

POLYPROPYLENE MODIFIER MASTERBATCH (ALL GRADES)

Section 1 - Product and Company Identification

Material Name: Polypropylene Modifier Masterbatch
(all grades including MA 00929 PP-SC, and MA 1040 PP-SC)

Synonyms: PP Process Aid Masterbatch, PP Masterbatch

Chemical Name: Homopolymer Polypropylene with Hydrocarbon Resin

Chemical Family: Polymer

Material Use: Thermoplastic masterbatch compound for use in production of biaxial oriented or cast polypropylene films.

Chemical Formula: $-(CH_2)-(\underset{\text{CH}_3}{\text{CH}})-$ plus proprietary hydrogenated hydrocarbon resin

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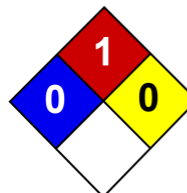
prepared/ revised by: R. Samplonius

Section 2 - Hazards Identification

Product Form: clear solid pellets having minimal odour

Emergency Overview:

CAUTION! Dusts and released vapours may be irritating to the eyes, skin or respiratory system. Contact with molten material may cause serious thermal burns. Accumulated fine dusts may form explosive air-dust mixtures. Spilled product may create a dangerous slipping hazard. Keep released pellets away from storm sewers and from entry into other aquatic systems. Under fire conditions, product will readily burn and emit irritating smoke.



Health	0
Fire	1
Physical Hazard	0
Personal Protection	B

NFPA and HMIS® Ratings: See graphics. Wear safety glasses. Wear gloves especially when handling molten material.

Potential Health Effects: Eyes

Contact with powder or fines may cause mechanical irritation. Contact with hot or molten material may cause severe injury, including possible blindness. Product emits acrid smoke when heated to decomposition.

Potential Health Effects: Skin

Contact with powder or fines may cause mechanical irritation which is increase by rubbing or if skin is dry. Contact with hot or molten material may cause severe thermal burns.

Potential Health Effects: Ingestion

Ingestion may produce mild gastrointestinal irritation and disturbances.

Potential Health Effects: Inhalation

Inhalation of fine particles may cause respiratory irritation. Thermal processing fumes may cause irritation, pulmonary oedema and a possible asthma-like response.

Section 3 - Composition/Information on Ingredients

CAS#	Component	Percent by Wt.
9003-07-0	Polypropylene	35 to 45
Not Available	Hydrogenated Hydrocarbon Resin	45 to 65
Not Available	Antioxidant	<1

Additional Information:

This product consists of a polypropylene homopolymer compounded with a proprietary hydrogenated hydrocarbon resin product. The hydrogenated hydrocarbon resin may be described as styrene, alpha methyl styrene polymer hydrogenated (CAS# 68441-37-2) or styrene polymer, hydrogenated (CAS# 68441-35-0) or a similar hydrogenated aromatic polymer.

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This product is NOT hazardous under 29 CFR 1910.1200 (Hazard Communication).

This material is NOT a controlled product under Canadian WHMIS regulations.

This material is NOT REGULATED as a hazardous material or as dangerous goods for transportation.

Section 4 – First Aid Measures

First Aid: Eyes

Remove contact lenses, if it can be done safely. Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention if symptoms develop or persist. Seek medical treatment for burns to the eye.

First Aid: Skin

In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product, or molten product that has cooled, from skin without medical assistance.

In case of contact with cool material, remove dusty or contaminated clothing and shoes. Wash affected area with soap and water. Seek medical attention if symptoms develop or persist.

First Aid: Inhalation

Move affected individual to non-contaminated air. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Seek immediate medical attention if the individual is not breathing, is unconscious or if any other symptoms persist. Inhalation of smoke following a fire may result in delayed pulmonary oedema; seek immediate medical attention.

First Aid: Ingestion

Material is not expected to be absorbed from the gastrointestinal tract. DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention if symptoms develop.

