

MATERIAL SAFETY DATA SHEET (MSDS)

Manufacturer: ZHEJIANG AOCI DECORATION MATERIALS CO., LTD.

Official Website: <https://www.zjaoci.com/>

Product Name: Polycarbonate Multi-wall Sheet

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Manufacturer / Supplier Details

Company Full Name: ZHEJIANG AOCI DECORATION MATERIALS CO., LTD.

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1.2 Product Identification & Description

Product Name: Polycarbonate Sheet

Structure: Hollow/solid structure

Base Polymer: Poly(bisphenol-A carbonate), CAS No.: 24936-68-3

Application Scope: Flat and curved daylighting roofing & enclosure glazing panels for construction

2. COMPOSITION / INFORMATION ON INGREDIENTS

This product is mainly composed of high-molecular-weight polycarbonate resin with compliant UV stabilizer additives. None of the constituent substances are classified as hazardous chemicals under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

3. HAZARDS IDENTIFICATION

3.1 Human Health Hazards

- 1. Eye Contact:** Fine PC debris generated during cutting and sanding may cause mechanical friction irritation and conjunctival scratches; fumes from molten material irritate ocular mucous membranes, leading to dryness and lacrimation.

2. **Skin Contact:** Solid sheet at ambient temperature causes no sensitization or corrosion; sharp sheet edges may result in physical lacerations. Contact with molten PC leads to severe high-temperature thermal burns.
3. **Ingestion:** No acute oral toxicity under normal conditions; minor accidental ingestion poses no significant health risks.
4. **Inhalation Risks:** Intact sheets present no inhalation hazards. Dust from sawing/sanding and fumes released during high-temperature processing irritate the respiratory tract. Prolonged excessive exposure may trigger headaches, nausea and sore throat; individuals with respiratory hypersensitivity or asthma will suffer aggravated symptoms.

3.2 Supplementary Notes on Processing Hazards

All thermoplastics release trace cracking fumes when heated to forming temperatures. The composition and concentration of fumes are directly affected by formulation additives, screw residence time, exhaust efficiency and processing temperature.

No confirmed cases of chronic poisoning have been recorded when processing strictly complies with the manufacturer's standard procedures with proper ventilation protection. Personnel with respiratory diseases or chemical hypersensitivity shall avoid prolonged close-range operation.

4. FIRST AID MEASURES

4.1 Eye Exposure to Debris or Processing Fumes

Immediately remove contact lenses. Flush eyes continuously with ample running clean water or medical normal saline for 20–30 minutes while rotating eyeballs up and down. Seek urgent ophthalmological medical care if persistent stinging, redness or blurred vision occurs.

4.2 Skin Lacerations from Solid Sheet Edges

Rinse the wound with clean water, disinfect with iodophor and dress if necessary. No neutralization treatment for chemical corrosion is required.

4.3 Thermal Burns from Molten Plastic

Cool the burned wound continuously with running cold water for over 15 minutes. Do not forcibly peel solidified plastic residues off the wound, and refrain from cleaning the wound with alcohol or organic solvents. Seek emergency treatment at a burn department after primary cooling.

4.4 Inhalation Irritation from Processing Fumes

Evacuate the processing workshop to an open area with fresh air and rest calmly.

Seek immediate medical attention in case of persistent coughing, chest tightness, dyspnea, dizziness or vomiting.

4.5 Accidental Ingestion

Induced vomiting is unnecessary. Drink plenty of warm water for dilution and consult a doctor in case of abdominal discomfort.

5. FIRE FIGHTING MEASURES

5.1 Personal Protective Equipment for Firefighting

All personnel entering the fire scene must wear full flame-retardant protective clothing and positive-pressure self-contained breathing apparatus (SCBA).

5.2 Combustion Characteristics of the Material

The sheet softens and melts under heat with high-viscosity molten mass, which will not spread fire along water flow.

5.3 Suitable Extinguishing Media

Water spray and foam extinguishing agents are preferred; water spray delivers optimal cooling and fume suppression performance.

Carbon dioxide and dry chemical powder extinguishers are not recommended: insufficient cooling capacity leads to high risk of re-ignition of hot material, while powder impairs visibility and contaminates equipment.

5.4 Hazardous Combustion Decomposition Products

Combustion generates massive heat, dense black smoke, carbon monoxide, carbon dioxide and trace aliphatic/aromatic hydrocarbon fragments. Carbon monoxide poisoning risk exists for combustion in confined spaces.

5.5 Flammability & Explosion Properties

- Ignition requirement: Sustained external open flame is required for ignition; combustion rate drops sharply once the flame source is removed.
- Mechanical impact sensitivity: No explosion risk upon mechanical impact.
- Static electricity hazard: Static discharge from sheets at ambient temperature cannot trigger deflagration.

6. ACCIDENTAL RELEASE MEASURES

This product is solid rigid sheet without liquid leakage risk. Disposal of offcuts and broken sheet debris:

Collect all materials with brooms or industrial vacuum cleaners and store in sealed plastic recycling bins. Intact sheets can be recycled for reproduction; broken waste shall be disposed of in accordance with solid waste regulations to prevent wind-blown dust pollution.

