

Material Safety Data Sheet

2006.07.25

1. Chemical Product and Company Identification

Product Name: Carbotex® Grade K-40UV

Chemical Name: Bisphenol A Polycarbonate / Poly (Bisphenol A Carbonate)

Manufacturer: Kotec Corporation

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2. Composition / Information on Ingredients

| Chemical / Mixture: | Content | CAS.No |
|---------------------|---------|--------------|
| Polycarbonate | ≥99.0% | 25971-63-5 |
| UV absorber | ≤0.5% | confidential |
| Anti-oxidant | ≤0.5% | confidential |

Chemical nature: solid pellets

Hazardous components: None

3. Hazards Identification

The most important hazards and effects: None

Skin contact: Essentially non-irritating to skin

Eye contact: Solid or powder may cause irritation by an abrasive action of solid or power.

Inhalation: This product under normal processing temperatures (280°C - 320°C) releases very little smoke, which has a very low irritation property. However, if the temperature exceeds 400°C, decomposition will occur rapidly and release of carbon monoxide occurred resulting in acute lethality.

Ingestion: Oral toxicity is very low.

Environmental effects: None

Physical and chemical hazards: Not applicable

Specific hazards: Not applicable

4. First Aid Measures

Skin contact: Flush skin with running water. For skin contact with fume condensation, immediately wash the affected area thoroughly with soap and water. For skin contact with molten plastic, immediately cool it with water and seek medical attention.

Eye contact: Immediately irrigate affected eye(s) with clean water for at least 15 minutes. Do not rub the eye(s) to prevent irritation and damages to cornea(s). If irritation develops or persists, obtain medical attention.

Inhalation: Remove a victim from the area to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention if any breathing difficulties persist.

Ingestion: Not a likely route of exposure. If swallowed, seek medical attention.

Note: Several thermal burns can result from a contact with molten resins immediately

5. Fire-Fighting Measures

Extinguishing media: Water spray, dry chemical, chemical foam and carbon dioxide

Hazardous Combustion Products: This product is a combustible thermoplastic, which will melt and drip when ignited and give off monomers and combustion products.

Fire Fighting: Firefighters should wear protective clothing and use self-contained breathing apparatus when fighting fire involving this material.

Explosive: This product is not explosive.

6. Accidental Release Measures

Personal precautions: Pellets spilled on a floor can create a slipping hazard.

Environmental precautions: This product is a stable organic thermoplastic and a hazardous polymerization will not occur.

Recovery: To prevent the danger of slipping or falling, sweep up or vacuum spilled materials and place them in a proper waste container for disposal.

7. Handling and Storage

Handling: Always wear recommended personal protective equipment. Wash thoroughly after handling. Launder contaminated clothing before reuse. Long retention at high temperature can cause heat decomposition. Spilled pellets on a floor can create a slipping hazard.

Prevention of user exposure: Gases generated in moulding process may cause irritation to skin and respiratory tract. Avoid dust or pellets in contact with eyes. Do not touch molten resins to prevent a burn.

Prevention of fire and explosion: This product will not ignite itself at normal temperature but keep fire away wherever and whenever possible.

Measures to prevent dust generation: Use local exhaust ventilation. Avoid breathing thermal processing fume vapor.

Storage: This product will not degrade during storage. While heating and/or cooling is not required, the resin should be stored indoor to protect it from rain or excessive moisture. At extended temperatures above 90°C the pellets can become softened and may stick in clumps upon cooling. Pellets should not be stacked more than three high. Periodically check storage for vertical stability and/or container damages or fatigues. Store resin in clean, dry environment in sealed containers. Avoid storing flammable materials in the resin storage area. Keep container tightly closed.

8. Exposure Controls / Personal Protection

Exposure limits: ACGIH – None listed

NIOSH – None listed

OSHA – None listed No OSHA vacated PELs are listed for this chemical.

