



SAFETY DATA SHEET

Section 1. Identification

GHS product identifier :
 Document product code :
 Other means of identification : Not available.
 Product type : Liquid.

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

Identified uses :

Supplier/Manufacturer :

Emergency telephone number (with hours of operation) :

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture :
 FLAMMABLE LIQUIDS - Category 2
 SKIN CORROSION/IRRITATION - Category 2
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 RESPIRATORY SENSITIZATION - Category 1
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 2
 TOXIC TO REPRODUCTION (Unborn child) - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bladder, hearing organs, kidneys, liver, respiratory system) - Category 2
 AQUATIC HAZARD (ACUTE) - Category 3

Section 2. Hazards identification

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H225 - Highly flammable liquid and vapor.
H318 - Causes serious eye damage.
H315 - Causes skin irritation.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 - May cause an allergic skin reaction.
H361 - Suspected of damaging the unborn child.
H351 - Suspected of causing cancer.
H335 - May cause respiratory irritation.
H373 - May cause damage to organs through prolonged or repeated exposure. (bladder, hearing organs, kidneys, liver, respiratory system)
H402 - Harmful to aquatic life.

Precautionary statements

Prevention

: P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
P284 - Wear respiratory protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P233 - Keep container tightly closed.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P260 - Do not breathe vapor.
P264 - Wash hands thoroughly after handling.
P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.

Response

: P314 - Get medical attention if you feel unwell.
P308 + P313 - IF exposed or concerned: Get medical attention.
P304 + P341 (OSHA) + P312 - IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
P333 + P313 - If skin irritation or rash occurs: Get medical attention.
P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage

: P405 - Store locked up.
P403 - Store in a well-ventilated place.
P235 - Keep cool.

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.



Section 2. Hazards identification

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

Ingredient name	%	CAS number
Poly(oxy-1,4-butanediyl), α -hydro- ω -hydroxy-	≥ 10 - < 25	25190-06-1
Toluene	≥ 10 - ≤ 11	108-88-3
Butanone	≥ 5 - ≤ 8.3	78-93-3
Calcium oxide	≥ 5 - ≤ 10	1305-78-8
4,4'-Methylenediphenyl Diisocyanate	≥ 5 - ≤ 10	101-68-8
Titanium dioxide	≥ 3 - ≤ 5	13463-67-7
Lubricating oils, used, residues	≥ 1 - ≤ 2.8	129893-17-0
Benzene, 1,1 Methylenebis Isocyanato Homopolymer	≥ 1 - ≤ 3	39310-05-9
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	≥ 1 - ≤ 3	5873-54-1
4-Isocyanatosulphonyltoluene	≥ 0.3 - < 1	4083-64-1
Ethylbenzene	≤ 0.3	100-41-4

Since the carcinogenic ingredients in this compound are encapsulated, the risk of exposure by inhalation is minimum when used in accordance with the user documentation.

United States: The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

Canada: The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with the amended HPR as of April 2018.

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

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

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.



Section 4. First aid measures

- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

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

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.



Section 4. First aid measures

- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet or water-based fire extinguishers.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Section 6. Accidental release measures

Methods and materials for containment and cleaning up

- Spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

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

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.



Section 8. Exposure controls/personal protection

Control parameters

United States

Occupational exposure limits

Ingredient name	Exposure limits
Poly(oxy-1,4-butanediyl), α -hydro- ω -hydroxy-Toluene	<p>None.</p> <p>OSHA PEL Z2 (United States, 2/2013). TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 100 ppm 10 hours. TWA: 375 mg/m³ 10 hours. STEL: 150 ppm 15 minutes. STEL: 560 mg/m³ 15 minutes.</p> <p>ACGIH TLV (United States, 3/2017). TWA: 20 ppm 8 hours.</p>
Butanone	<p>ACGIH TLV (United States, 3/2017). TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 200 ppm 10 hours. TWA: 590 mg/m³ 10 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 6/2016). TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours.</p>
Calcium oxide	<p>ACGIH TLV (United States, 3/2017). TWA: 2 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2016). TWA: 2 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours.</p>
4,4'-Methylenediphenyl Diisocyanate	<p>ACGIH TLV (United States, 3/2017). TWA: 0.005 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2016). TWA: 0.05 mg/m³ 10 hours. TWA: 0.005 ppm 10 hours. CEIL: 0.2 mg/m³ 10 minutes. CEIL: 0.02 ppm 10 minutes.</p> <p>OSHA PEL (United States, 6/2016). CEIL: 0.02 ppm CEIL: 0.2 mg/m³</p>
Titanium dioxide	<p>ACGIH TLV (United States, 3/2017). TWA: 10 mg/m³ 8 hours.</p> <p>OSHA PEL (United States, 6/2016). TWA: 15 mg/m³ 8 hours. Form: Total dust</p>
Lubricating oils, used, residues Benzene, 1,1 Methylenebis Isocyanato Homopolymer O-(P-Isocyanatobenzyl)Phenyl Isocyanate 4-Isocyanatosulphonyltoluene Ethylbenzene	<p>None.</p> <p>None.</p> <p>None.</p> <p>None.</p> <p>ACGIH TLV (United States, 3/2017). TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2016). TWA: 100 ppm 10 hours. TWA: 435 mg/m³ 10 hours. STEL: 125 ppm 15 minutes. STEL: 545 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 6/2016). TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.</p>



