

Jotafloor PU Universal Comp B

Section 1. Identification

GHS product identifier	:	Jotafloor PU Universal Comp B
Chemical name	:	Polymethylenepolyphenyl isocyanate
Other means of identification	:	Not available.
Product code	:	12321
Product description	:	Hardener.
Product type	:	Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses						
Use in coatings - Professio	Use in coatings - Professional use					
Manufacturing country	: Jotun Thailand Limited 700/353 Amata Nakorn Industrial Estate (BIP 2) Moo 6, Tumbol Donhualoh, Amphur Muang Chonburi Chonburi 20000 Thailand					
	Phone: + 66 2 022 9888 Fax: + 66 2 022 9888 , + 66 38 214 375					
	SDSJotun@jotun.com					
Emergency telephone numb	er : Jotun Thailand Limited Phone: + 66 2 022 9888 ext. 2100, 2400, 2402					

Section 2. Hazards identification

Classification of the substance or mixture	: ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A RESPIRATORY SENSITISATION - Category 1 SKIN SENSITISATION - Category 1 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
GHS label elements	
Hazard pictograms	
Signal word	: Danger.
Hazard statements	: H315 - Causes skin irritation.
	H317 - May cause an allergic skin reaction. H319 - Causes serious eye irritation.
	H332 - Harmful if inhaled.
	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	H335 - May cause respiratory irritation.
	H351 - Suspected of causing cancer.

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Section 2. Hazards identification

	H373 - May cause damage to organs through prolonged or repeated exposure.
Precautionary statements	
Prevention	 P201 - Obtain special instructions before use. P281 - Use personal protective equipment as required. P280 - Wear protective gloves. Wear eye or face protection. P285 - In case of inadequate ventilation wear respiratory protection. P260 - Do not breathe vapour or spray.
Response	 P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P341, P312 - IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor. P362 - Take off contaminated clothing and wash before reuse. P363 - Wash contaminated clothing before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water. P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
Storage	: P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
Disposal	 P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not	: None known.
result in classification	

Section 3. Composition/information on ingredients

Substance/mixture	1	Mixture
Chemical name	1	Polymethylenepolyphenyl isocyanate
Other means of identification	1	Not available.

CAS number/other identifiers

CAS number	: Not applicable.
EC number	: Mixture.
Product code	: 12321

Ingredient name	%	CAS number
Polymethylenepolyphenyl isocyanate	≥75 - ≤90	9016-87-9
4,4'-methylenediphenyl diisocyanate	≥10 - ≤23	101-68-8
o-(p-isocyanatobenzyl)phenyl isocyanate	<10	5873-54-1
2,2'-methylenediphenyl diisocyanate	≤3	2536-05-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Section 4. First aid measures

Inholation	Domovo visitim to frook air and koon at root in a position comfortable for breathing
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
Skin contact	: Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effe	cts.	acute and delayed						
Potential acute health effects								
Eye contact	:	Causes serious eye irritation.						
Inhalation	:	Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.						
Skin contact	:	Causes skin irritation. May cause an allergic skin reaction.						
Ingestion	:	No known significant effects or critical hazards.						
Over-exposure signs/sympton	<u>ns</u>							
Eye contact	-	Adverse symptoms may include the following: pain or irritation watering redness						
Inhalation	:	Adverse symptoms may include the following: respiratory tract irritation coughing wheezing and breathing difficulties asthma						
Skin contact	:	Adverse symptoms may include the following: irritation redness						
Ingestion	1	No specific data.						
Indication of immediate medical attention and special treatment needed, if necessary								
Notes to physician	:	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.						
Specific treatments	:	No specific treatment.						
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.						

