

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.
 H412 Harmful to aquatic life with long lasting effects.

P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.
 P235 Keep cool.
 P240 Ground / bond container and receiving equipment.
 P241 Use explosion-proof electrical / ventilating / light / equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P261 Avoid breathing dust / fume / gas / mist / vapors / spray.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves / eye protection / face protection.
 P302+352 IF ON SKIN: Wash with soap and water.
 P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304+312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
 P333+313 If skin irritation or a rash occurs: Get medical advice/attention.
 P337 If eye irritation persists:.
 P340 Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P341 If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P342+311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor / physician.
 P362 Take off contaminated clothing and wash before reuse.
 P363 Wash contaminated clothing before reuse.
 P370 In case of fire: Use water spray, fog, or regular foam..
 P403+233 Store in a well ventilated place. Keep container tightly closed.
 P405 Store locked up.
 P501 Dispose of contents / container in accordance with local / national regulations.

HMIS Rating Health: Unknown Flammability: Unknown Reactivity: Unknown

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Hexamethylene diisocyanate homopolymer CAS Number: 0028182-81-2	50 - 75	Skin Sens. 1;H317 Acute Tox. 4;H332 STOT SE 3;H335	[1]
Propylene glycol monomethyl ether acetate CAS Number: 0000108-65-6	10 - 25	Flam. Liq. 3;H226	[1]
Xylenes (o-, m-, p- isomers) CAS Number: 0001330-20-7	10 - 25	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315 Eye Irrit. 2;H319 STOT SE 3;H335 Asp. Tox. 1;H304	[1][2]
Butoxyl CAS Number: 0004435-53-4	10 - 25	Eye Irrit. 2;H319	[1]
Ethyl orthoformate CAS Number: 0000122-51-0	1.0 - 10	Flam. Liq. 2;H225	[1]

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Hexamethylene diisocyanate CAS Number: 0000822-06-0	0.10 - 1.0	Acute Tox. 3;H331 Eye Irrit. 2;H319 STOT SE 3;H335 Skin Irrit. 2;H315 Resp. Sens. 1;H334 Skin Sens. 1;H317	[1][2]
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[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General	Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Skin	In case of contact, immediately flush skin with soap and plenty of water. Get medical attention immediately.
Ingestion	If swallowed, immediately contact Poison Control Center at 1-800-854-6813. DO NOT induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Overview	NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Avoid contact with eyes, skin and clothing. May cause allergic respiratory reaction.
Inhalation	Harmful if inhaled. May cause lung injury. May cause mucous membrane and respiratory tract irritation, tightness of chest, headache, shortness of breath and dry cough. May cause asthma-like symptoms to occur. Vapors may affect the brain or nervous system causing dizziness, headache or nausea.
Eyes	Risk of serious damage to eyes. Do not get in eyes. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific condition of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Skin	Causes skin irritation. May cause delayed skin irritation. May be harmful if absorbed through the skin.
Ingestion	Harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhea, or drowsiness.

Chronic effects

5. Fire-fighting measures

5.1. Extinguishing media

CAUTION: This product has a very low flashpoint. Use of water spray when fighting fire may be inefficient. SMALL FIRES: Use dry chemical, CO₂, water spray or alcohol-resistant foam. LARGE FIRES: Use water spray, fog, or alcohol-resistant foam. Do not use straight streams. Move containers from fire area if you can do so without risk. Runoff from fire control may cause pollution. Dike fire control water for later disposal. Do not scatter the material.

5.2. Special hazards arising from the substance or mixture

May produce hazardous fumes when heated to decomposition as in welding. Fumes may produce Carbon Dioxide and Carbon Monoxide.

5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

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6. Accidental release measures

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6.1. Personal precautions, protective equipment and emergency procedures

ELIMINATE ALL IGNITION SOURCES (no smoking, flares, sparks or flames in immediate area). Use only non-sparking equipment to handle spilled material and absorbent. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to containers. Use non-sparking tools to collect absorbed material.

6.2. Environmental precautions

Do not allow spills to enter drains or watercourses.

6.3. Methods and material for containment and cleaning up

CALL CHEMTREC at (800)-424-9300 for emergency response. Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. LARGE SPILLS: Consider initial downwind evacuation for at least 300 meters (1000 feet).

7. Handling and storage

7.1. Precautions for safe handling

Handling

Vapors may cause flash fire or ignite explosively.

In Storage

Keep away from heat, sparks and flame.

7.2. Conditions for safe storage, including any incompatibilities

Store between 40-100F (4-38C).

Do not get in eyes, on skin or clothing.

Strong oxidizing agents.

Do not smoke. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone.

