

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : PU HARDENER

Product code : TH0775/00

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

Material uses : Paint or paint related material.
: Industrial use only.

1.3 Details of the supplier of the safety data sheet

SHERWIN-WILLIAMS Italy S.r.l.
Via del Fiffio, 12 - 40065 Pianoro (BO)
Italia - C.P. 18
Cod. Fisc. e Reg. Impr. Bo 08866930152
e-mail address of person responsible for this SDS : regulatory.SWI@sherwin.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : +353 1 809 2166

Supplier

Telephone number : +39 051 770511

Hours of operation : Emergency contact available 24 hours a day

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 2, H225
Acute Tox. 4, H332
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Resp. Sens. 1, H334
Skin Sens. 1, H317
Repr. 2, H361d (Unborn child)
STOT SE 3, H336
STOT RE 2, H373
Asp. Tox. 1, H304

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

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SECTION 2: Hazards identification

Hazard pictograms

:



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapour.
Harmful if inhaled.
Causes serious eye irritation.
Causes skin irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of damaging the unborn child.
May be fatal if swallowed and enters airways.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention

: Obtain special instructions before use. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Do not breathe vapour.

Response

: IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Storage

: Keep cool.

Disposal

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

Hazardous ingredients

: Methyl Ethyl Ketone
Toluene Diisocyanate Polymer
Toluene
Urethane Polymer
Toluene-2,4-diisocyanate (max.)

Supplemental label elements

: Contains isocyanates. May produce an allergic reaction. FOR INDUSTRIAL USE ONLY

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Not applicable.

Special packaging requirements

Not applicable.

2.3 Other hazards

Other hazards which do not result in classification

: None known.

SECTION 3: Composition/information on ingredients

3.2 Mixture

:

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SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification	Type
			Regulation (EC) No. 1272/2008 [CLP]	
Methyl Ethyl Ketone	REACH #: 01-2119457290-43 EC: 201-159-0 CAS: 78-93-3 Index: 606-002-00-3	≥25 - <50	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	[1] [2]
Toluene Diisocyanate Polymer	CAS: 9017-01-0	≥10 - <25	Eye Irrit. 2, H319	[1]
n-Butyl Acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4 Index: 607-025-00-1	≥20 - <25	Skin Sens. 1, H317 Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	[1] [2]
Toluene	REACH #: 01-2119471310-51 EC: 203-625-9 CAS: 108-88-3 Index: 601-021-00-3	≥10 - <25	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361d (Unborn child) STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304	[1] [2]
Urethane Polymer	EC: 500-120-8 CAS: 53317-61-6	≥5 - <10	Eye Irrit. 2, H319 Skin Sens. 1, H317	[1]
Ethyl Acetate	REACH #: 01-2119475103-46 EC: 205-500-4 CAS: 141-78-6 Index: 607-022-00-5	≥1 - <3	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	[1] [2]
Toluene-2, 4-diisocyanate (max.)	REACH #: 01-2119486974-18 EC: 209-544-5 CAS: 584-84-9 Index: 615-006-00-4	≥0.1 - <0.3	Acute Tox. 1, H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 Aquatic Chronic 3, H412 See Section 16 for the full text of the H statements declared above.	[1] [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, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

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

SECTION 4: First aid measures

4.1 Description of first aid measures

- General** : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.
- Eye contact** : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.
- 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.

4.2 Most important symptoms and effects, both acute and delayed

There are no data available on the mixture itself. Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Toluene Diisocyanate Polymer, Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylenetriethanol, 4-methyl-m-phenylene diisocyanate. May produce an allergic reaction.

4.3 Indication of any immediate medical attention and special treatment needed

- 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.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Recommended: alcohol-resistant foam, carbon dioxide, powders
- Unsuitable extinguishing media** : Do not use water jet.