First Aid: Notes to Physician

After adequate first aid, no further treatment is necessary, unless symptoms reappear. Burns should be treated as thermal burns. Molten resin will come off as healing occurs; therefore, immediate removal from the skin is not necessary. Treatment should be directed at the control of symptoms and the clinical condition of the patient. Ingested material should pass through the digestive system without injury.

Section 5 - Fire Fighting Measures

See Section 9: Physical Properties for flammability limits, flash point and auto-ignition information.

General Fire Hazards

Solid resins support combustion but do not meet combustible definition. Product will burn at high temperatures but is not considered flammable. Under fire conditions, product will readily burn and emit irritating smoke. A high concentration of airborne powders or dust may form an explosive mixture with air.

Explosion Hazards

Accumulated fine dusts may form an explosive mixture with air. Risk of dust-air explosion is increased if flammable vapours are also present. The product may accumulate hazardous static charge.

Hazardous Combustion Products

Upon heating, polypropylene may emit various oligomers, waxes and oxygenated hydrocarbons as well as carbon dioxide, carbon monoxide and small amounts of other organic vapours (e.g. aldehydes, acrolein). Inhalation of these decomposition products may be hazardous.

Extinguishing Media

Water fog or water spray. In the case of small fires, dry chemical or carbon dioxide or foam can be used. Avoid high pressure, direct water stream that may spread molten or burning resins.

Fire Fighting Equipment/Instructions

Position personnel upwind. Keep unnecessary personnel away. Move containers from fire area if you can do so without risk. Fight fire from maximum distance or use unmanned holders or monitor nozzles. Fire fighters should wear full-face, self-contained breathing apparatus and full turnout gear. Avoid inhaling any smoke and combustion materials. Remove and clean or dispose of any contaminated clothing. Cool containers with flooding quantities of

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water until well after the fire is out. Control runoff waters to prevent entry into sewers, drains, ditches, underground or confined spaces and waterways.

Section 6 - Accidental Release Measures

Evacuation Procedures

Isolate area. Keep unnecessary personnel away. Alert stand-by emergency and fire fighting personnel.

Spills

Stop leak, isolate and contain spill. Prevent entry into sewers, drains, ditches, underground or confined spaces, water intakes and waterways. Spilled product may create a dangerous slipping hazard. Use appropriate tools to put the spilled solid in an appropriate disposal or recovery container. Reuse or recycle where possible.

Special Procedures

Contact local police/emergency services and appropriate emergency telephone numbers provided in Section 1. Ensure that statutory and regulatory reporting requirements in the applicable jurisdiction are met. Wear appropriate protective equipment and clothing during cleanup. Individuals without appropriate protective equipment should be excluded from area of spill until cleanup has been completed.

See Section 8 for recommended Personal Protective Equipment and see Section 13 for waste disposal considerations.

Section 7 - Handling and Storage

Handling Procedures

Handle in contained and properly designed equipment systems. Avoid ingestion and inhalation. Keep away from uncontrolled heat and incompatible materials. Ground all material handling and transfer equipment to dissipate build-up of static electricity. Keep handling areas free of loose pellets, powders and dust build-up. Every effort should be made to prevent the accumulation of powders or fine dusts around material handling systems. Accumulated powders or fine dusts may form explosive air-dust mixtures. For additional information on control of static and minimizing potential dust and fire hazards, refer to NFPA-654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2006 Edition". Spilled product may create a dangerous slipping hazard.

Storage Procedures

Storage area should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store product in closed, grounded and properly designed vessels, away from uncontrolled heat and incompatible materials. Outdoor storage of product of this product must be avoided. Avoid accumulation of dust by frequent cleaning and suitable construction of storage and handling areas. Keep shovels and vacuum systems readily available for cleanup of loose material. DO NOT enter bulk containers.

See Section 8 for appropriate Personal Protective Equipment, and see Section 10 for information on Incompatibilities.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines**A: General Product Information**

Refer to published exposure limits - use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are in close proximity to work locations.

B: Component Exposure Limits

ACGIH, OSHA, NIOSH, EPA, Alberta, and Ontario exposure limit lists have been checked for major components listed with CAS registry numbers. Other exposure limits may apply, check with proper authorities.

