

MarvelSpecialty Aliphatic WHT

Technical Data Sheet



Product Description:

Aliphatic, UV Stable Polyurea Spray Coating System

MARVELSPECIALTY ALIPHATIC WHT is a versatile 1:1 by volume, 100% solids, 100% urea aliphatic spray coating. It can be sprayed on a variety of substrates providing excellent chemical, UV and abrasion resistance.

Ideal for:

- Containment Areas
- Cargo Holds
- Utility Vehicles
- Horse Trailers
- Cargo liners
- Boat Linings
- Walkways
- Waterproof Decking
- Encapsulation of Fiberglass Bodies

PROCESSING GUIDE:

STORAGE / TRANSPORT / USE / SHELF LIFE.

Containers should be kept tightly closed to prevent moisture contamination. Do not reseal if contamination is suspected. Use of a dry nitrogen blanket for partial drums is recommended. Storage temperatures for TSPYA85 should be maintained between 50°F and 95°F (10°C-35°C). For best results, these products should not be allowed to freeze. In the event of re-heating, use a well-ventilated oven for a period of time to re-liquefy solid particles. When liquefied blend material until homogenous. To avoid product degradation, product temperature during re-heating should not exceed 140°F (60°C).

Typical Physical Properties		
Hardness, ASTM D-2240	Shore A	90-92
Elongation, 25° C, ASTM D-412	%	550
Tensile Strength 25° C, ASTM D-412	PSI	2100
Tear Strength, ASTM D-624	PLI	430
Application Requirements		
Application Method	High pressure system	
Service Temperature	°F	-
Precondition Working Temperatures	°F	75-80°
Practical Coverage	@ 50 mils	100 ft² /3 gal
Minimum Mix Time	min	25
Recoat Time	hours	6-12
Processing Characteristics		
Solids by Weight and Volume	%	100
Mix Ratio by Volume	1:1	
Pot Life @ 80°F	sec	12-16
Dry time to touch	sec	<60
Typical Properties Component A (ISO)		
Viscosity @ (25°C)	mPa·s	600 ± 800
Specific Gravity (25°C)	1.05	
Density	lbs/gal	-
Appearance @ 25°C:	liquid	
Typical Properties Component B (Resin)		
Viscosity @ (25°C)	mPa·s	500 ± 700
Specific Gravity @ (25°C)	1.13	
Density	lbs/gal	-
Appearance @ 25°C:	Liquid	

Note: Above physicals are from lab drawn films. Actual spray physicals may vary.

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PROCESSING GUIDE:

Do not breathe aerosol or vapors. Exposure to vapors of heated MDI can be dangerous. To heat product properly, use well ventilated convection ovens or other methods that distribute heat evenly. Avoid using drum heaters or other heat sources that may cause excessive local heating.

GENERAL INSTRUCTIONS. It is important that all safety instructions be read and understood by all personnel who will come into contact with the materials.

HEALTH AND SAFETY:

AEROSOL AND VAPOR INHALATION problems are characterized by coughing, shortness of breath or tightness of the chest. Anyone exhibiting these symptoms shall be immediately removed from the workplace and administered oxygen or fresh air. If the condition is prolonged or extreme, SEEK "EMERGENCY TRAINED" MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT with liquid components can result in a rash or other irritation. Wipe residual liquid with a clean soft cloth followed by washing with soap and water. If a rash or other irritation develops, SEE A PHYSICIAN.

EYE CONTACT with liquid or sprayed components can result in corneal burns or abrasions. Upon exposure, eyes should be flushed with water for an extensive period. SEEK MEDICAL ATTENTION IMMEDIATELY.

Warning! These products can be used to prepare a variety of polyurethane products. Polyurethanes are organic materials and must be considered combustible. The information herein is believed to be accurate and reliable as of the date of issuance, but is subject to change without prior notice.