Section 8. Exposure controls/personal protection

Canada

Occupational exposure limits

Ingredient name	Exposure limits
Toluene	<p>CA Alberta Provincial (Canada, 4/2009). Absorbed through skin. 8 hrs OEL: 50 ppm 8 hours. 8 hrs OEL: 188 mg/m³ 8 hours.</p> <p>CA British Columbia Provincial (Canada, 7/2016). TWA: 20 ppm 8 hours.</p> <p>CA Ontario Provincial (Canada, 7/2015). TWA: 20 ppm 8 hours.</p> <p>CA Quebec Provincial (Canada, 1/2014). Absorbed through skin. TWAEV: 50 ppm 8 hours. TWAEV: 188 mg/m³ 8 hours.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin. STEL: 60 ppm 15 minutes. TWA: 50 ppm 8 hours.</p>
Butanone	<p>CA Alberta Provincial (Canada, 4/2009). 15 min OEL: 300 ppm 15 minutes. 8 hrs OEL: 200 ppm 8 hours. 8 hrs OEL: 590 mg/m³ 8 hours. 15 min OEL: 885 mg/m³ 15 minutes.</p> <p>CA British Columbia Provincial (Canada, 7/2016). TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes.</p> <p>CA Ontario Provincial (Canada, 7/2015). TWA: 200 ppm 8 hours. STEL: 300 ppm 15 minutes.</p> <p>CA Quebec Provincial (Canada, 1/2014). TWAEV: 50 ppm 8 hours. TWAEV: 150 mg/m³ 8 hours. STEV: 100 ppm 15 minutes. STEV: 300 mg/m³ 15 minutes.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 300 ppm 15 minutes. TWA: 200 ppm 8 hours.</p>
Calcium oxide	<p>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 2 mg/m³ 8 hours.</p> <p>CA British Columbia Provincial (Canada, 7/2016). TWA: 2 mg/m³ 8 hours.</p> <p>CA Ontario Provincial (Canada, 7/2015). TWA: 2 mg/m³ 8 hours.</p> <p>CA Quebec Provincial (Canada, 1/2014). TWAEV: 2 mg/m³ 8 hours.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 4 mg/m³ 15 minutes. TWA: 2 mg/m³ 8 hours.</p>
4,4'-Methylenediphenyl Diisocyanate	<p>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 0.005 ppm 8 hours. 8 hrs OEL: 0.05 mg/m³ 8 hours.</p> <p>CA British Columbia Provincial (Canada, 7/2016). Absorbed through skin. Skin sensitizer. TWA: 0.005 ppm 8 hours. C: 0.01 ppm</p> <p>CA Quebec Provincial (Canada, 1/2014). Skin sensitizer. TWAEV: 0.005 ppm 8 hours. TWAEV: 0.051 mg/m³ 8 hours.</p> <p>CA Ontario Provincial (Canada, 7/2015). TWA: 0.005 ppm 8 hours.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 0.015 ppm 15 minutes. TWA: 0.005 ppm 8 hours.</p>
Titanium dioxide	<p>CA British Columbia Provincial (Canada, 7/2016). TWA: 3 mg/m³ 8 hours. Form: Respirable dust TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 10 mg/m³ 8 hours.</p> <p>CA Ontario Provincial (Canada, 7/2015).</p>



Section 8. Exposure controls/personal protection

O-(P-Isocyanatobenzyl)Phenyl Isocyanate

Ethylbenzene

TWA: 10 mg/m³ 8 hours.

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 10 mg/m³ 8 hours. Form: Total dust

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 20 mg/m³ 15 minutes.

TWA: 10 mg/m³ 8 hours.

CA British Columbia Provincial (Canada, 7/2016).

TWA: 0.005 ppm 8 hours.

C: 0.01 ppm

CA Ontario Provincial (Canada, 7/2015).