Polypropylene (9003-07-0)

ACGIH: 10 mg/m³ TWA (total inhalable particles, recommended); 3 mg/m³ TWA (respirable particles, recommended) (related to Particulates (insoluble or poorly soluble) not otherwise specified (PNOS))
OSHA: 15 mg/m³ TWA (total dust); 5mg/m³ TWA (respirable fraction) (related to Nuisance particulates)
Alberta: 10 mg/m³ TWA (total); 3 mg/m³ TWA (respirable) (related to Particulate Not Otherwise Regulated)

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Ontario: 10 mg/m³ TWA (inhalable fraction); 3 mg/m³ TWA (respirable fraction) (related to Particles (Insoluble or Poorly Soluble) Not Otherwise Specified (PNOS))

Hydrogenated Hydrocarbon Resin

Exposure limits have not been established. It is recommended that the exposure limits for polypropylene be used.

ENGINEERING CONTROLS

Engineering methods to reduce hazardous exposure are preferred controls. Methods include mechanical ventilation (dilution and local exhaust) process or personal enclosure, remote and automated operation, control of process conditions, leak detection and repair systems, and other process modifications. Ensure all exhaust ventilation systems are discharged to outdoors, away from air intakes and ignition sources. Supply sufficient replacement air to make up for air removed by exhaust systems. Administrative (procedure) controls and use of personal protective equipment may also be required.

PERSONAL PROTECTIVE EQUIPMENT**Personal Protective Equipment: Eyes/Face**

Wear safety glasses during normal handling. Wear full-face shield during thermal processing if contact with molten material is likely.

Personal Protective Equipment: Skin/Hands/Feet

Wear thermal insulating gloves and other protective clothing (such as long sleeved shirts and long pants) whenever molten material is present. Safety footwear with good traction is recommended to help prevent slipping. Static Dissipative (SD) rated footwear is recommended.

Personal Protective Equipment: Respiratory

If engineering controls and ventilation are not sufficient to prevent build-up of aerosols, vapours or dusts, appropriate NIOSH approved air-purifying respirators or self-contained breathing apparatus (SCBA) appropriate for exposure potential should be used. Air-supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

Personal Protective Equipment: General

Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain, and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.

Section 9 - Physical & Chemical Properties

Physical State and Appearance:	Solid, pellets, or granular powder	Colour:	Clear
Odour & Odour Threshold:	No distinct odour, threshold N/A	pH:	Not applicable
Vapour Pressure:	Not applicable	Vapour Density at 0°C (Air=1):	Not applicable
Boiling Point:	No data	Melting Point:	Range 120 to 155°C (248 to 311°F)
Solubility (H ₂ O):	Insoluble	Specific Gravity (Water=1):	Range: 0.88 to 0.92
Evaporation Rate (n-Butyl Acetate = 1):	Not applicable	Octanol/H ₂ O Coefficient:	No data
Decomposition Temperature:	Varies: >300°C (>572°F)	Softening Point:	Range: 110°C to 130°C (230°F to 266°F)
Auto Ignition:	Range: 330°C to 410°C (630° F to 770° F)	Flash Point:	>200°C (>392°F)
Flash Point Method:	Seta flash closed cup	Upper Flammable Limit (U FL):	Not applicable
Lower Flammable Limit (LFL):	Not applicable	Flammability Classification:	Not flammable

Section 10 - Stability & Reactivity Information**Chemical Stability**

This product is stable under normal use conditions for shock, vibration, pressure, or temperature.

Chemical Stability: Conditions to Avoid

Avoid strong oxidizing agents. Avoid processing material over 300°C (572°F).

Incompatibility

This product may react with strong oxidizing agents. Organic solvents, ether, gasoline, lubricating oils, chlorinated hydrocarbons and aromatic hydrocarbons may react with and degrade polypropylene. Powders or dusts may form an explosive mixture with air. Risk of dust-air explosion is increased if flammable vapours are also present.

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Possibility of Hazardous Reactions or Hazardous Polymerization

Hazardous polymerization of this product is not likely to occur.

