Makrolon GP Material Safety Data Sheet

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1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Makrolon GP/OP
PRODUCT CODE.....: Non-coded
CHEMICAL FAMILY.....: Thermoplastic Polymer
CHEMICAL NAME.....: Bisphenol A Polycarbonate Sheet
FORMULA.....: Not applicable - polymeric material

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2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME
/CAS NUMBER EXPOSURE LIMITS CONCENTRATION (%)

***** HAZARDOUS INGREDIENTS *****

This product contains no hazardous ingredients as defined under the criteria of the Federal OSHA Hazard Communication standard 29 CFR 1910.1200.

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3. HAZARDS IDENTIFICATION:

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* EMERGENCY OVERVIEW *
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* CAUTION! Color: Tint; Form: Solid; Odor: Slight; Causes a *
* slipping hazard if spilled; Contact with hot material will *
* cause thermal burns; Toxic gases/fumes are given off during *
* burning or thermal decomposition; Melted product is *
* flammable and produces intense heat and dense smoke during *
* burning. *
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3. HAZARDS IDENTIFICATION (Continued)

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Eye Contact

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE EFFECTS OF EXPOSURE.....: Material is a non-reactive solid. Mechanical irritation (i.e. abrasion) to the eyes may occur due to exposure to fines. Eyes may become red and scratchy and may tear. NOTE: Gases and fumes evolved during the thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract. At recommended processing conditions, the primary fume constituents evolved are water, carbon dioxide (CO2), diphenyl carbonate, and monochlorobenzene.
CHRONIC EFFECTS OF EXPOSURE...: None known

CARCINOGENICITY
NTP.....: Not listed as a carcinogen
IARC.....: Not listed as a carcinogen
OSHA.....: Not listed as a carcinogen

MEDICAL CONDITIONS
AGGRAVATED BY EXPOSURE.....: None known
EXPOSURE LIMITS.....: For product fines, the OSHA-PEL for nuisance dust of 15 mg/m3 total dust, 5 mg/m3 respirable dust is recommended. In addition, the ACGIH-TLV for Particulates Not Otherwise Classified (PNOC) of 10 mg/m3 is recommended. Observe a more stringent limit for product fines if applicable. Refer to section 2 for any other applicable exposure limits.

At temperatures above decomposition (716 F (380 C)), phenol and other chemicals listed in the hazardous decomposition products can be generated. (See section 10) Care should be taken to observe the exposure limits and minimize exposure to these components if the product is heated to the decomposition temperature. The ACGIH-TLV and OSHA-PEL for phenol is 5 ppm-TWA

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: Flush eyes with plenty of lukewarm water. See a physician or ophthalmologist for followup if irritation is present and persists.
FIRST AID FOR SKIN.....: Wash affected areas with soap and water. See a physician if thermal burn occurs.
FIRST AID FOR INHALATION: Move to an area free from risk of further exposure. Give oxygen or artificial respiration as needed (to be administered by authorized medical personnel only.) Obtain medical attention.

4. FIRST AID MEASURES (Continued)

FIRST AID FOR INGESTION.: If material is ingested, do not induce vomiting. Contact a physician.

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5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Above 842 F (450 C) ASTM D-1929B
FLAMMABLE LIMITS:
UPPER EXPLOSIVE LIMIT (UEL)(%): Not established
LOWER EXPLOSIVE LIMIT (LEL)(%): Not established
AUTO-IGNITION TEMPERATURE.....: Above 842 F (450 C) ASTM D-1929B
EXTINGUISHING MEDIA.....: Water; Carbon Dioxide; Dry Chemical; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Full emergency equipment with self-contained breathing apparatus must be worn by firefighters.
UNUSUAL FIRE / EXPLOSION HAZARDS: During a fire, irritating and toxic gases and aerosols may be generated by thermal decomposition and combustion (see Section 10). Dust from flaked material or secondary operations (regrinding, etc.) may form explosive mixtures in air. Vent storage bins, conveyors, dust collectors, etc. (See Section 7.)

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6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: If molten material is spilled, allow it to solidify. Remove material mechanically by a method which minimizes the generation of airborne dust and place in appropriately marked containers.

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7. HANDLING and STORAGE:

STORAGE TEMPERATURE(MIN/MAX): Max 200 F (93 C)
SHELF LIFE.....: Not established
SPECIAL SENSITIVITY.....: Moisture
HANDLING/STORAGE PRECAUTIONS: When handling flaked material or during secondary operations, vent storage bins, conveyors, dust collectors, etc. Ground handling equipment. Keep open flames, sparks and heat away from dusty areas. Maintain highest standards of housekeeping to prevent accumulation of dust.
OTHER NOTES.....: Material should be stored in a clean, dry environment in sealed containers. Material must be dried before processing.