SECTION 5: Firefighting measures

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.
- Special protective equipment for fire-fighters** : Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Exclude sources of ignition and ventilate the area. Avoid breathing vapour or mist. Refer to protective measures listed in sections 7 and 8.
- Keep unnecessary and unprotected personnel from entering.
- 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".

6.2 Environmental precautions

- : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.3 Methods and material for containment and cleaning up

- : 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). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13).

6.4 Reference to other sections

- : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

7.1 Precautions for safe handling

- : Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits. In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear antistatic footwear and clothing and floors should be of the

SECTION 7: Handling and storage

conducting type.

Care should be taken when re-opening partly-used containers. Precautions should be taken to minimise exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurisation. Keep away from heat, sparks and flame. No sparking tools should be used.

Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Put on appropriate personal protective equipment (see Section 8).

Never use pressure to empty. Container is not a pressure vessel.

Always keep in containers made from the same material as the original one.

Comply with the health and safety at work laws.

Do not allow to enter drains or watercourses.

Information on fire and explosion protection

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

When operators, whether spraying or not, have to work inside the spray booth, ventilation is unlikely to be sufficient to control particulates and solvent vapour in all cases. In such circumstances they should wear a compressed air-fed respirator during the spraying process and until such time as the particulates and solvent vapour concentration has fallen below the exposure limits.

7.2 Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations.

Notes on joint storage

Keep away from: oxidising agents, strong alkalis, strong acids.

Additional information on storage conditions

Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight.

Keep container tightly closed.

Keep away from sources of ignition. No smoking. Prevent unauthorised access.

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Contaminated absorbent material may pose the same hazard as the spilt product.

Seveso Directive - Reporting thresholds (in tonnes)

Named substances

Name	Notification and MAPP threshold	Safety report threshold
Toluene diisocyanate	10	100
Toluene diisocyanate	10	100

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c: Flammable liquids 2 and 3 not falling under P5a or P5b	5000	50000
C7b: Highly flammable (R11)	5000	50000

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

Good housekeeping standards, regular safe removal of waste materials and regular maintenance of spray booth filters will minimise the risks of spontaneous combustion and other fire hazards.

SECTION 7: Handling and storage

Before use of this material please refer to the Exposure Scenario(s) if attached for the specific end use, control measures and additional PPE considerations.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Methyl Ethyl Ketone	NAOSH (Ireland, 12/2011). Absorbed through skin. OELV-8hr: 200 ppm 8 hours. OELV-8hr: 600 mg/m ³ 8 hours. OELV-15min: 300 ppm 15 minutes. OELV-15min: 900 mg/m ³ 15 minutes.
n-Butyl Acetate	NAOSH (Ireland, 12/2011). OELV-8hr: 150 ppm 8 hours. OELV-8hr: 710 mg/m ³ 8 hours. OELV-15min: 200 ppm 15 minutes. OELV-15min: 950 mg/m ³ 15 minutes.
Toluene	NAOSH (Ireland, 12/2011). Absorbed through skin. OELV-8hr: 50 ppm 8 hours. OELV-8hr: 192 mg/m ³ 8 hours. OELV-15min: 100 ppm 15 minutes. OELV-15min: 384 mg/m ³ 15 minutes.
Ethyl Acetate	NAOSH (Ireland, 12/2011). OELV-8hr: 200 ppm 8 hours. OELV-15min: 400 ppm 15 minutes.
Toluene-2,4-diisocyanate (max.)	NAOSH (Ireland, 12/2011). Skin sensitizer. OELV-8hr: 0.001 mg/m ³ , (as NCO) 8 hours. Form: The Inhalable Fraction and Vapour note is used when a material exerts sufficient vapour pressure such that it may be present in both particle and vapour phases. OELV-15min: 0.003 mg/m ³ , (as NCO) 15 minutes. Form: The Inhalable Fraction and Vapour note is used when a material exerts sufficient vapour pressure such that it may be present in both particle and vapour phases.