Warranty:

The information herein is believed to be accurate and reliable as of the date of issuance, but is subject to change without prior notice. It is up to the User to contact Marvel Industrial Coatings, LLC. to verify the correctness prior to ordering or specifying this product. Marvel Industrial Coatings, LLC. warrants this product for merchantable quality only, does not warranty against unknown risks that may or may not be present, nor do we assume any responsibility for coverage, performance, or injuries resulting from the use of this product. No other warranty or guarantee of any kind is made by Marvel Industrial Coatings, LLC. expressed or implied, statutory, by operation or law, or otherwise, including marketability and fitness for a particular purpose. Failure to strictly adhere to recommended procedures shall relieve Marvel Industrial Coatings, LLC. of all liability with respect to the product or the use thereof. The buyer assumes all risks whatsoever as to the use of these products and the Buyer's exclusive remedy as to any breach of warranty or negligence claim shall be limited to the purchase price of the materials and agrees that any and all litigation proceedings shall be according to the laws of Texas and shall be filed in the County of Harris, TX. Each person, firm, or corporation engaged in the application installation, disposal or any other use of the any of these products shall carefully determine whether there is a potential hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures as outlined in Local, State and Federal regulations governing the use or disposal of these products or the construction and/or renovation of structures.



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1. Identification

Product identifier used on the label

ALIPHATIC WHT

Recommended use of the chemical and restriction on use

Recommended use*: polyurethane component; industrial chemicals
Suitable for use in industrial sector: Polymers industry; chemical industry

* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
Marvel Industrial Coatings
Houston, TX 77057, USA

Emergency telephone number

CHEMTREC: 1-800-424-9300

Other means of identification

Chemical family: resin
Synonyms: Urethane System Resin Component

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Skin Corr./Irrit.	1B	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Skin Sens.	1A	Skin sensitization
Aquatic Acute	2	Hazardous to the aquatic environment - acute
Aquatic Chronic	2	Hazardous to the aquatic environment - chronic

Label elements

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Pictogram:



Signal Word:
Danger

Hazard Statement:

H317 May cause an allergic skin reaction.
H314 Causes severe skin burns and eye damage.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.
P260 Do not breathe dust or mist.
P272 Contaminated work clothing should not be allowed out of the workplace.
P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P362 + P364 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.

Precautionary Statements (Storage):

P405 Store locked up.

Precautionary Statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
93940-97-7	>= 25.0 - < 50.0 %	Propanenitrile, 3-[[3-[[[(2-cyanoethyl)amino]methyl]-3,5,5-trimethylcyclohexyl]amino]-
9046-10-0	>= 25.0 - < 75.0 %	alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))
64852-22-8	>= 10.0 - < 15.0 %	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.,.alpha."

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2855-13-2	>= 5.0 - < 7.0 %	1,2,3-propanetriyltris[.omega.-(2-aminomethylethoxy)-3-aminomethyl-3,5,5-trimethylcyclohexylamine
1738-25-6	>= 0.0 - < 3.0 %	3-dimethylaminopropiononitrile
1336-21-6	>= 0.3 - < 1.0 %	Ammonium hydroxide
919-30-2	>= 0.3 - < 1.0 %	1-Propanamine, 3-(triethoxysilyl)-
41556-26-7	>= 0.3 - < 1.0 %	bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate
82919-37-7	>= 0.2 - < 1.0 %	Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
93940-97-7	>= 25.0 - < 50.0 %	Propanenitrile, 3-[[[3-[(2-cyanoethyl)amino]methyl]-3,5,5-trimethylcyclohexyl]amino]-
9046-10-0	>= 25.0 - < 75.0 %	alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))
64852-22-8	>= 10.0 - < 15.0 %	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.,.alpha."-1,2,3-propanetriyltris[.omega.-(2-aminomethylethoxy)-3-aminomethyl-3,5,5-trimethylcyclohexylamine
2855-13-2	>= 5.0 - < 7.0 %	3-dimethylaminopropiononitrile
1738-25-6	>= 0.0 - < 3.0 %	Ammonium hydroxide
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41556-26-7	>= 0.3 - < 1.0 %	Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate
82919-37-7	>= 0.2 - < 1.0 %	

