Safety Data sheet (SDS)

Revision Date: 2016-1-1 NO.MDI_0029
Name: WANNATE PM-200 Version: 2.0

Material Safety Datasheet

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: Wannate PM-200

Additional Name: Polymeric MDI (PMDI)\ Polymethylene polyphenylene isocyanate

Manufacturer: Wanhua Chemical Group Co., LTD

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Recommended uses:

Component of a Polyurethane System

Section 2 - HAZARDS IDENTIFICATION

Important hazards:

GHS Classification:

SKIN CORROSION/IRRITATION - Category 2

SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2

RESPIRATORY SENSITIZATION - Category 1

SKIN SENSITIZATION - Category 1

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)- Category 3

SPECIFIC TARGET ORGAN TOXICITY (Repeated EXPOSURE) - Category 2

Symbols:

Signal Words:

Danger

Hazard Statements:

Harmful if inhaled.

Causes skin irritation.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

May cause respiratory irritation.

Precautionary Statements:

Prevention:

Wear protective gloves. In case of inadequate ventilation wear respiratory protection. Use only outdoors or in a well-ventilated area. Avoid breathing vapour. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace

Response:

IF ON SKIN: Take off contaminated clothing and wash before reuse. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Wash hands after handling.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Storage:

Store locked up. Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures.

Disposal:

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Important symptoms:

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS number	EC number	REACH Registration number	Concentration
polymeric MDI	9016-87-9	N/A	In accordance with Article 2 (9) of REACH polymers should be exempted from the general obligation to register.	50-70%

4,4'-methylenediphenyl diisocyanate	101-68-8	202-966-0	01-2119457014-47-0005	30-50%

Section 4 - FIRST AID MEASURES

Eye

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Check for and remove any contact lenses. Get medical attention immediately.

Skin

After contact with skin, wash immediately with plenty of warm soapy water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-TamTM, PEG-400) or corn oil may be more effective than soap and water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhaled

Harmful if inhaled. May cause respiratory irritation. This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitised persons.

LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.

Swallowed

No specific data.

Protection of first-aiders

Use proper personal protective equipment as indicated in Section 8.

Notes to an attending physician:

Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

Section 5 - FIRE FIGHTING MEASURES

Suitable extinguishing media

Foam, CO2 or dry powder.

Specific hazards

In a fire or if heated, a pressure increase will occur and the container may burst.

Specific extinguishing methods

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. PVC boots, gloves, safety helmet and protective clothing should be worn.

Precautions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation.

Protective equipment

Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment

Emergency procedures

Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach the release from upwind.

If the product is in its solid form: Spilled MDI flakes should be picked up carefully. The area should be vacuum cleaned to remove remaining dust particles completely.

If the product is in its liquid form: Absorb spillages onto sand, earth or any suitable adsorbent material. Leave to react for at least 30 minutes. Do not absorb onto sawdust or other combustible materials. Shovel into open-top drums for further decontamination. Wash the spillage area with water. Test atmosphere for MDI vapour. Neutralise small spillages with decontaminant. Remove and dispose of residues. The compositions of liquid decontaminants are given in Section 16. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Secondary disaster prevention measures

Section 7 - HANDLING AND STORAGE

For handling:

Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Atmospheric concentrations should be minimised and

kept as low as reasonably practicable below the occupational exposure limit. The efficiency of the ventilation system must be monitored regularly because of the possibility of blockage. Wear appropriate respirator when ventilation is inadequate. When the product is sprayed or heated, suitable respiratory protection equipment with positive air supply is required. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. A basic essential in sampling, handling and storage is the prevention of contact with water. Empty containers retain product residue and can be hazardous. Do not reuse container. Keep equipment clean. Keep stocks of decontaminant readily available.

For storage:

Store in accordance with local regulations. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.Unsuitable containers: copper, copper alloy and galvanised surfaces

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit values

Diphenylmethane 4,4'- diisocyanate	**GBZ-2 (China, 4/2007).** PC-TWA: 0.05 mg/m³ 8 hour(s). PC-STEL: 0.1 mg/m³ 15 minute(s).

Engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Diisocyanates can only be smelled if the occupational exposure limit has been exceeded considerably.

Personal protective equipment

Eye protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hand protection

Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms.Examples of glove materials that might provide suitable protection include :Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated (“EVAL”), Polychloroprene (Neoprene*), Nitrile/butadiene rubber (“nitrile”or “NBR”), Polyvinyl chloride (“PVC”or “vinyl”), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection

class of 5 or higher (breakthrough time greater then 240 minutes according to EN374) is recommended. When only brief contact is expected, a glove with protection class of 3 or higher
(breakthrough time greater than 60 minutes according to EN374) is recommended.
Contaminated gloves should be decontaminated and disposed of.
Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier. Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.
Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US).
Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers. Additional information can be found for instance at www.gisbau.de.

Skin and body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance Viscous. Liquid

Colour: Dark brown.

Physical data

Odour: musty

pH: Not applicable.

Melting point/freezing point:

Boling Point (℃): >204(decomposes) decomposes before boiling

Flash point(℃): >230 ° C

Explosive limits: Not available.

Vapor Pressure: 10-4 mm Hg at 40 ° C

Saturated vapor pressure (mmHg):

Relative Vapor Density:

Relative Density (water=1): 1.220～1.250 at 25 ° C

Solubility: insoluble in water.

Coefficient of Oil/Water Distribution (Partition Coefficient): Not available.

Auto-ignition temperature: Not available.

Decomposition temperature (℃): >300

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

Chemical Stability:

Stable at room temperature.

Conditions to Avoid:

Avoid high temperatures，Avoid high temperatures.

Incompatible materials:

Water, alcohols, amines, bases, and acids.

Hazardous Decomposition Products:

Combustion products may include: carbon oxides (CO, CO_2) nitrogen oxides (NO, NO_2 etc.) hydrocarbons and HCN.

Possibility of Hazardous Reactions:

Reaction with water (moisture) produces CO2-gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.

Section 11 - TOXICOLOGICAL INFORMATION

Acute toxicity:

Product/ingredient name	Result	Species	Dose	Exposure
Diphenylmethane 4,4'- diisocyanate	LD50 Dermal	Rabbit	9400 mg/kg	-
	LD50 Oral	Rat	2000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	2.24 mg/L	1 hour

Skin irritation/corrosion:

Adverse symptoms may include the following:

irritation

redness

Eye damage/irritation:

Causes eye irritation.

Respiratory or skin sensitization:

shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

Reproductive cell mutagenicity:

No known significant effects or critical hazards.

Carcinogenicity:

Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m3), there was a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adenocarcinoma). There were no lung tumours at 1 mg/m3 and no effects at 0.2 mg/m3. Overall, the tumour incidence, both benign and malignant, and the number of animals with the tumours were not different from controls. The increased incidence of lung tumours is associated with

prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumour formation will occur.

Reproductive toxicity:

Specific target organ toxicity — single exposure:

Specific target organ toxicity — repeated exposure:

Aspiration hazard:

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

Product/ingredient name	Test	Result	Species	Exposure
Diphenylmethane 4,4'- diisocyanate	-	Acute EC50 >1000 mg/L	Daphnia	48 hours
	-	Acute LC50 >1000 mg/L	Fish	96 hours

Persistence and degradability:

Bioaccumulative potential:

Mobility in soil：

By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise. Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including diamino- diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related diisocyanates.

Section 13 - DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14 - TRANSPORTATION INFORMATION

ADR/RID Not required

IMO Not required

ICAO Not required

Further Information Not classified as dangerous in the meaning of transport regulations.

Section 15 - REGULATORY INFORMATION

Regulatory Information The product is classified and label ed according to Regulation (EC) No. 1272/2008 (GHS/CLP).
Contains isocyanates. See information supplied by the manufacturer.

Section 16 - OTHER INFORMATION

Disclaimer:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

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