- Recommended monitoring procedures**
- : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
 - : Regular monitoring of all work areas should be carried out at all times, including areas that may not be equally ventilated.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Ethyl Acetate	DNEL	Inhalation	730 mg/m ³	-	-
	DNEL	Dermal	63 mg/kg	-	-

PNECs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail
Ethyl Acetate	Sewage Treatment Plant	650 mg/l	-
	Fresh water	0.24 mg/l	-
	Fresh water sediment	1.15 mg/kg ww	-
	Soil	0.148 mg/kg ww	-
	Marine water	0.024 mg/l	-
	Marine water sediment	0.115 mg/kg ww	-

8.2 Exposure controls

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

- Appropriate engineering controls** :
- Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. Air-fed protective respiratory equipment must be worn by the spray operator, even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapours below the OEL, suitable respiratory protection must be worn. (See Occupational exposure controls.)
 - Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Individual protection measures

- Hygiene measures** :
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

- Eye/face protection** :
- Use safety eyewear designed to protect against splash of liquids.

Skin protection

Hand protection

Gloves

- Wear suitable gloves tested to EN374.
- Short Term Exposure less than 30 minutes Continuous use LDPE gloves, 30 microns or Butyl gloves 0.7mm
- Long Term Exposure Spill / For prolonged or repeated handling, use PE / PE Laminate gloves > 8 hours (breakthrough time) .
- There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.
- The breakthrough time must be greater than the end use time of the product.
- The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.
- Gloves should be replaced regularly and if there is any sign of damage to the glove material.
- Always ensure that gloves are free from defects and that they are stored and used correctly.
- The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance.
- Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.
- The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.
- Personnel should wear antistatic clothing made of natural fibres or of high-temperature-resistant synthetic fibres.

Body protection

SECTION 8: Exposure controls/personal protection

- Other skin 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- Respiratory 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.
- Environmental exposure controls** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Do not allow to enter drains or watercourses.

Before use of this material please refer to the Exposure Scenario(s) if attached for the specific end use, control measures and additional PPE considerations. The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid.
- Colour** : Not available.
- Odour** : Characteristic.
- Odour threshold** : Not available.
- pH** : Testing not technically possible.
- Melting point/freezing point** : Not Available (Not Tested).
- Initial boiling point and boiling range** : 72°C
- Flash point** : Closed cup: -4°C [Pensky-Martens Closed Cup]
- Evaporation rate** : 5.6 (butyl acetate = 1)
- Flammability (solid, gas)** : Not Available (Not Tested).
- Burning time** : Not Available (Not Tested).
- Burning rate** : Not Available (Not Tested).
- Upper/lower flammability or explosive limits** : Lower: 1%
Upper: 10.7%
- Vapour pressure** : 1.6 kPa [at 20°C]
- Vapour density** : 2.48 [Air = 1]
- Relative density** : 0.94
- Solubility(ies)** : Not Available (Not Tested).
- Solubility in water** : Not Available (Not Tested).
- Partition coefficient: n-octanol/water** : Not Available (Not Tested).
- Auto-ignition temperature** : Not Available (Not Tested).
- Decomposition temperature** : Not Available (Not Tested).
- Viscosity** : Kinematic (room temperature): <0.07 cm²/s
Kinematic (40°C): <0.205 cm²/s
- Explosive properties**

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SECTION 9: Physical and chemical properties

Oxidising properties : Under normal conditions of storage and use, hazardous reactions will not occur.

9.2 Other information

Heat of combustion : 0.00003092 kJ/g

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : Stable under recommended storage and handling conditions (see Section 7).

10.3 Possibility of hazardous reactions : The product reacts slowly with water, resulting in the production of carbon dioxide. In closed containers, pressure build-up could result in distortion, expansion and, in extreme cases, bursting of the container.