Engineering controls: Thermal processing equipment should be ventilated to control gas and fume given off when the resin is heated to extrusion or injection molding temperatures. For most operations, a continuous supply of fresh air to the general workplace area along with the continuous removal of processing fume contaminated air through a local exhaust ventilation system will be adequate. However, the ventilation requirements must be determined on an individual basis for each workplace.

Eye protection: Wear safety glasses with side shields or chemical safety goggles as described by OSHA's eye and face protection regulations.

Skin and body Protection: None required in normal handling of pellets. When handling hot resins (extruded, air shots or parts), well-insulated gloves are to be worn to prevent a thermal burn.

Respiratory Protection: None required in normal handling of pellets. In handling of resins that may be reinforced with fiberglass, it may be necessary to wear a NIOSH / MSHA approved dust respirator if the airborne dust concentration is near or exceeds the nuisance dust.

Ingestion: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

9. Physical and Chemical Properties (SI unit)

Appearance: Pellets

Physical State: Solid

Odor: No odor

Glass Transition Point: Approximately 150°C (302 °F)

Flash Point: Over 550 °C (1,022 °F)

Freezing / Melting point: Not available

Boiling point: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation rate: Not available

pH: 7

Auto-ignition Temperature: Over 522 °C (972 °F)

Specific Gravity: 1.20 g/cm³ (20 / 4°C)

Solubility: Insoluble in water / Soluble in ethylene chloride / Soluble in tetrahydrofuran

Upper flame limit: Not available

Lower flame limit: Not available

10. Stability and Reactivity

Stability: Stable under normal temperatures and pressures.

Reactivity: Not reactive under recommended conditions of handling, storage, processing and use.

Conditions to avoid: Incompatible materials, dust generation, strong oxidants.

Incompatible materials: Strong oxidizing agents

Hazardous decomposition products: Carbon monoxide, carbon dioxide, bisphenol A, methane, and diphenyl carbonate and phenol derivatives. Irritating and toxic fumes, gas and carbon dioxide, acrid smoke and fume.

Hazardous Polymerization: Has not been reported

Flammability: Oxygen Index is over 25

Storage stability: Stable

Reactivity in water: None

Oxidizing property: None

Self-reactivity / Potential for explosion: None

11. Toxicological information

Acute inhalation: Processing fumes from similar materials are not considered toxic. There were no distinct or consistent treatment related tissue or organ changes noted in gross necropsies.

Acute toxicity: No data available

Sensitization and chronic toxicity: No data available

12. Ecological Information

This product, which is resistant to biodegradation and insoluble in water, is expected to present any ecologically significant problems and not considered degradable or toxic in terms of their physical impact. Pellets left at large (spills) in general environment may be ingested by animals. Do not dispose any of the material into marine/water area to prevent marine animals or birds from ingestion.

13. Disposal Considerations

Comply with all applicable national and local laws or regulations. Do not dispose into sewers, ground or body of water. Preferred options for disposal are recycle, incineration with energy recovery and landfill. Remove all packaging for recovery or waste disposal.

14. Transport Information

Comply with all applicable national and local laws or regulations. Avoid water and careless handling to prevent damage to the container. Watch your step not to slip in the event that pellets spill out of the torn container.

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| International regulations for transport: US DOT | - Not applicable |
| IMO | - Not applicable |
| IATA | - Not applicable |
| RID/ADR | - Not applicable |
| Canadian TDG | - Not applicable |

15. Regulatory Information

Comply with all national and local regulations.

16. Miscellaneous Information

Disclaimer: The information set forth herein is offered as a service to our customers and is not intended to relieve a customer from its responsibility to determine the suitability of this information or of the materials described herein for purchaser's purpose; to investigate other sources of information; to comply with all laws and procedures regarding safe use of these materials; and to use these materials in a safe manner. Although this information is believed to be accurate, Kotec Corporation specifically disclaims responsibility for any liability of any kind arising from any party's use of or reliance on information or recommendations set forth herein. No warranty of any kind shall be construed to arise by implication from any information or recommendation contained herein. This document may be revised by new knowledge.