

MATERIAL SAFETY DATA SHEET

Sheffield Plastics Inc.

A  Bayer MaterialScience Company

Sheffield Plastics Inc.

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USA

1. Product and Company Identification

Product Name: Makrolon® AR Polycarbonate Sheet
Material Number: SH005369
Chemical Family: Thermoplastic Polymer Sheet
Chemical Name: Bisphenol A Polycarbonate

2. Hazards Identification

Emergency Overview

CAUTION! Color: tint **Form:** solid sheets **Odor:** slight.
Melted product is flammable and produces intense heat and dense smoke during burning. Irritating gases/fumes may be given off during burning or thermal decomposition. May cause mechanical irritation (abrasion). Contact with hot material will cause thermal burns.

Potential Health Effects

Primary Routes of Entry: Inhalation, Skin Contact, Eye Contact

Medical Conditions Aggravated by Exposure: Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Skin

Acute Skin

For Product: Makrolon® AR Polycarbonate Sheet
Contact with heated material can cause thermal burns.

Eye

Acute Eye

For Product: Makrolon® AR Polycarbonate Sheet
May cause mechanical irritation.

General Effects of Exposure

Material Name: Makrolon® AR Polycarbonate Sheet Article Number: SH005369

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Acute Effects of Exposure

For Product: Makrolon® AR Polycarbonate Sheet

Gases and fumes evolved during the thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract.

Chronic Effects of Exposure

For Product: Makrolon® AR Polycarbonate Sheet

Not expected to cause any adverse chronic health effects.

Carcinogenicity:

No Carcinogenic substances as defined by IARC, NTP and/or OSHA

Isopropanol

IARC - Overall evaluation: 1 Human carcinogen.

IARC - Overall evaluation: 3 Classification not possible from current data.

3. Composition/Information on Ingredients

Hazardous Components

The following potentially hazardous ingredient(s) are used to formulate this product. As supplied, the ingredient(s) are bound in the polymer matrix. Because they are bound in the matrix, they are not expected to create any unusual hazards when handled and processed according to good manufacturing and industrial hygiene practices and the guidelines provided in this MSDS.

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

Weight %

0.1 - 1%

Components

Isopropanol

CAS-No.

67-63-0

OTHER INGREDIENTS

Additional types of polycarbonate may be used as necessary to adjust the melt flow rate.

4. First Aid Measures

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water.

Skin Contact

In case of skin contact, wash affected areas with soap and water. Get medical attention if thermal burn occurs.

Inhalation

If inhaled, remove to fresh air.

Ingestion

Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical, carbon dioxide (CO₂)

Special Fire Fighting Procedures

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Dust may form explosive mixtures with air.

6. Accidental release measures

Spill and Leak Procedures

If molten, allow material to cool and place into an appropriate marked container for disposal.

7. Handling and Storage

Storage Temperature:

maximum: 93 °C (199.4 °F)

Storage Period

Not Established

Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust.

Further Info on Storage Conditions

Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

Isopropanol (67-63-0)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 200 ppm

US. ACGIH Threshold Limit Values

Short Term Exposure Limit (STEL): 400 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 400 ppm, 980 mg/m³

US. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Industrial Hygiene/Ventilation Measures

General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines, especially during cutting, grinding and high heat operations.

Respiratory Protection

Material Name: Makrolon® AR Polycarbonate Sheet

Article Number: SH005369

Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m³ - total dust, 5 mg/m³ - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m³ - respirable particles and 10 mg/m³ - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS).

Hand Protection

Wear heat resistant gloves when handling molten material.

Eye Protection

safety glasses with side-shields.

Skin and body protection

No special skin protection requirements during normal handling and use.

Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

9. Physical and chemical properties

Form:	solid
Appearance:	sheets
Color:	tint
Odor:	slight
pH:	not applicable
Melting Point:	220 - 230 °C (428 - 446 °F)
Boiling Point/Range:	not applicable
Flash Point:	> 450 °C (> 842 °F)
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	not applicable
Specific Gravity:	approximately 1.2
Solubility in Water:	Insoluble
Autoignition Temperature:	> 450 °C (> 842 °F)
Decomposition Temperature:	380 °C (716 °F)
Softening Point:	150 - 160 °C (302 - 320 °F)
Bulk Density:	38 - 42 lb/ft ³

10. Stability and Reactivity

Hazardous Reactions

Hazardous polymerization does not occur.

Stability

Stable

Materials to avoid

None known.

Conditions to avoid

None known.

Hazardous decomposition products

By Fire and Thermal Decomposition: Carbon Dioxide; Bisphenol A; Phenol; Carbonic Acid, Diphenyl Ester; Carbon monoxide, hydrocarbons, phenol derivatives

11. Toxicological Information

Toxicity Data for Isopropanol

Acute Oral Toxicity

LD50: 4,396 - 5,500 mg/kg (Rat)

Acute Inhalation Toxicity

LC50: 72.6 mg/l, 4 hrs (Rat)

Acute dermal toxicity

LD50: 12,800 mg/kg (Rat)

Skin Irritation

rabbit, Non-irritating

Eye Irritation

rabbit, Draize, Moderately irritating

Sensitization

dermal: non-sensitizer (Guinea pig, Buehler)

Repeated Dose Toxicity

90 Days, inhalation: NOAEL: 1500 ppm, (Rat)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Micronucleus Assay: negative (mouse)

Toxicity to Reproduction/Fertility

Two generation study, oral, daily, (Rat) NOAEL (F1): 500 mg/kg, NOAEL (F2): 500 mg/kg,

Developmental Toxicity/Teratogenicity

Rat, inhalation, daily, NOAEL (teratogenicity): 8,575 mg/kg,

12. Ecological Information

Ecological Data for Isopropanol

Acute and Prolonged Toxicity to Fish

11,830 mg/l (Fathead minnow (Pimephales promelas), 1 h)

11,160 mg/l (Fathead minnow (Pimephales promelas), 24 h)

13. Disposal considerations

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

14. Transportation information**Land transport (DOT)**

Non-Regulated

Sea transport (IMDG)

Non-Regulated

Air transport (ICAO/IATA)

Non-Regulated

15. Regulatory Information**United States Federal Regulations**

OSHA Hazcom Standard Rating: Non-Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):

Components

None

SARA Section 311/312 Hazard Categories:

Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):**

Components

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:**

Components

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes
and Appendix VIII Hazardous Constituents (40 CFR 261):**

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

The concentrations reported below in units of parts per million (ppm) or parts per billion (ppb) are maximum values.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Bisphenol A Polycarbonate	25971-63-5

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
0.1 - 1%	Propylene Glycol Methyl Ether	107-98-2
0.1 - 1%	Methanol	67-56-1
0.1 - 1%	Isopropanol	67-63-0
0.1 - 1%	1-Butanol	71-36-3

MA Right to Know Extraordinarily Hazardous Substance List:

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
3 ppm	Methylene Chloride	75-09-2

California Prop. 65:

Warning! This product contains chemical(s) known to the State of California to be Carcinogenic.

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
<3 ppm	Methylene Chloride	75-09-2

16. Other Information

HMIS Rating

Health	0
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

* = Chronic Health Hazard

The method of hazard communication for Sheffield Plastics Inc. is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Sheffield Plastics Inc. as a customer service.

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