventilation, wear suitable respiratory equipment.

Precautions Keep formation of airborne dusts to a minimum.
In case of insufficient ventilation, wear suitable respiratory equipment.

Safe handling advice Do not breathe dust.
Avoid contact with eyes.
Avoid prolonged exposure.

Storage

Technical measures Guard against dust accumulation of this material.

Suitable storage conditions Store in a well-ventilated place. Keep container tightly closed. Guard against dust accumulation of this material.
Keep dry and cool below 5°C for quality.

Safe packaging materials None known.

8. Exposure controls/personal protection

Exposure limits

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

Components	Type	Value
Carbon Black (CAS 1333-86-4)	TWA	3.5 mg/m3

Occupational exposure limits

US. ACGIH Threshold Limit Values

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

Engineering measures Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.
If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn.

Personal protective equipment

Respiratory protection Wear respirator with dust filter.

Hand protection Use protective gloves as required.

Eye protection Use tight fitting goggles if dust is generated.

Skin and body protection Use personal protective equipment as required.

Hygiene measures Do not breathe dust. Avoid contact with eyes. Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Tablet. Powder.

Colour Black.

Odour Epoxy.

Odour threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Boiling point, Initial boiling point, and boiling range Not available.

Flash point Not available.

Auto-ignition temperature Not available.

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapour pressure Not available.

Vapour density Not available.

Evaporation rate Not available.

Specific gravity 1.8 - 2.2

Relative density Not available.

Solubility Not available.

Partition coefficient (n-octanol/water)	Not available.
Decomposition temperature	Not available.

10. Stability and reactivity

Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Avoid spread of dust. Keep away from heat, moisture and sunlight for quality.
Incompatible materials	Strong acids, alkalies and oxidizing agents.
Hazardous decomposition products	No dangerous reaction known under conditions of normal use.

11. Toxicological information

Components	Test results
Carbon Black (1333-86-4)	Acute Oral LD50 Rat: > 8000 mg/kg
Silica(Amorphous) A (60676-86-0)	Acute Oral LD50 Rat: > 22500 mg/kg
Silica(Amorphous) B (7631-86-9)	Acute Oral LD50 Rat: >= 22500 mg/kg
Routes of exposure	Inhalation.
Symptoms	Not available.
Skin corrosion/irritation	Not available.
Serious eye damage/eye irritation	Dust in the eyes will cause irritation.
Respiratory sensitiser	Not available.
Skin sensitiser	Not available.
Germ cell mutagenicity	Not available.
Carcinogenicity	Risk of cancer cannot be excluded with prolonged exposure.
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.
Toxic to reproduction	Not available.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not available.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity	There are no data on the ecotoxicity of this product.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation	Not available.
Mobility in soil	Not available.
Other hazardous effects	Not available.

13. Disposal considerations

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

14. Transport information

IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.
Special transport precautions and conditions	Keep containers tightly closed. And take care leaks, spills or collapse of cargo, not to avoid damage of containers. Keep cool below 5°C.

15. Regulatory information

Applicable regulations	This material safety data sheet was prepared in accordance with the Rules on Hazardous Communication of Dangerous Materials and Toxic Materials. Additional information is given in the Safety Data Sheet.
Taiwan Hazard - Toxic Materials: Classification	
Silica(Amorphous) A (CAS 60676-86-0)	Other designated chemical
Silica(Amorphous) B (CAS 7631-86-9)	Other designated chemical

16. Other information

References	NLM: Hazardous Substances Data Base HSDB® - Hazardous Substances Data Bank IARC (vol. 1~100A) ACGIH (2011) 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.3 Japan. GHS Classifications of Regulated Chemicals (NITE)
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