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8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Safety glasses are recommended as a good industrial hygiene and safety practice.
SKIN PROTECTION REQUIREMENTS.....: None required but fabric gloves are recommended when handling molten material.
VENTILATION REQUIREMENTS.....: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (If indicated in Section 2 or 3). Local mechanical exhaust ventilation should be used at sources of air contamination, such as open process equipment, or during purging operations, to capture gases and fumes that may be emitted. Standard reference sources regarding industrial ventilation (i.e. ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation. In the event of thermal decomposition from overheating the product (decomposition begins at 716 F (380)), evacuate the work area, shut down equipment, and provide general ventilation to the room prior to reoccupying.
RESPIRATOR REQUIREMENTS.....: NIOSH/MSHA-approved dust respirator recommended if the airborne dust concentration is near or exceeds the nuisance dust exposure limits.
ADDITIONAL PROTECTIVE MEASURES.....: The greatest potential for injury occurs when working with molten polymeric resins, such as during a purge of a molding machine, extruder and the like. During this type of operation it is essential that all workers in the immediate area wear eye protection and skin protection (sleeves, gloves, etc.) as protection from thermal burns. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling. Precautions should be taken against auto-ignition of hot, thick masses of the plastic. Quench with water. Grinder dust is an exposure hazard.

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9. PHYSICAL and CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Solid
COLOR.....: Tint
ODOR.....: Slight
pH.....: Not applicable
BOILING POINT.....: Not applicable
MELTING/FREEZING POINT....: 428-446 F (220-230 C)
SOFTENING POINT.....: 302-320 F (150-160 C)
SOLUBILITY IN WATER.....: Insoluble
SPECIFIC GRAVITY.....: Approx. 1.2
BULK DENSITY.....: 38-42 lb/cuft
% VOLATILE BY VOLUME.....: Negligible
EVAPORATION RATE.....: Not applicable (Butyl acetate = 1)
VAPOR PRESSURE.....: Not applicable
VAPOR DENSITY.....: Not applicable (Air = 1)

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10. STABILITY and REACTIVITY:

STABILITY.....: This is a stable material
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: None known
INSTABILITY CONDITIONS.....: None known
DECOMPOSITION TEMPERATURE..: Begins at 716 F (380 C)
DECOMPOSITION PRODUCTS.....: By fire or thermal decomposition: Carbon monoxide (CO), carbon dioxide (CO2), Bisphenol A, diphenyl carbonate, phenol and phenol derivatives. Traces of aliphatic and aromatic hydrocarbons, aldehydes and acids may also be formed.

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11. TOXICOLOGICAL INFORMATION:

TOXICITY DATA FOR: Bisphenol A Polycarbonate
ACUTE TOXICITY
OTHER ACUTE EFFECTS: Gases and fumes evolved during thermal decomposition of similar products have caused respiratory irritation in mice.*

* Toxicologic evaluation of thermoplastic resins at and above processing temperature, G.K. Sangha, M. Matijak and Y. Alarie, Department of Industrial Environmental Health Sciences, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA, 15216, AIHA Journal (42), July 1981.

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12. ECOLOGICAL INFORMATION:

NO ECOLOGICAL INFORMATION AVAILABLE

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13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Material may be incinerated or landfilled in compliance with federal, state and local environmental control regulations.

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14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Bisphenol A Polycarbonate
FREIGHT CLASS BULK.....: Plastic Materials, Sheets

14. TRANSPORTATION INFORMATION (Continued)

FREIGHT CLASS PACKAGE.....: Plastic Materials, O/T Exp., Sheets
PRODUCT LABEL.....: GP 379 or GP 381

DOT (DOMESTIC SURFACE)

HAZARD CLASS OR DIVISION .....: Non-Regulated

IMO / IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Section 3.
CERCLA REPORTABLE QUANTITY..: None reported
SARA TITLE III:
SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES:
None
SECTION 311/312
HAZARD CATEGORIES.....: Non-hazardous under Section 311/312
SECTION 313 TOXIC CHEMICALS:
None
RCRA STATUS.....: 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)

CHEMICAL INVENTORY LIST(S)

UNITED STATES TSCA STATUS...: On TSCA Inventory

15. REGULATORY INFORMATION (Continued)

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.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Bisphenol A Polycarbonate 25971-63-5	>1.0%	NJ4, PA3
Bisphenol A Polycarbonate NJTSRN (31765300002)-8136P	as needed	NJ4, PA3
Residual Methylene Chloride 75-09-2	< 3 ppm	CA1, MA1

CA1 = This chemical is known to the state of California to cause cancer.
MA1 = Massachusetts Hazardous Substance List
NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
NJTSRN = New Jersey Trade Secret Registry Number
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

Additional types of polycarbonate covered by New Jersey Trade Secret Registry Number 31765300002-8136P may be used as necessary to adjust the melt flow rate.

16. OTHER INFORMATION:

HMIS RATINGS:	Health	Flammability	Reactivity
	0	1	0

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

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Established Product Code.
PREPARED BY.....: Shannon Simpson
APPROVED BY.....: J. H. Chapman
APPROVAL DATE.....: 12/09/2002
SUPERSEDES DATE.....: None
MSDS NUMBER.....: 47162

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