7. HANDLING AND STORAGE

7.1 Processing & Handling Control

1. Implement standardized industrial hygiene protocols in the workshop.
2. Local exhaust ventilation systems are mandatory at thermoforming, cutting and sanding stations to vent fumes and dust outdoors directly.
3. Avoid overheating and prolonged material residence during high-temperature processing to minimize cracking fume generation.

7.2 Storage Requirements

1. Physicochemical properties remain stable under normal dry ambient storage; no special low-temperature or light-shielding storage conditions are needed.
2. Do not stack sheets on wooden pallets excessively high to prevent sliding and crushing damage.
3. Keep away from open flames and high-temperature heating equipment; avoid long-term direct sunlight exposure which accelerates aging.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Engineering Control Measures

Forced exhaust and dust removal systems shall be equipped on thermal processing equipment, with regular pipeline dust cleaning to ensure sufficient air exchange at workstations.

8.2 Personal Protective Equipment (PPE) by Operation Scenarios

1. **Eye & Face Protection:** Safety goggles with side shields shall be worn throughout cutting, sanding and thermal processing; high-temperature processing is recommended to match with heat-resistant face shields.
2. **Respiratory Protection:** Maintain general mechanical ventilation in the workshop. When dust generated by sanding and sawing cannot be fully captured, wear dust respirators meeting KN95 or higher standards. Half-face dust-and-gas respirators are required for high-temperature operation in confined spaces.
3. **Hand Protection:** Wear wear-resistant rubber or nitrile protective gloves during

sheet handling and cutting to prevent lacerations from sharp edges; heat-insulating high-temperature gloves shall be added for thermal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Test Item	Specification & Remarks
Physical State	Solid rigid board
Appearance & Odour	Transparent/translucent plastic sheet with negligible irritating odour at ambient temperature
Boiling Point	Not applicable (high polymer without boiling point)
Melting Behaviour	No single sharp melting point; gradual softening over a wide temperature range
Vapour Pressure (mmHg)	Negligible, almost non-volatile at room temperature
Vapour Density (air=1)	Not applicable
Specific Gravity (water=1)	> 1.0
Water Solubility	Completely insoluble in water
Volatile Content	Extremely low, negligible
pH Value	Not applicable (non-aqueous system)
Odour Threshold	No established test data
Evaporation Rate	Negligible
Octanol-Water Partition	No available test data

Coefficient	
Flash Point	Not applicable (solid high polymer)
Lower & Upper Flammability Limits	No valid measured data
Estimated Autoignition Temperature	630 °C

10. STABILITY AND REACTIVITY

- 1. Chemical Stability:** Chemically stable under standard storage, ambient-temperature processing and normal service conditions with no spontaneous decomposition.
- 2. Hazardous Reactions to Avoid:** Prolonged contact with strong alkalis and strong organic solvents (methylene chloride, tetrahydrofuran, etc.) shall be avoided; coexistence with strong oxidants under high temperature accelerates decomposition. No hazardous reactions occur under regular usage.
- 3. High-Temperature Decomposition Products:** Trace fumes released at standard forming temperature contain phenol, alkylphenols and diarylcarbonates; over-temperature processing drastically increases the release of harmful substances.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity of base poly(bisphenol-A carbonate): Estimated LD₅₀ (rat) > 5 g/kg, classified as low-toxicity substance.
No authoritative positive test data confirming skin sensitization, reproductive toxicity or carcinogenicity of the product.

12. ECOLOGICAL INFORMATION

High-molecular-weight polycarbonate degrades slowly in ambient environments, with no precipitation of heavy metals or persistent toxic pollutants. Conventional waste disposal and recycling will not cause severe pollution to water bodies or soil. Disposal by random dumping into natural water bodies is prohibited.

13. DISPOSAL CONSIDERATIONS

- 1. Waste Classification Determination:** Not classified as hazardous waste per national hazardous waste catalogues.
- 2. Compliance Disposal Requirements:** Dispose of waste strictly in accordance with local solid waste and industrial scrap treatment regulations.

3. Resource Recycling: Clean offcuts and crushed scraps can be recycled and pelletized for reproduction of sheets or other plastic products. Contact the company's sales department for specific recycling solutions and cooperation channels.

14. TRANSPORT INFORMATION

This product is ordinary industrial plastic sheet, not classified as dangerous goods under UN TDG regulations and exempt from hazardous goods transport controls. Secure stacking and binding during transit to prevent breakage and dust generation; do not ship together with highly corrosive chemicals.

15. REGULATORY INFORMATION

1. EU Legislation: Classified as non-dangerous substance under Directives 67/548/EEC and 88/379/EEC (all amendments).
2. MSDS Compilation Standard: This document is prepared in compliance with EU Directive 91/155/EEC and its supplementary amendment 93/112/EC.
3. Domestic Adaptation Note: The framework is compatible with national standards GB/T 16483 and GB/T 17519 for China's chemical safety data sheets, suitable for domestic factory, customs and work safety inspection.

16. ADDITIONAL INFORMATION

1. This document serves only as operation guidance for safe handling, cutting and thermal processing of decorative sheets manufactured by ZHEJIANG AOI DECORATION MATERIALS CO., LTD. It is compiled based on existing industrial test data and production practical experience. It shall not replace full performance test reports covering mechanical properties, weather resistance, light transmittance and other indicators, nor act as a dedicated technical scheme for engineering material selection.
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