4. First-Aid Measures

Description of first aid measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Do not induce vomiting. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Information on: 3-dimethylaminopropiononitrile

Symptoms: Overexposure may cause:, vomiting, weakness, numbness and tingling of hands and feet, neurological disorders, nausea, urinary dysfunction

Information on: Ammonium hydroxide

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Symptoms: Overexposure may cause:; chest discomfort, blindness, difficulty breathing, wheezing, coughing, lacrimation

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, carbon dioxide, foam

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Further accidental release measures:

High risk of slipping due to leakage/spillage of product.

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Environmental precautions

Do not empty into drains. Do not discharge into the subsoil/soil.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Protect against moisture.

Protection against fire and explosion:

No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds. Segregate from acids. Segregate from oxidants.

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Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), Stainless steel 1.4301 (V2)

Further information on storage conditions: No special precautions necessary. Avoid extreme heat. Store protected against freezing.

Storage stability:

Storage temperature: 16 - 27 °C

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

Ammonium hydroxide	OSHA PEL	PEL 50 ppm 35 mg/m3 ; STEL value 35 ppm 27 mg/m3 ;
	ACGIH TLV	TWA value 25 ppm ; STEL value 35 ppm ;

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator as needed.

Hand protection:

Chemical resistant protective gloves

Eye protection:

Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:

Standard work clothes and shoes.

General safety and hygiene measures:

Avoid contact with skin. Handle in accordance with good industrial hygiene and safety practice. Wear protective clothing as necessary to prevent contact. Avoid inhalation of vapours/mists. Wash soiled clothing immediately.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	slight odour	
Odour threshold:		No applicable information available.
Colour:	white	
pH value:	7.0	
Freezing point:	-20.00 °C	
Boiling point:	200.00 °C	
Sublimation point:		No applicable information available.
Flash point:	> 94.00 °C	(closed cup)
Flammability:	not flammable	
Lower explosion limit:		For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.

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Upper explosion limit:	For liquids not relevant for classification and labelling.	
Autoignition:	> 250 °C	
Vapour pressure:	0.01 mmHg	(25.00 °C)
Density:	9.4000 lb/USg	(25.00 °C)
Relative density:	No applicable information available.	
Vapour density:	No applicable information available.	
Partitioning coefficient n-octanol/water (log Pow):	No applicable information available.	
Self-ignition temperature:	not self-igniting	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	900.000 mPa.s	(25.00 °C)
Viscosity, kinematic:	No applicable information available.	
Solubility in water:	slightly soluble	
Solubility (quantitative):	No applicable information available.	
Solubility (qualitative):	No applicable information available.	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:

No corrosive effect on metal.

Oxidizing properties:

Not an oxidizer.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

Temperature: < 0 degrees Celsius

Incompatible materials

acids, oxidizing agents, isocyanates

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

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11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: No known acute effects.

Oral

No applicable information available.

Inhalation

No applicable information available.

Dermal

No applicable information available.

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Origin of data: expert judgement

Irritation / corrosion

Assessment of irritating effects: Corrosive! Damages skin and eyes. May cause severe damage to the eyes.

Sensitization

Assessment of sensitization: Sensitization after skin contact possible.

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Repeated oral uptake of the substance did not cause substance-related effects. Repeated inhalative uptake of the substance did not cause substance-related effects. Repeated dermal uptake of the substance did not cause substance-related effects.

Genetic toxicity

Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Carcinogenicity

Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Reproductive toxicity

Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

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Teratogenicity

Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Other Information

The product has not been tested. The statement has been derived from the properties of the individual components.

Symptoms of Exposure

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Poorly biodegradable.

Elimination information

Poorly biodegradable.