Corrosivity

Not corrosive to the common metals.

Hazardous Decomposition

Upon heating, polypropylene may emit various oligomers, waxes and oxygenated hydrocarbons as well as carbon dioxide, carbon monoxide and small amounts of other organic vapours (e.g. aldehydes, acrolein). Inhalation of these decomposition products may be hazardous.

Section 11 - Toxicological Information

A: Acute Toxicity - General Product Information

The product is considered essentially inert and non-toxic. Exposures to high levels of dust or heated fumes may cause irritation and possible pulmonary oedema. Contact with molten material may cause severe thermal burns. There is no available animal toxicity information for the product; however there are studies for the raw materials used. The product is expected to present a lesser degree of hazard since the hazardous components are incorporated in a polymer matrix.

B: Acute Toxicity - LD50/LC50**Polypropylene (9003-07-0)**

Oral LD50 >5g/kg, Dermal LD50 >2g/kg, Inhalation LC50 not available

Hydrogenated Hydrocarbon Resin: information available on request

Chronic Toxicity - General Product Information

Product has minimal chronic toxicity. Most dust particles are large and non-respirable. There are no known or reported reproductive or genetic effects. The product is expected to present a lesser degree of hazard since any trace hazardous components are incorporated in a polymer matrix.

Chronic Toxicity - Carcinogenic Effects

ACGIH, EPA, IARC, OS HA, and NTP carcinogen lists have been checked for selected similar materials or those components with CAS registry numbers. No component of this product at levels greater than 0.1% is identified as a carcinogen.

Section 12 - Ecological Information

Product Information

The product is an essentially biologically inert solid and considered non-toxic to the aquatic environment. It is stable (does not decompose) in landfills or in aquatic systems.

Component Analysis – Eco toxicity - Aquatic/Terrestrial Toxicity

No components with known or anticipated eco toxicity.

Environmental Fate/Mobility

If released into watercourses, most pellets float. Pellets are persistent in aquatic and terrestrial systems. Product should be recovered from water and land following spills. This product has not been found to migrate through soils.

Persistence/Degradability

Product does not readily degrade. Under optimal oxidation conditions, >99% of polypropylene will remain intact after exposure to microbial actions. Product will slowly change (becomes brittle) in the presence of sunlight, but will not breakdown. Product buried in landfill has been found to be stable over time. No toxic degradation products known to be produced.

Bioaccumulation/Accumulation

Pellets may accumulate in the digestive systems of birds and aquatic life, causing injury and possible death due to starvation.

POLYPROPYLENE MODIFIER MASTERBATCH (ALL GRADES)**Section 13 - Disposal Considerations****U.S./Canadian Waste Information****A: General Product Information**

This product is not known to generate hazardous wastes according to US and Canadian regulations. The use, mixing or processing of this product may alter its properties or hazards. Check federal, provincial/state and local environmental regulations prior to disposal. Preferred disposal methods for polymers in order of preference are: 1) clean and reuse if possible, 2) recover and resell through plastic recyclers or resin brokers, 3) incinerate with waste heat recovery and 4) landfill. Reuse, recycling, storing, transportation and disposal must be in accordance with applicable federal, provincial/state and local regulations. DO NOT ATTEMPT TO DISPOSE OF BY UNCONTROLLED INCINERATION. Open burning of plastics at landfills should not be undertaken.

See Section 7 - Handling and Storage and Section 8 - Exposure Controls / Personal Protection for additional handling information that may be applicable for safe handling and protection of employees.

Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Section 14 - Transportation Information**US DOT Information**

Shipping Name: NOT REGULATED as a Hazardous Material for Transportation.

Canadian TDG Information

Shipping Name: NOT REGULATED as Dangerous Goods for Transportation.

International Air Transport Association (IATA) & International Civil Aviation Organization (ICAO) Information

Shipping Name: NOT REGULATED as Dangerous Goods for Transportation.

International Maritime Dangerous Goods (IMDG) Code

Shipping Name: NOT REGULATED as Dangerous Goods for Transportation.