7.3. Specific end use(s)

Close container after each use.

Wash thoroughly after handling.

Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0000108-65-6	Propylene glycol monomethyl ether acetate	OSHA	
		ACGIH	
		NIOSH	
		Supplier	
		OHSA, CAN	50 ppm TWA; 270 mg/m3 TWA
		Mexico	
		Brazil	
0000122-51-0	Ethyl orthoformate	OSHA	
		ACGIH	
		NIOSH	
		Supplier	
		OHSA, CAN	
		Mexico	
		Brazil	
0000822-06-0	Hexamethylene diisocyanate	OSHA	

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		ACGIH	0.005 ppm TWA
		NIOSH	0.005 ppm TWA; 0.035 mg/m3 TWA 0.020 ppm Ceiling (10 min); 0.140 mg/m3 Ceiling (10 min)
		Supplier	
		OHSA, CAN	0.005 ppm TWA (designated substances regulation, listed under Isocyanates, organic compounds); 0.02 ppm Ceiling (designated substances regulation, listed under Isocyanates, organic compounds) 0.005 ppm TWA (listed under Isocyanates, organic compounds (Hexamethylene diisocyanate (HDI)));
		Mexico	
		Brazil	
0001330-20-7	Xylenes (o-, m-, p- isomers)	OSHA	100 ppm TWA; 435 mg/m3 TWA 150 ppm STEL; 655 mg/m3 STEL
		ACGIH	100 ppm TWA 150 ppm STEL
		NIOSH	
		Supplier	
		OHSA, CAN	100 ppm TWA 150 ppm STEL
		Mexico	100 ppm TWA LMPE-PPT; 435 mg/m3 TWA LMPE-PPT 150 ppm STEL [LMPE-CT]; 655 mg/m3 STEL [LMPE-CT]
		Brazil	78 ppm TWA LT; 340 mg/m3 TWA LT
0004435-53-4	Butoxyl	OSHA	
		ACGIH	
		NIOSH	
		Supplier	
		OHSA, CAN	
		Mexico	
		Brazil	
0028182-81-2	Hexamethylene diisocyanate homopolymer	OSHA	
		ACGIH	
		NIOSH	
		Supplier	
		OHSA, CAN	
		Mexico	
		Brazil	

Health Data

CAS No.	Ingredient	Source	Value
0000108-65-6	Propylene glycol monomethyl ether acetate	NIOSH	
0000122-51-0	Ethyl orthoformate	NIOSH	
0000822-06-0	Hexamethylene diisocyanate	NIOSH	Respiratory effects and sensitization pulmonary irritation (Listed under
0001330-20-7	Xylenes (o-, m-, p- isomers)	NIOSH	Central nervous system depressant; respiratory and eye irritation
0004435-53-4	Butoxyl	NIOSH	
0028182-81-2	Hexamethylene diisocyanate homopolymer	NIOSH	

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000108-65-6	Propylene glycol monomethyl ether acetate	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

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0000122-51-0	Ethyl orthoformate	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0000822-06-0	Hexamethylene diisocyanate	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0001330-20-7	Xylenes (o-, m-, p-isomers)	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
0004435-53-4	Butoxyl	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0028182-81-2	Hexamethylene diisocyanate homopolymer	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory	Select equipment to provide protection from the ingredients listed in Section 3 of this document. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates dust, vapor, or mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use. FOR USERS OF 3M RESPIRATORY PROTECTION ONLY: For information and assistance on 3M occupational health and safety products, call OH&ESD Technical Service toll free in U.S.A. 1-800-243-4630, in Canada call 1-800-267-4414. Please do not contact these numbers regarding other manufacturer's respiratory protection products. 3M does not endorse the accuracy of the information contained in this Material Safety Data Sheet. INDIVIDUALS WITH LUNG OR BREATHING PROBLEMS OR PRIOR REACTION TO ISOCYANATES MUST NOT BE EXPOSED TO VAPOR OR SPRAY MIST. Do not breathe vapor or spray mist. Wear an appropriate, properly fitted respirator (NIOSH approved) during and after application unless air monitoring demonstrates vapor/mist levels are below applicable limits. A supplied air respirator (either positive pressure or continuous flow type) is required. Follow manufacturer's directions for respirator use and observe requirements specified in 29 CFR 1910.134.
Eyes	Avoid contact with eyes. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Skin	Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, protective gloves, apron, boots, head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Engineering Controls	Depending on the site-specific conditions of use, provide adequate ventilation.
Other Work Practices	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, using toilet facilities, etc. Promptly remove soiled clothing and wash clothing thoroughly before reuse. Shower after work using plenty of soap and water.