Bioaccumulative potential

Assessment bioaccumulation potential

Does not significantly accumulate in organisms.

Mobility in soil

Assessment transport between environmental compartments

Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Other ecotoxicological advice:

The product has not been tested. Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

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Incinerate in a licensed facility. Dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. Transport Information

Land transport

USDOT

Hazard class: 8
Packing group: II
ID number: UN 2735
Hazard label: 8
Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains POLYETHERDIAMINE)

Sea transport

IMDG

Hazard class: 8
Packing group: II
ID number: UN 2735
Hazard label: 8
Marine pollutant: NO
Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains POLYETHERDIAMINE)

Air transport

IATA/ICAO

Hazard class: 8
Packing group: II
ID number: UN 2735
Hazard label: 8
Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains POLYETHERDIAMINE)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Acute; Chronic

CERCLA RQ

1000 LBS

CAS Number

1336-21-6

Chemical name

Ammonium hydroxide

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State regulations

<u>State RTK</u>	<u>CAS Number</u>	<u>Chemical name</u>
NJ	2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine
NJ	1738-25-6	3-dimethylaminopropionitrile
MA, NJ, PA	1336-21-6	Ammonium hydroxide

CA Prop. 65:

WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

NFPA Hazard codes:

Health : 3 Fire: 1 Reactivity: 1 Special:

HMIS III rating

Health: 3 α Flammability: 1 Physical hazard: 1

16. Other Information

SDS Prepared by:

BASF NA Product Regulations
SDS Prepared on: 2015/03/16

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END OF DATA SHEET



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1. Identification

Product identifier used on the label

ALIPHATIC ISO

Recommended use of the chemical and restriction on use

Recommended use*: polyurethane component; industrial chemicals
Suitable for use in industrial sector: Polymers industry; chemical industry

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company
Marvel Industrial Coatings
Houston, TX 77057, USA

Emergency telephone number

CHEMTREC: 1-800-424-9300

Other means of identification

Chemical family: aliphatic, isocyanate
Synonyms: Modified Isophorone Diisocyanate

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	1 (Inhalation - mist)	Acute toxicity
Skin Corr./Irrit.	1C	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Resp. Sens.	1	Respiratory sensitization
Skin Sens.	1	Skin sensitization
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

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Aquatic Acute	2	Hazardous to the aquatic environment - acute
Aquatic Chronic	2	Hazardous to the aquatic environment - chronic

Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H314	Causes severe skin burns and eye damage.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P260	Do not breathe mist or vapour.
P260	Do not breathe dust or mist.
P273	Avoid release to the environment.
P284	[In case of inadequate ventilation] wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P362 + P364	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
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Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

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Labeling of special preparations (GHS):

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

DANGER:

Fatal if inhaled.

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

AVOID CONTACT WITH SKIN AND EYES.

Causes severe skin burns and eye damage.

Inhalation of vapours may cause allergic respiratory reaction.

May cause allergic skin reaction.

Irritating to respiratory system.

Toxic to aquatic organisms.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
108-32-7	>= 5.0 - < 7.0 %	Propylene carbonate
4098-71-9	>= 25.0 - < 50.0 %	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
108-32-7	>= 5.0 - < 7.0 %	Propylene carbonate
4098-71-9	>= 25.0 - < 50.0 %	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
	>= 50.0 - < 75.0 %	Isocyanate Prepolymer

4. First-Aid Measures

Description of first aid measures

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General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:

Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:

In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Eye irritation, skin irritation, allergic symptoms

Hazards: Symptoms can appear later. Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substances eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposures.

Indication of any immediate medical attention and special treatment needed

Note to physician

Antidote:	Specific antidotes or neutralizers to isocyanates do not exist.
Treatment:	Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, carbon dioxide, foam

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
nitrous gases, fumes/smoke, isocyanate, vapour

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

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Further information:

Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Absorb isocyanate with suitable absorbent material (see § 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 8 % concentrated ammonia, 2 % detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide.