Section 15 - Regulatory Information**A: International Regulations****Component Analysis - International Inventory Status**

Component	CAS #	US - TSCA	CANADA - DSL	EU - EINECS
Polypropylene (homopolymer)	9003-07-0	Yes	Yes	Exempt
Hydrogenated Hydrocarbon Resin	N/A	Yes	Yes	Exempt

B: USA Federal & State Regulations

Ongoing occupational hygiene, medical surveillance programs, site emission or spill reporting may be required by Federal or State regulations. Check for applicable regulations.

The EPA Storm Water Regulations classify resin pellets as "significant materials". Prevent pellets from entering drains, ditches or waterways. Site emission reporting may be required. Check applicable regulations.

USA OSHA Hazard Communication Class

According to 29 CFR 1910.1200 (Hazard Communication), polypropylene polymer product are not hazardous.

USA Right-to-Know - Federal

None of the components appear on federal hazardous substances lists, i.e. SARA 313.

USA Right-to-Know - State

None of the components appear on one or more of the state hazardous substances lists. Some components (including those present only in trace quantities, and therefore not listed in this document) may be included on the Right-To-Know lists of other U.S. states.

California Proposition 65

This product does not contain any chemicals known in the State of California to cause cancer, birth defects, or any other reproductive harm.

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C: Canadian Regulations - Federal and Provincial

Canadian Environmental Protection Act (CEPA): All components of this product are on the Domestic Substances List (DSL) and are acceptable for use under the provisions of CEPA.

WHMIS Classification

Workplace Hazardous Materials Information System (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and the MSDS contains all the information required by the CPR.

NOT CONTROLLED under WHMIS.

Other Regulations

Ongoing occupational hygiene, medical surveillance programs, site emission or spill reporting may be required by Federal or Provincial regulations. Check for applicable regulations.

Section 16 - Other Information

Label Requirements

This product has been evaluated and does not require any hazard warning on the label under established regulatory criteria.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Transport of Dangerous Goods by Road; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; BOD = Biochemical Oxygen Demand, CAS = Chemical Abstracts Service; CEPA = Canadian Environmental Protection Act; CERCLA = Comprehensive Environmental Response Compensation, and Liability Act; CFR = Code of Federal Regulations; CPR = Controlled Products Regulations; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EC50 = Effective Concentration 50%; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EPA = Environmental Protection Agency; EU = European Union; FDA = Food and Drug Administration; GHS = Globally Harmonized System for the Classification and Labelling of Chemicals; HCS = Hazard Communication Standard; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; ICAO = International Civil Aviation Organization; IDL = Ingredient Disclosure List; IDLH = Immediately Dangerous to Life or Health; IMDG = International Maritime Dangerous Goods; IMO = International Maritime Organization; ISHL = Industrial Safety and Health Law; Kow = Octanol/water partition coefficient; LC50 = Lethal Concentration 50%; LD50 = Lethal Dose 50%; LEL = Lower Explosive Limit; LFL = Lower Flammable Limit; LLV = Level Limit Ceiling Limit (Sweden dust); MAK = Maximum Concentration Value in the Workplace; MITI = Ministry of International Trade and Industry; MSDS = Material Safety Data Sheet; NAB = Threshold Values (Indonesia); NCEC = National Chemical Emergency Centre; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OEL = Occupational Exposure Limit; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; PNOC = Particulates Not Otherwise Classified; PPE = Personal Protective Equipment; PRTR = Designated Chemical Substance Law (Japan); PSD = Short Term Exposure Limit (Indonesia); RCRA = Resource Conservation and Recovery Act; REACH = Registration, Evaluation, Authorisation and Restriction of Chemical Substances; REL = Recommended Exposure Limit; RID = Transport of Dangerous Goods by Rail; SARA = Superfund Amendments and Reauthorization Act; SCBA = Self Contained Breathing Apparatus; SDS = Safety Data Sheet; SEPA = State Environmental Protection Administration; STEL = Short Term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average; UEL = Upper Explosive Limit; UFL = Upper Flammable Limit; WHMIS = Workplace Hazardous Materials Information Systems

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