9. Physical and chemical properties

Appearance	Coloured Liquid
Odour threshold	Not Measured
pH	No Established Limit
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	137 (°C) 279 (°F)

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Flash Point	39 (°C) 103 (°F)
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: 1 Upper Explosive Limit: No Established Limit
vapor pressure (Pa)	Not Measured
Vapor Density	Heavier than air
Specific Gravity	1.05
Solubility in Water	Not Measured
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	No Established Limit Not Measured
VOC %	Refer to the Technical Data Sheet or label where information is available.

10. Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

This product is stable and hazardous polymerization will not occur. Not sensitive to mechanical impact. Excessive heat and fumes generation can occur if improperly handled.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

May produce hazardous fumes when heated to decomposition as in welding. Fumes may produce Carbon Dioxide and Carbon Monoxide.

11. Toxicological information

Acute toxicity

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
Hexamethylene diisocyanate homopolymer - (28182-81-2)	5,000.00, Rat - Category: 5	No data available	No data available	3.00, Rat - Category: 4
Propylene glycol monomethyl ether acetate - (108-65-6)	8,532.00, Rat - Category: NA	5,000.00, Rabbit - Category: 5	No data available	No data available
Xylenes (o-, m-, p- isomers) - (1330-20-7)	4,299.00, Rat - Category: 5	1,548.00, Rabbit - Category: 4	20.00, Rat - Category: 4	No data available
Butoxyl - (4435-53-4)	4,210.00, Rat - Category: 5	No data available	No data available	No data available
Ethyl orthoformate - (122-51-0)	7,060.00, Rat - Category: NA	17,820.00, Rabbit - Category: NA	No data available	No data available

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Hexamethylene diisocyanate - (822-06-0)	No data available	No data available	No data available	No data available
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Item	Category	Hazard
Acute Toxicity (mouth)	Not Classified	Not Applicable
Acute Toxicity (skin)	Not Classified	Not Applicable
Acute Toxicity (inhalation)	4	Harmful if inhaled.
Skin corrosion/irritation	2	Causes skin irritation.
Eye damage/irritation	2	Causes serious eye irritation.
Sensitization (respiratory)	1	May cause allergy or asthma symptoms of breathing difficulties if inhaled.
Sensitization (skin)	1	May cause an allergic skin reaction.
Germ toxicity	Not Classified	Not Applicable
Carcinogenicity	Not Classified	Not Applicable
Reproductive Toxicity	Not Classified	Not Applicable
Specific target organ systemic toxicity (single exposure)	Not Classified	Not Applicable
Specific target organ systemic Toxicity (repeated exposure)	Not Classified	Not Applicable
Aspiration hazard	Not Classified	Not Applicable

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Hexamethylene diisocyanate homopolymer - (28182-81-2)	100.00, Danio rerio	100.00, Daphnia magna	100.00 (72 hr), Scenedesmus subspicatus
Propylene glycol monomethyl ether acetate - (108-65-6)	100.00, Salmo gairdneri	500.00, Daphnia magna	Not Available
Xylenes (o-, m-, p- isomers) - (1330-20-7)	3.30, Oncorhynchus mykiss	8.50, Palaemonetes pugio	100.00 (72 hr), Chlorococcales
Butoxyl - (4435-53-4)	7.10, Danio rerio	360.00, Daphnia magna	Not Available
Ethyl orthoformate - (122-51-0)	592.00, Leuciscus idus	Not Available	Not Available
Hexamethylene diisocyanate - (822-06-0)	82.80, Danio rerio	89.10, Daphnia magna	77.40 (72 hr), Desmodesmus subspicatus

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available

13. Disposal considerations

N.J. RTK Substances (>1%) :

- Butoxyl
- Ethyl orthoformate
- Xylenes (o-, m-, p- isomers)

N.J. Special Hazardous Substances (>.01%) :

- Ethyl orthoformate
- Xylenes (o-, m-, p- isomers)

N.J. Env. Hazardous Substances (>.1%) :

- Hexamethylene diisocyanate
- Xylenes (o-, m-, p- isomers)

Proposition 65 - Carcinogens (>0%):
(No Product Ingredients Listed)

Proposition 65 - Female Repro Toxins (>0%):
(No Product Ingredients Listed)

Proposition 65 - Male Repro Toxins (>0%):
(No Product Ingredients Listed)

Proposition 65 - Developmental Toxins (>0%):
(No Product Ingredients Listed)

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

- H225 Highly flammable liquid and vapor.
- H226 Flammable liquid and vapor.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H331 Toxic if inhaled.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- H372 Causes damage to organs through prolonged or repeated exposure.

This is the first revision of this SDS format, changes from previous revision not applicable.

End of Document