10.4 Conditions to avoid : In a fire, hazardous decomposition products may be produced.

10.5 Incompatible materials : Keep away from: oxidising agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

There are no data available on the mixture itself. Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Toluene Diisocyanate Polymer, Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylenetriethanol, 4-methyl-m-phenylene diisocyanate. May produce an allergic reaction.

Acute toxicity

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SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Methyl Ethyl Ketone	LD50 Dermal	Rabbit	6480 mg/kg	-
	LD50 Oral	Rat	2737 mg/kg	-
n-Butyl Acetate	LC50 Inhalation Gas.	Rat	390 ppm	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
	LD50 Oral	Rat	10768 mg/kg	-
Toluene	LC50 Inhalation Vapour	Rat	49 g/m ³	4 hours
	LD50 Oral	Rat	636 mg/kg	-
Ethyl Acetate	LD50 Oral	Rat	5620 mg/kg	-
Toluene-2,4-diisocyanate (max.)	LC50 Inhalation Gas.	Rat	14 ppm	4 hours
	LD50 Oral	Rat	5800 mg/kg	-

Acute toxicity estimates

Route	ATE value
Inhalation (gases)	6651.9 ppm

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Methyl Ethyl Ketone	Skin - Mild irritant	Rabbit	-	24 hours 14 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
n-Butyl Acetate	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
Toluene-2,4-diisocyanate (max.)	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Moderate irritant	Rat	-	8 hours 12 milligrams	-

Conclusion/Summary : Not available.

Sensitisation

No data available

Conclusion/Summary : Not available.

Mutagenicity

No data available

Carcinogenicity

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SECTION 11: Toxicological information

No data available

Reproductive toxicity

No data available

Teratogenicity

No data available

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Methyl Ethyl Ketone	Category 3	Not applicable.	Narcotic effects
n-Butyl Acetate	Category 3	Not applicable.	Narcotic effects
Toluene	Category 3	Not applicable.	Narcotic effects
Ethyl Acetate	Category 3	Not applicable.	Narcotic effects
Toluene-2,4-diisocyanate (max.)	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Toluene	Category 2	Not determined	Not determined

Aspiration hazard

Product/ingredient name	Result
Toluene	ASPIRATION HAZARD - Category 1

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

There are no data available on the mixture itself.
Do not allow to enter drains or watercourses.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]. See Sections 2 and 3 for details.

Product/ingredient name	Result	Species	Exposure
Methyl Ethyl Ketone	Acute EC50 >500000 µg/l Marine water Acute EC50 5091000 µg/l Fresh water	Algae - Skeletonema costatum Daphnia - Daphnia magna - Larvae	96 hours 48 hours
n-Butyl Acetate	Acute LC50 3220000 µg/l Fresh water Acute LC50 32000 µg/l Marine water	Fish - Pimephales promelas Crustaceans - Artemia salina - Nauplii	96 hours 48 hours
Toluene	Acute LC50 18000 µg/l Fresh water Acute EC50 12500 µg/l Fresh water Acute EC50 11600 µg/l Fresh water Acute EC50 6000 µg/l Fresh water Acute LC50 5500 µg/l Fresh water	Fish - Pimephales promelas Algae - Pseudokirchneriella subcapitata Crustaceans - Gammarus pseudolimnaeus - Adult Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) Fish - Oncorhynchus kisutch - Fry	96 hours 72 hours 48 hours 48 hours 96 hours
Ethyl Acetate	Chronic NOEC 1000 µg/l Fresh water Acute EC50 2500000 µg/l Fresh water Acute LC50 750000 µg/l Fresh water Acute LC50 154000 µg/l Fresh water Acute LC50 212500 µg/l Fresh water	Daphnia - Daphnia magna Algae - Selenastrum sp. Crustaceans - Gammarus pulex Daphnia - Daphnia cucullata Fish - Heteropneustes fossilis	21 days 96 hours 48 hours 48 hours 96 hours

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SECTION 12: Ecological information

Toluene-2,4-diisocyanate (max.)	Chronic NOEC 2400 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 75.6 mg/l Fresh water	Fish - Pimephales promelas - Embryo	32 days
	Acute LC50 164500 µg/l Fresh water	Fish - Pimephales promelas	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
No data available				

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Methyl Ethyl Ketone	-	-	Readily
n-Butyl Acetate	-	-	Readily
Toluene	-	-	Readily
Ethyl Acetate	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Toluene	-	90	low
Ethyl Acetate	-	30	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : 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.

