

1. Chemicals and corporate identity

Product: Biodegradable Blown Film Masterbatch

Brand: GPM3 M60

Recommended Use: For industrial production, mainly used in blown film field.

Manufacturer:

Company Name: Shandong Rui'an Biotechnology Co.

Office Tel: 0537-8771958

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Address: New Material Park, Huji Town, Jinxiang County, Jining City, Shandong Province, China

2. Hazard Overview

Pure substance classification: According to GHS standards, this product does not need to be classified.

Labeling elements and warning statements: According to GHS standards, this product does not require a hazard warning label.

Summary of emergency conditions: In general, there are no known hazards. Irritating and/or toxic gases can be released under specific operating parameters, such as high temperatures.

Other hazards but not to the point of being categorized as such: see assessment results in Chapters 11, 12.

3. Information on ingredients and composition

Chemical properties: blown film masterbatch

| Composition | CAS NO. | Typical Value |
|------------------|------------|---------------|
| PBAT | 55231-08-8 | ≤40% |
| Talcum Carbonate | 471-34-1 | ≥60% |

4. First aid measures

GENERAL ADVICE: Avoid contact with skin, eyes and clothing. Remove contaminated clothing.

Skin contact: After burns from molten material quickly flush with plenty of water or immerse, wrap in clean cotton and gauze, then seek medical attention.

EYE CONTACT: If eyes are touched, flush immediately with large amounts of water for 15 minutes or more. If irritation persists or worsens, seek medical attention.

Inhalation: If you feel unwell after inhaling the dust, move to fresh air. If breathing is difficult, perform mouth-to-mouth CPR and seek medical attention.

Ingestion: Rinse mouth immediately, then drink 200-300 ml of water, do not induce vomiting, seek medical attention.

Doctor's Notes.

Symptoms/(further) symptoms and/or effects not yet known

Harm/No harm expected.

TREATMENT: Symptomatic (remove dirt, watch vital signs), no specific antidote.

5. Fire fighting measures

Extinguishing media: water spray, foam, dry powder, carbon dioxide.

Extinguishing media not applicable for safety reasons: Straight water spray.

FIRE FIGHTING PROCEDURES: Keep personnel evacuated and keep fire upwind. Wear self-contained breathing valves.

SPECIAL HAZARDS: Carbon Monoxide, Carbon Dioxide, Tetrahydrofuran (THF), Aldehydes Fumes/Smoke, Carbon Black, Hazardous Vapors.

Other decomposition and oxidation products depending on fire conditions. Trace amounts of other toxic substances may be generated under special fire conditions.

Further information: Dispose of fire debris and contaminated fire water in accordance with official regulations.

6. Emergency Response to Leakage

Personal precautions: Avoid inhalation. Keep away from ignition sources.

ENVIRONMENTAL CONTAMINATION PREVENTION: No special protective measures required.

Cleanup or Collection Methods:

Bulk: Sweep/shovel

Residue: Sweep/Eradicate

Dispose of absorbed material in accordance with regulations.

ADDITIONAL INSTRUCTIONS (INFORMATION): Product leakage/spillage is a high slip hazard.

7. Operational Disposal and Storage

Handling: Processing equipment must be fitted with local exhaust ventilation. Special care should be taken when working in the discharge system, e.g. at nozzles and molds, in the screen change area, at the drain, etc., as some hazardous substances may accumulate as residues in the discharge system, to avoid the formation and deposition of dust. Avoid generating static electricity. Avoid contact with other molten polymers. Operation should meet the requirements of industrial hygiene and safety practices.

Fire and Explosion Protection: Avoid formation of dust. Dust can form explosive mixtures with air. Provide exhaust ventilation. When milling (crushing) product, observe dust explosion rules.

Storage: Place in a clean, dry, dust-free environment to ensure that the product is clean in its original packaging. It should be protected from direct sunlight, high temperatures/humidity and contact with soil. Storage with other substances, especially hazardous substances, should be avoided. Eliminate all sources of ignition: heat, sparks, open flames.

STORAGE STABILITY: Storage stability is good, with a shelf life of 1 year at an ambient temperature of 23 °C. Modified resin should be stored in the original bag, in order to avoid the resin become moist, should keep the bag sealed, storage temperature does not exceed 60 °C.

Storage containers: carbon steel, high density polyethylene, low density polyethylene, polypropylene, aluminum foil and so on.

8. Exposure control and individual protection

If well ventilated, it can be assumed that threshold values will not be reached.

Tetrahydrofuran (THF), 109-99-9.

TWA Value: 50 ppm (ACGIHTLV)

STEL value: 100 ppm (ACGIHTLV)

TWA value: 300 mg/m³ (OEL (CN))

Skin indication: (ACGIHTLV)

Skin Absorption Hazard

1,4-Butanediol (BDO) 110-63-4.

Personal protective measures:

Respiratory protection: use respiratory protection, e.g. wear a mask with a particle filter, if dust formation occurs

Protection of hands: When handling hot molten substances (EN 407) (e.g. textiles or leather), additional heat-resistant gloves are required.