For large amounts: If temporary control of isocyanate vapor is required, a blanket of protein foam or other suitable foam (available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

For residues: The following measures should be taken for final cleanup: Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes.

Dike spillage.

7. Handling and Storage

Precautions for safe handling

Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapours of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gastight. Protect against moisture. If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Protection against fire and explosion:

No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities

Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), Stainless steel 1.4301 (V2)

Storage stability:

Storage temperature: 16 - 27 °C

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

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3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	OSHA PEL	STEL value 0.02 ppm ; TWA value 0.005 ppm ; SKIN_FINAL ; The substance can be absorbed through the skin.
	ACGIH TLV	TWA value 0.005 ppm ;

Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:

When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place. For emergency or non-routine, high exposure situations, including confined space entry, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves should be worn to prevent all skin contact., Suitable materials may include, chloroprene rubber (Neoprene), nitrile rubber (Buna N), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, depending upon conditions of use.

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Cover as much of the exposed skin as possible to prevent all skin contact., Suitable materials may include, saran-coated material, depending upon conditions of use.

General safety and hygiene measures:

Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety showers must be easily accessible. Observe the appropriate PEL or TLV value. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	pungent odour	
Colour:	colourless to pale yellow	
pH value:		No applicable information available.
Freezing point:	< -20.00 °C	
Boiling point:	157.78 °C	(760.000000 mmHg)
Sublimation point:		No applicable information available.
Flash point:	135.00 °C	(closed cup)
Autoignition:	427.00 °C	
Vapour pressure:	0.00048 mmHg	(20.00 °C)
Density:	8.6300 lb/USg	(25.00 °C)
Partitioning coefficient n-octanol/water (log Pow):		No applicable information available.
Self-ignition temperature:		Based on its structural properties the product is not classified as self-igniting.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	

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Viscosity, dynamic:	700.000 mPa.s	(25.00 °C)
Viscosity, kinematic:		No applicable information available.
Solubility in water:		Reacts with water.
Miscibility with water:		Reacts with water.
Solubility (quantitative):		No applicable information available.
Solubility (qualitative):	No applicable information available.	

10. Stability and Reactivity

Reactivity

Corrosion to metals:
not applicable

Oxidizing properties:
Not an oxidizer.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalies. Reacts with amines. Risk of exothermic reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.

Conditions to avoid

Avoid moisture.

Incompatible materials

acids, amines, alcohols, water, Alkalines, strong bases, Substances/products that react with isocyanates.

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapours

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of very high toxicity after short-term inhalation. The substance was tested in form of respirable aerosols. Inhalation of vapours may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and

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reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed. The product has not been tested. The statement has been derived from the properties of the individual components.

Oral

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Type of value: LD50
Species: rat (male/female)
Value: 4,814 mg/kg (OECD Guideline 401)

Inhalation

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Type of value: LC50
Species: rat (male/female)
Value: 0.031 mg/l (OECD Guideline 403)
Exposure time: 4 h
An aerosol with respirable particles was tested.
The European Union (EU) has classified this substance as 'toxic'.

Dermal

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Type of value: LD50
Species: rat (male/female)
Value: > 7,000 mg/kg (OECD Guideline 402)

Assessment other acute effects

Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

The product has not been tested. The statement has been derived from the structure of the product.

Irritation / corrosion

Assessment of irritating effects: Corrosive! Damages skin and eyes. May cause severe damage to the eyes. The product has not been tested. The statement has been derived from the properties of the individual components.

Skin

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Species: rabbit
Result: Severely irritating.
Method: OECD Guideline 404

Eye

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Species: rabbit
Result: Irritant.
Method: OECD Guideline 405

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Sensitization

Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapour-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate

Guinea pig maximization test

Species: guinea pig

Result: Caused skin sensitization in animal studies.

Method: OECD Guideline 406

Mouse Local Lymph Node Assay (LLNA)

Species: mouse

Result: Caused skin sensitization in animal studies.