See toxicological information (Section 11)

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Section 5. Firefighting measures

Extinguishing media	
Suitable extinguishing media Unsuitable extinguishing	 Use an extinguishing agent suitable for the surrounding fire. None known.
media	
Specific hazards arising from the chemical	: In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident i there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protectiv	ve equipment and emergency procedures
For non-emergency personnel	: 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. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
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 material for conta	ainment and cleaning up
Small spill	: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	: Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name			Exposure limits
4,4'-methylenediphenyl diisc	ocya	nate	ACGIH TLV (United States, 1/2022). TWA: 0.005 ppm 8 hours.
Recommended monitoring procedures	:		riate monitoring standards. Reference to hods for the determination of hazardous
Appropriate engineering controls	:	Use only with adequate ventilation. U ventilation or other engineering contro contaminants below any recommended	ols to keep worker exposure to airborne
Environmental exposure controls	:		
Individual protection measures	<u>s</u>		
Hygiene measures	:	eating, smoking and using the lavator Appropriate techniques should be use Contaminated work clothing should no	bughly after handling chemical products, before y and at the end of the working period. ed to remove potentially contaminated clothing. ot be allowed out of the workplace. Wash . Ensure that eyewash stations and safety location.
Eye/face protection	:	assessment indicates this is necessar gases or dusts. If contact is possible,	21-1:2022 should be used when a risk ry to avoid exposure to liquid splashes, mists, , the following protection should be worn, gher degree of protection: chemical splash
Skin protection			
Hand protection	:	be worn at all times when handling ch this is necessary. Considering the pa check during use that the gloves are s should be noted that the time to break	s complying with an approved standard should remical products if a risk assessment indicates rameters specified by the glove manufacturer, still retaining their protective properties. It withrough for any glove material may be arers. In the case of mixtures, consisting of the of the gloves cannot be accurately
		resistance to any individual or combin The breakthrough time must be great The instructions and information provistorage, maintenance and replaceme Gloves should be replaced regularly a material. Always ensure that gloves are free fro correctly. The performance or effectiveness of the damage and poor maintenance.	er than the end use time of the product. ided by the glove manufacturer on use,

Section 8. Exposure controls/personal protection

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	Wear suitable gloves tested to ISO 374-1:2016. Recommended, gloves(breakthrough time) > 8 hours: nitrile rubber (> 0.4 mm), butyl rubber (> 0.4 mm), PVC (> 0.5 mm)
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.
Other skin protection	 Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
	Self-contained respiratory equipment must be worn by spray operator, even when good ventilation is provided. By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask.

Section 9. Physical and chemical properties

<u>Appearance</u>		
Physical state	:	Liquid.
Colour	:	Clear.
Odour	:	Characteristic.
Odour threshold	:	Not available.
рН	:	Not applicable.
Melting point	:	Not applicable.
Boiling point	:	Lowest known value: 199.85°C (391.7°F) (Polymethylenepolyphenyl isocyanate).
Flash point	:	Closed cup: 220°C (428°F)
Burning time	:	Not applicable.
Burning rate	:	Not applicable.
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not applicable.
Lower and upper explosive (flammable) limits	:	Not applicable.
Vapour pressure	:	Highest known value: 8e-006 kPa (6e-005 mm Hg) (at 20°C) (2,2'- methylenediphenyl diisocyanate).
Vapour density	:	Not available.
Relative density	:	1.23 g/cm ³
Solubility	:	Insoluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/ water	:	Not available.
Auto-ignition temperature	:	Not applicable.
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Kinematic (40°C): >20.5 mm²/s (>20.5 cSt)
Aerosol product		

Section 10. Stability and reactivity

: No specific test data related to reactivity available for this product or its ingredients.
: The product is stable.
: Under normal conditions of storage and use, hazardous reactions will not occur.
: No specific data.
 Keep away from: oxidising agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.
 Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
diphenylmethane- diisocyanate	Eyes - Mild irritant	Mammal - species unspecified	-	-	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Mammal - species unspecified	-	-	-
4,4'-methylenediphenyl diisocyanate	Eyes - Mild irritant	Mammal - species unspecified	-	-	-
	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Mammal - species unspecified	-	-	-
o-(p-isocyanatobenzyl) phenyl isocyanate	Eyes - Mild irritant	Mammal - species unspecified	-	-	-
	Skin - Mild irritant	Mammal - species unspecified	-	-	-
2,2'-methylenediphenyl diisocyanate	Eyes - Mild irritant	Mammal - species unspecified	-	-	-
	Skin - Mild irritant	Mammal - species unspecified	-	-	-