Eye protection: Bilateral safety glasses with frames (framed goggles)

Body protection: Body protection must be selected according to the activity and possible exposure areas, e.g. aprons, protective boots, chemical protection clothing

General Safety and Health Measures: Avoid molten materials Avoid inhalation of dust/fumes/vapors. Eyewash springs and safety showers should be located nearby. Operations should meet the requirements of industrial hygiene and safety practices. Closed coveralls are recommended. Do not eat, drink or smoke during use. Hands and face should be washed before leaving work or taking a nap. Skin should be cleansed and skin care products used after work.

9. Physical and chemical properties

Shape: granule

Color: beige or pure white

Odor: Slight odor, product specific

Olfactory threshold: not applicable

PH value: substance insoluble in water

Melting range: 110-140°C

Boiling range: cannot be measured due to decomposition of substance

Flash point: Not applicable

Evaporation rate: Not applicable

Flammability (solid/liquid): not highly flammable

Lower explosion limit: According to the analysis of product composition and structure, there will not be any danger under general usage

Upper explosion limit: According to the analysis of product composition and structure, there will not be any danger under the general use condition

Combustion temperature: >400°C

Thermal decomposition: >280°C

Spontaneous combustion: no spontaneous combustion

Radioactivity: non-radioactive

Vapor pressure: the product is a non-volatile solid

Relative vapor density (air): not applicable, the product is non-volatile solid

Water solubility: insoluble

Effective solvents: chloroform, dichloromethane, N-methylpyrrolidone, etc.

Molecular weight: >100,000 (GPC)

Other information: If necessary, other physical and chemical property parameters will be presented here later.

10. Stability and reactivity

Chemical Stability: Good stability under recommended storage conditions.

Prohibited substances: strong acids, strong bases, strong oxides

Thermal decomposition: >280°C, prevent excessive temperatures during processing.

Corrosivity: non-corrosive to metals.

Possible decomposition products: under prolonged and/or high temperature conditions, dangerous decomposition products may be generated, such as carbon monoxide, aldehydes, tetrahydrofurans, small molecular weight oligomers, etc. Complete combustion produces carbon dioxide and water vapor.

Hazardous reactions: No hazardous reactions when stored and handled according to regulations/instructions.

11. Toxicological Information

Acute Toxicity: Practically non-toxic in single skin contact. Practically non-toxic by inhalation.

Practically non-toxic by single ingestion.

Irritation: Non-irritating to eyes. Non-irritating to skin.

Respiratory/Skin Sensitization: Chemical structure indicates no sensitizing effect.

Germ Cell Mutagenicity: The chemical structure does not show specific caution for this effect.

Carcinogenicity: The chemical structure does not exhibit specific warnings for this effect.

Reproductive toxicity: The chemical structure does not exhibit specific warnings for this effect.

Developmental toxicity: the chemical structure does not exhibit specific vigilance for this effect.

Specific target organ system toxicity (single exposure): Based on the available information, there is no specific target organ toxicity for a single exposure.

Repeated dose toxicity and specific target organ system toxicity (repeated exposure): Repeated dermal absorption of the substance has not resulted in substance-related effects. Repeated inhalation of the substance did not result in substance-related effects. Repeated oral ingestion of the substance did not result in substance-related effects.

Inhalation Hazard: No inhalation injury is anticipated.

Other relevant toxicity information: testing as needed

12. Ecological information

Degradability: Fully biodegradable under certain conditions e.g. in soil over a limited period of time, generally not ecotoxic. Not to be discharged into streams, ponds, lakes or sewers where the rate of biodegradation is prolonged.

AQUATIC TOXICITY EVALUATION: Product is likely not acutely hazardous to aquatic organisms. product has not been tested. This statement is based on the structure of the product.

Soil organisms: no adverse effects at the highest concentration tested

Terrestrial plants: no adverse effects at the highest concentration tested

Mobility: Adsorption to solid soil phases is not expected.

Bioaccumulation: No significant bioaccumulation effects.

OTHER ECOTOXICITY RECOMMENDATIONS: The product has not been tested. This ecotoxicity statement has been introduced by other products with similar structure and components.

ADDITIONAL NOTE (INFORMATION): To the best of our knowledge, no adverse ecological effects are anticipated.

13. Disposal

No special requirements. Comply with national, provincial and local environmental regulations. The best disposal methods are (1) recycling, (2) landfill, and (3) incineration. Although GPM3 M60 is fully biodegradable, method (1) is a good choice.

14. Transportation Information

Not classified as a hazardous material under railroad regulations

Not classified as a hazardous material according to road transportation regulations

Not classified as hazardous according to inland waterway transportation regulations

Not classified as hazardous according to sea transportation regulations

Not classified as hazardous according to air transportation regulations

15. Regulatory Information

OTHER REGULATIONS: If regulatory information applicable to this product is not provided elsewhere in this MSDS, it is described in this section.

This MSDS has been prepared in accordance with the General Principles for Classification and Hazard Communication of Chemicals, Safety Technical Instructions for Chemicals.

Depending on the field of application of this product, national laws and standards must be observed.

16. Other Information

The information provided in this Material Safety Data Sheet is correct as of the date of its release. The information provided is intended only as a guide to safe handling, use, processing, storage, transportation, disposal, and release, and is not to be considered a warranty or quality specification. The information relates only to the specific material specified and may not be valid for use with any other material or in any process unless specified in the text.