

SAFETY DATA SHEET



1. Identification

Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300
INTERNATIONAL: (703) 527-3887

NON-TRANSPORTATION

Emergency Phone: Call Chemtrec
Information Phone: (844) 646-0545

Product Name: MAKROFOL LM228 2-4 160005 GLOSS/FINE MATTE
Material Number: NATURAL
Chemical Family: 84991938
Use: Polycarbonate film
Film for the production of plastic articles

2. Hazards Identification

GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

3. Composition/Information on Ingredients

Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA's Hazard Communication Standard 2024 (29 CFR 1910.1200).

4. First Aid Measures

Most Important Symptom(s)/Effect(s)

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Acute: Contact with heated material can cause thermal burns., Vapors released from thermal decomposition may cause irritation with symptoms of burning and tearing., Gases and fumes evolved during the thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract.

Eye Contact

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

Skin Contact

Cool melted product on skin with plenty of water. Do not remove solidified product. Get medical attention if thermal burn occurs.

Inhalation

Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.

Ingestion

Get medical attention.

5. Firefighting Measures

Suitable Extinguishing Media: Water fog, Dry chemical, Carbon dioxide (CO₂), Foam

Unsuitable Extinguishing Media: High Pressure Water Streams

Fire Fighting Procedure

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

Hazardous Decomposition Products

By Fire and Thermal Decomposition: Phenol Carbon oxides, Hazardous decomposition products due to incomplete combustion

Unusual Fire/Explosion Hazards

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust: fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.

6. Accidental Release Measures

Spill and Leak Procedures

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

7. Handling and Storage

Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust

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does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

Storage Period:

None.

Storage Temperature

Maximum: 49 °C (120.2 °F)

Storage Conditions

Containers should be tightly closed to prevent contamination with foreign materials and moisture.

Substances to Avoid

None known.

8. Exposure Controls/Personal Protection

The recommendations in this section should not be a substitute for a personal protective equipment (PPE) assessment performed by the employer as required by 29 CFR 1910 Subpart I.

Exposure Limits

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

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

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

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

Ensure gloves remain in good condition during use and replace if any deterioration is observed. Wear heat resistant gloves when handling molten material.

Eye Protection

Safety glasses with side-shields

Skin 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.

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9. Physical and Chemical Properties

Physical state:	solid
Appearance:	film
Color:	tint
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	not applicable
Melting Point:	220 - 230 °C (428 - 446 °F)
Boiling Point:	No Data Available
Flash Point:	No Data Available
Evaporation Rate:	No Data Available
Flammability:	No Data Available
Lower explosion limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	ca. 1.2 g/cm ³ @ 20 °C (68 °F) (DIN 53479)
Relative Vapor Density:	No Data Available
Specific Gravity:	No Data Available
Solubility in Water:	insoluble
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	> 450 °C (842 °F)
Decomposition Temperature:	>= 380 °C (716 °F) Fumes evolved by overheating during improperly processing or by burning may be injurious to health.
Unblocking Temperature:	No Data Available
Softening point:	150 - 160 °C (302 - 320 °F)
Dynamic Viscosity:	not applicable
Kinematic Viscosity:	No Data Available
Bulk Density:	No Data Available
Molecular Weight:	No Data Available
Particle characteristics:	No Data Available

10. Stability and Reactivity

Hazardous Reactions

Hazardous polymerisation does not occur.

Stability

Stable

Materials to Avoid

None known.

Conditions to Avoid

Generation of dust clouds.

Hazardous Decomposition Products

By Fire and Thermal Decomposition: Phenol; Carbon oxides, Hazardous decomposition products due to

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incomplete combustion

11. Toxicological Information

Likely Routes of Exposure:
Inhalation
Skin Contact
Eye Contact

Health Effects and Symptoms

Acute: Contact with heated material can cause thermal burns., Vapors released from thermal decomposition may cause irritation with symptoms of burning and tearing., Gases and fumes evolved during the thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract.

Toxicity Data for: MAKROFOL LM228 2-4 160005 GLOSS/FINE MATTE NATURAL

No data available for this product.

Carcinogenicity:

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

12. Ecological Information

Ecological Data for: MAKROFOL LM228 2-4 160005 GLOSS/FINE MATTE NATURAL

No data available for this product.

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

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US. Toxic Substances Control Act: Excluded: Article.

SNUR Components

No substances are subject to Section 5 Significant New Use Rule (SNUR) requirements.

Section 6 Risk Management Components:

No substances are subject to Section 6 Risk Management rule requirement.

Section 12b Components:

No substances are subject to TSCA 12(b) export notification requirements.

Section 4 Test Order/Rule Components:

No substances are subject to Section 4 Final Test Orders or Rules.

Consent Order:

No substances are subject to Section 5 Consent Order requirements.

US. EPA CERCLA Hazardous Substances (40 CFR 302.4) Components:

None

SARA Section 311/312 Hazard Categories:

Refer to hazard classification information in Section 2.

**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):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

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 SDS 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>Concentration</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Bisphenol A Polycarbonate	25971-63-5
>=1%	Bisphenol A Polycarbonate	CAS# is a trade secret
>=1%	Bisphenol A Polycarbonate	CAS# is a trade secret
>=1%	Acrylate Polymer	CAS# is a trade secret

Massachusetts Right to Know Extraordinarily Hazardous Substance List:

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

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California Proposition 65 List:

<u>Concentration</u>	<u>Components</u>	<u>CAS-No.</u>
<=3 ppm	Methylene Chloride	75-09-2
Trace element	Bisphenol A	80-05-7

CFATS (Chemical Facility Anti-Terrorism Standards) Chemicals

To the best of our knowledge, this product does not contain Appendix A Chemicals of Interest (COI), at or above the Screening Threshold Quantity (STQ), as defined by the Department of Homeland Security Chemical Facility Anti-terrorism Standard (CFATS, 6 CFR Part 27).

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

16. Other Information

The method of hazard communication for Covestro LLC is comprised of product labels and safety data sheets. Safety data sheets for all of our products and general product declarations are available for download at www.productsafetyfirst.covestro.com.

Contact: Product Safety Department
Telephone: (412) 413-2835
Version Date: 10/31/2025
SDS Version: 2.6

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|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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