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
diphenylmethane- diisocyanate	skin	Mammal - species unspecified	Sensitising
4,4'-methylenediphenyl diisocyanate	skin	Mammal - species unspecified	Sensitising
o-(p-isocyanatobenzyl) phenyl isocyanate	skin	Mammal - species unspecified	Sensitising
2,2'-methylenediphenyl diisocyanate	skin	Mammal - species unspecified	Sensitising

Mutagenicity

Not available.

Section 11. Toxicological information

<u>Carcinogenicity</u>

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
diphenylmethane-diisocyanate	Category 3	-	Respiratory tract irritation
4,4'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 3	-	Respiratory tract irritation
2,2'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
diphenylmethane-diisocyanate 4,4'-methylenediphenyl diisocyanate o-(p-isocyanatobenzyl)phenyl isocyanate 2,2'-methylenediphenyl diisocyanate	Category 2 Category 2 Category 2 Category 2	inhalation - - -	- - -

Aspiration hazard

Not available.

Potential acute health effects	Potential	acute	health	effects
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Eye contact	: Causes serious eye irritation.
Inhalation	 Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Ingestion	: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing wheezing and breathing difficulties asthma
Ingestion	: No specific data.
Skin contact	: Adverse symptoms may include the following: irritation redness
Eye contact	: Adverse symptoms may include the following: pain or irritation watering redness

Potential chronic health effects	5	
General	:	May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

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Section 11. Toxicological information

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Carcinogenicity	:	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	:	No known significant effects or critical hazards.
Teratogenicity	:	No known significant effects or critical hazards.
Developmental effects	:	No known significant effects or critical hazards.
Fertility effects	:	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Inhalation (vapours)	440 mg/l
Inhalation (dusts and mists)	1.54 mg/l

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
4,4'-methylenediphenyl diisocyanate	4.51	200	low
o-(p-isocyanatobenzyl) phenyl isocyanate	4.51	200	low
2,2'-methylenediphenyl diisocyanate	5.22	200	low

<u>Mobility in soil</u>

Soil/water partition coefficient (Koc)	: Not available.	

Other adverse effects

: No known significant effects or critical hazards.

Section 13. Disposal considerations

 Disposal methods
 The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	ΙΑΤΑ
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Special precautions for user	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Additional information	-	-	-

Transport in bulk according to : Not available.

IMO instruments

ADR / RID

Section 15. Regulatory information

Hazardous Substance Act B.E. 2535 (1992)			
Туре			
Ingredient name	<u>Type</u>	Authority	Conditions
polymeric diphenylmethane diisocyanate	3	Department of	-
		Industrial Works	
diphenylmethane-4,4-diisocyanate	3	Department of	-
		Industrial Works	

No known specific national and/or regional regulations applicable to this product (including its ingredients).

Section 16. Other information

<u>History</u>			
Date of printing	1	18.04.2023	
Date of issue/Date of revision	:	18.04.2023	
Date of previous issue	:	18.04.2023	
Version	1	1.12	
Key to abbreviations	:	ADN = European Provisions concerning the International Carriage of Dangerou Goods by Inland Waterway ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemica IATA = International Air Transport Association IBC = Internediate Bulk Container IMDG = International Maritime Dangerous Goods	
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Section 16. Other information

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail UN = United Nations LogPow = logarithm of the octanol/water partition coefficient

References

: Not available.

Indicates information that has changed from previously issued version.

Notice to reader

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.