

1. Product and Company Identification

Products: Mirel™ bioplastics

Resin Grades: 4000 Series Sheet Extrusion Grades

Product Use: A thermoplastic with various applications

Manufacturer/Supplier: Telles, LLC, 650 Suffolk Street, Suite 100, Lowell, MA 01854-3639 USA

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Emergency Phone Number:

CHEMTREC

Domestic North America +1.800.424.9300

International +1.703.527.3887 (collect calls accepted)

2. Hazards Identification

Emergency Overview

May cause physical irritation. Avoid dust formation and spills.

Appearance: Off-white pellets

Potential Health Effects

Skin: May cause skin irritation. Under normal processing conditions, material is heated to elevated temperatures; contact with the molten material may cause thermal burns.

Eyes: Contact with eyes may cause physical irritation.

Ingestion: May be harmful if swallowed.

NFPA Rating: Not determined

Labeling: Not applicable

Mirel bioplastics are not considered hazardous according to OSHA 29 CFR 1910, EC Directives 67/548/EEC or 1999/45/EC, and their valid adaptations and derived national regulations.

3. Composition

Consists of a proprietary blend of polyhydroxyalkanoate (PHA) base polymer, additives, and mineral fillers.

4. First Aid Measures

Inhalation: *Heating resin above recommended processing conditions or 200°C (392°F) will produce toxic fumes.* Move person to fresh air. Call a physician. Give artificial respiration if not breathing.

Skin Contact: Wash off with soap and water. After contact with hot polymer, cool skin rapidly with cold water. Call a physician.

Eyes: Contact with eyes may cause physical irritation. Flush eyes with water. Call a physician.

Ingestion: Rinse mouth with water. Do not induce vomiting without medical advice. Call a physician.

5. Fire and Explosion Data

Flammable Properties

Flash Point: Not determined

Ignition Temperature: Not determined

Suitable Extinguishing Media: Water spray, carbon dioxide (CO₂), dry chemical powder, appropriate foam

Hazardous Combustion Products: When exposed to heat or fire, the polymer can decompose and form noxious and toxic fumes, including carbon dioxide, carbon monoxide and crotonic acid.

Special Protective Equipment for Firefighters:

Wear self-contained breathing apparatus and protective clothing.

Explosion Data for PHA Resins: Fines or dust generated from Mirel 4000 Series Sheet Extrusion Grade resins, when suspended in air in sufficient concentrations, can present an explosion hazard from either an ignition source or electrostatic discharge originating from the dust itself.

6. Accidental Release Measures

Ventilate area well. Wear appropriate personal protective equipment (see section 8). Resin spills should be swept up and placed into a suitable container for disposal.

7. Handling and Storage

Precautions for safe handling: Good industrial practices in housekeeping and personal hygiene should be followed. Minimize dust. Maintain operating temperatures below recommended processing temperatures at all times. Avoid contact with molten material and provide adequate ventilation during processing.

Conditions for Storage: Mirel resins have good storage stability, but extremes of temperature and humidity should be avoided. The maximum recommended shelf life is 2 years. Resin should be stored in original shipping package. Keep the resin dry and sealed to prevent moisture. Store at between 18°C and 27°C (65°F–80°F).

When mechanical energy is used to process or transfer the materials, fines and/or dust can be generated. Systems and procedures should be designed to minimize the generation and accumulation of dust from the handling and processing of PHA resin.

8. Exposure Controls / Personal Protection

Exposure Limits: None have been established.

Engineering Controls: Provide good general ventilation. Also, provide adequate local ventilation where the hot polymer may reside for long periods, such as in leak areas, above the nozzle or die, in screen changers, in vent ports, etc.

Heating resin above recommended processing conditions or 200°C (392°F) will produce toxic fumes.

Personal Protective Equipment

Eye Protection: Use safety glasses with side shields or goggles.

Skin Protection: Hot polymer can cause thermal burns. Wear impervious clothing. Wear insulated gloves when near molten polymer, if needed.

Respiratory Protection: May be harmful if inhaled. Heating above 200°C (392°F) will produce toxic fumes, including crotonic acid, a strong respiratory irritant. If the potential for exposure to dust or toxic fumes exists, wear an approved air-purifying respirator.

9. Physical and Chemical Properties

Appearance: Off-white pellets

Odor: Mild

Odor Threshold: Not detectable

pH: Not applicable

Molecular Weight: Approx. >100,000 (by GPC)

Melting Point: 100°C–190°C (212°F–374°F)

Boiling Point: Not applicable

Decomposition Temperature: Above 200°C (392°F)

Flash Point: Not determined

Ignition Temperature: Not determined

Evaporation Rate: Not determined

Vapor Pressure: Not determined

Vapor Density: Not determined

Density: 1.4 g/cm³ (0.05 lb/in³)

Solubility in Water: Negligible

Solubility in Solvents: Soluble in chloroform, methylene chloride, N-Methylpyrrolidone

10. Stability and Reactivity

Chemical Stability: Stable under recommended storage conditions. See section 7.

Adverse Conditions: Avoid excessive heat, flames, ignition sources, and incompatibles. Temperatures above 200°C (392°F) will result in polymer degradation and the release of harmful vapors.

Incompatible Materials: Strong oxidizing agents, strong acids

Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, crotonic acid

Hazardous Polymerization: None will occur.

11. Toxicological Information

FDA status pending notification.

12. Environmental Information

Mirel base resin has the following certifications for biodegradability:

BPI-certified to meet U.S. standard for compostable plastics that will compost satisfactorily in municipal and industrial aerobic composting facilities according to ASTM D6400.

Vinçotte-certified as “OK Biodegradable Water” for natural freshwater environments.

Vinçotte-certified as “OK Biodegradable Soil” for natural soil environments.

Vinçotte-certified as “OK Compost” for biodegradability in industrial composting units to meet E.U. standard for compostable plastics according to EN 13432 / EN 14995.

Vinçotte-certified as “OK Compost Home” for biodegradability in a home composting systems.

Meets the U.S. standard for non-floating biodegradable plastics in a marine environments according to ASTM D7081.

13. Disposal Considerations

There are no special requirements. Observe all federal, state and local environmental regulations. Non-hazardous, biobased, and biodegradable, Mirel bioplastic resin is not designed to biodegrade in conventional landfills and is not part of the conventional plastics recycling stream.

14. Transport Information

Standard DOT regulations apply.

15. Regulatory Information

Mirel bioplastics are not considered hazardous according to OSHA 29 CFR 1910, EC Directives 67/548/EEC or 1999/45/EC, and their valid adaptations and derived national regulations.

16. Other Information

See section 2.

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