Literature data.

Aspiration Hazard

Study scientifically not justified.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The substance may cause damage to the lung after repeated inhalation. After repeated exposure the prominent effect is local irritation. The product has not been tested. The statement has been derived from the properties of the individual components.

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was mutagenic in a mammalian cell culture test system. The substance was not mutagenic in a test with mammals. The product has not been tested. The statement has been derived from the properties of the individual components.

Carcinogenicity

Assessment of carcinogenicity: No data available concerning carcinogenic effects.

Reproductive toxicity

Assessment of reproduction toxicity: Repeated inhalative uptake of the substance did not cause damage to the reproductive organs. The product has not been tested. The statement has been derived from the properties of the individual components.

Teratogenicity

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Assessment of teratogenicity: Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals. The product has not been tested. The statement has been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Eye irritation, skin irritation, allergic symptoms

Medical conditions aggravated by overexposure

The isocyanate component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing. Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Contact may aggravate pulmonary disorders. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Preemployment and periodic medical examinations with respiratory function tests (FEV₁, FVC as a minimum) are suggested. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely toxic for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. The product has not been tested. The statement has been derived from the properties of the individual components.

Toxicity to fish

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
LC50 (96 h) > 72 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 92/69/EEC, C.1, static)
The product may hydrolyse. The test result maybe partially due to degradation products.

Aquatic invertebrates

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
EC50 (48 h) 27 mg/l, Daphnia magna (Directive 92/69/EEC, C.2, static)
The product may hydrolyse. The test result maybe partially due to degradation products.
LC50 (96 h) 4 mg/l, Chaetogammarus marinus (semistatic)
The product may hydrolyse. The test result maybe partially due to degradation products.

Aquatic plants

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
EC50 (72 h) > 70 mg/l, Scenedesmus subspicatus (Guideline 92/69/EEC, C.3, static)
The product may hydrolyse. The test result maybe partially due to degradation products.

Chronic toxicity to fish

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Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
No observed effect concentration (21 d) 3 mg/l, *Daphnia magna* (OECD Guideline 202, part 2, semistatic)
The product has not been tested. The statement has been derived from the properties of the hydrolysis products.

Assessment of terrestrial toxicity

Study not necessary due to exposure considerations.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
Directive 88/302/EEC, part C, p. 118 aquatic
activated sludge, domestic/EC50 (3 h): 263 mg/l
The product may hydrolyse. The test result maybe partially due to degradation products.

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Not readily biodegradable (by OECD criteria). Poorly biodegradable.
The product has not been tested. The statement has been derived from the properties of the individual components.

Elimination information

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
0 % DOC reduction (28 d) (Directive 92/69/EEC, C.4-D) (aerobic, domestic sewage, non-adapted)
Under test conditions no biodegradation observed.

Assessment of stability in water

In contact with water the substance will hydrolyse rapidly.
The product has not been tested. The statement has been derived from the structure of the product.

Information on Stability in Water (Hydrolysis)

Information on: 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate
approx. $t_{1/2}$ 50 min (pH7, 23 °C, pH value 7)

Bioaccumulative potential

Assessment bioaccumulation potential

Accumulation in organisms is not to be expected.
The product has not been tested. The statement has been derived from the properties of the hydrolysis products.

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Mobility in soil

Assessment transport between environmental compartments
Study scientifically not justified.

13. Disposal considerations

Waste disposal of substance:

Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:

DRUMS:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories):

Acute; Chronic

EPCRA 313:

CAS Number

4098-71-9

Chemical name

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl
isocyanate

State regulations

State RTK

MA, NJ, PA

CAS Number

4098-71-9

Chemical name

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl
isocyanate

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NFPA Hazard codes:

Health : 3 Fire: 1 Reactivity: 1 Special:

HMIS III rating

Health: 3⁺ Flammability: 1 Physical hazard: 1

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2015/05/14

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