Hazardous waste : Yes.

European waste catalogue (EWC) : waste isocyanates 08 05 01*

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SECTION 13: Disposal considerations

Disposal considerations : Do not allow to enter drains or watercourses. Residues in empty containers should be neutralised with a decontaminant (see section 6).
Dispose of according to all federal, state and local applicable regulations.
If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.
For further information, contact your local waste authority.

Packaging




Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Disposal considerations : Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers. Empty containers must be scrapped or reconditioned. Dispose of containers contaminated by the product in accordance with local or national legal provisions.

European waste catalogue (EWC) : packaging containing residues of or contaminated by dangerous substances 15 01 10*

Special precautions : 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. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1263	UN1263	UN1263
14.2 UN proper shipping name	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL
14.3 Transport Hazard Class(es)/ Label(s)	3 	3 	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	No.	No.	No.
Additional information	Special provisions 640 (C) Tunnel code D/E	Emergency schedules (EmS) F-E, S-E	Special provisions Not Applicable

14.6 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.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

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SECTION 14: Transport information

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions : Not applicable.
*on the manufacture,
 placing on the market
 and use of certain
 dangerous substances,
 mixtures and articles*

Other EU regulations

National regulations

15.2 Chemical Safety Assessment : No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data

: Regulation (EC) No. 1272/2008 [CLP]
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 DPD = Dangerous Preparations Directive [1999/45/EC]
 DSD = Dangerous Substances Directive [67/548/EEC]
 IATA = International Air Transport Association
 IMDG = International Maritime Dangerous Goods
 Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 453/2010
 Directive 96/82/EC, and relative amendments & additions
 Directive 2008/98/EC, and relative amendments & additions
 Directive 2000/39/EC, and relative amendments & additions
 CEPE Guidelines

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

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SECTION 16: Other information

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Acute Tox. 4, H332	Calculation method
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Resp. Sens. 1, H334	Calculation method
Skin Sens. 1, H317	Calculation method
Repr. 2, H361d (Unborn child)	Calculation method
STOT SE 3, H336	Calculation method
STOT RE 2, H373	Calculation method
Asp. Tox. 1, H304	Calculation method

Full text of abbreviated H statements	:	H225	Highly flammable liquid and vapour.
		H226	Flammable liquid and vapour.
		H304	May be fatal if swallowed and enters airways.
		H315	Causes skin irritation.
		H317	May cause an allergic skin reaction.
		H319	Causes serious eye irritation.
		H330	Fatal if inhaled.
		H332	Harmful if inhaled.
		(inhalation)	
		H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
		H335	May cause respiratory irritation.
		H336	May cause drowsiness or dizziness.
		H351	Suspected of causing cancer.
		H361d (Unborn child)	Suspected of damaging the unborn child.
		H373	May cause damage to organs through prolonged or repeated exposure.
		H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]	:	Acute Tox. 1, H330	ACUTE TOXICITY (inhalation) - Category 1
		Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
		Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
		Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
		Carc. 2, H351	CARCINOGENICITY - Category 2
		EUH066	Repeated exposure may cause skin dryness or cracking.
		Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
		Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
		Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
		Repr. 2, H361d (Unborn child)	TOXIC TO REPRODUCTION (Unborn child) - Category 2
		Resp. Sens. 1, H334	RESPIRATORY SENSITIZATION - Category 1
		Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
		Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1
		STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
		STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
		STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

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SECTION 16: Other information

Notice to reader

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.