C: 0.02 ppm

TWA: 0.005 ppm 8 hours.

CA Alberta Provincial (Canada, 4/2009).

8 hrs OEL: 100 ppm 8 hours.

8 hrs OEL: 434 mg/m³ 8 hours.

15 min OEL: 543 mg/m³ 15 minutes.

15 min OEL: 125 ppm 15 minutes.

CA British Columbia Provincial (Canada, 7/2016).

TWA: 20 ppm 8 hours.

CA Ontario Provincial (Canada, 7/2015).

TWA: 20 ppm 8 hours.

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 100 ppm 8 hours.

TWAEV: 434 mg/m³ 8 hours.

STEV: 125 ppm 15 minutes.

STEV: 543 mg/m³ 15 minutes.

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 125 ppm 15 minutes.

TWA: 100 ppm 8 hours.

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

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

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.



Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. 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.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Brown.
- Odor** : Solvent.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Closed cup: 10.5°C (50.9°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : >1 [Air = 1]
- Relative density** : 1.07
- Solubility** : Insoluble.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Dynamic (room temperature): 30000 mPa·s (30000 cP)
- Flow time (ISO 2431)** : Not available.
- VOC = Volatile Organic Compound** :

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.



Section 10. Stability and reactivity

- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, strong acids, reducing agents.
- Hazardous decomposition products** : This product reacts slowly with water and may release carbon dioxide which may lead to increased pressure in closed packages.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Toluene	LC50 Inhalation Vapor	Rat	49 g/m ³	4 hours
Butanone	LD50 Dermal	Rabbit	6480 mg/kg	-
	LD50 Oral	Rat	2737 mg/kg	-
4,4'-Methylenediphenyl Diisocyanate	LD50 Oral	Rat	9200 mg/kg	-
4-Isocyanatosulphonyltoluene	LD50 Oral	Rat	2234 mg/kg	-
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 mg	-
	Eyes - Mild irritant	Rabbit	-	870 µg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Pig	-	24 hours 250 µl	-
	Skin - Mild irritant	Rabbit	-	435 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Skin - Moderate irritant	Rabbit	-	500 mg	-
Butanone	Skin - Mild irritant	Rabbit	-	24 hours 14 mg	-
	Skin - Moderate irritant	Rabbit	-	100 mg	-
4,4'-Methylenediphenyl Diisocyanate	Eyes - Moderate irritant	Rabbit	-	100 µl	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 500 µl	-
4-Isocyanatosulphonyltoluene	Skin - Mild irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
Ethylbenzene	Eyes - Severe irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

Classification

Product/ingredient name	OSHA	IARC	NTP
Toluene	-	3	-
4,4'-Methylenediphenyl Diisocyanate	-	3	-
Titanium dioxide	-	2B	-
Ethylbenzene	-	2B	-

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.



Section 11. Toxicological information

Specific target organ toxicity (single exposure)

Name	Category	Target organs
Toluene	Category 3	Narcotic effects
Butanone	Category 3	Narcotic effects
Calcium oxide	Category 3	Respiratory tract irritation
4,4'-Methylenediphenyl Diisocyanate	Category 3	Respiratory tract irritation
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	Category 3	Respiratory tract irritation
4-Isocyanatosulphonyltoluene	Category 3	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Target organs
Toluene	Category 2	bladder, hearing organs, kidneys, liver and respiratory system
4,4'-Methylenediphenyl Diisocyanate	Category 2	Not determined
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	Category 2	Not determined
Ethylbenzene	Category 2	hearing organs

Aspiration hazard

Name	Result
Toluene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

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

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations

Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
 stomach pains
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

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

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	33330.5 mg/kg
Inhalation (vapors)	29.84 mg/L
Inhalation (dusts and mists)	26.64 mg/L

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Toluene	Acute EC50 11600 µg/L Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
Butanone	Chronic NOEC 2 mg/L Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 >500000 µg/L Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 5091000 µg/L Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
Calcium oxide	Acute LC50 3220000 µg/L Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 mg/L Fresh water	Fish - Oreochromis niloticus - Juvenile (Fledgling, Hatchling, Weanling)	46 days
Titanium dioxide	Acute LC50 >1000000 µg/L Marine water	Fish - Fundulus heteroclitus	96 hours
	Ethylbenzene	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute LC50 13900 µg/L Fresh water	Daphnia - Daphnia magna - Neonate	48 hours

Section 12. Ecological information

Persistence and degradability

There is no data available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Toluene	2.73	90	low
Butanone	0.3	-	low
Calcium oxide	-	2.34	low
4,4'-Methylenediphenyl Diisocyanate	4.51	200	low
O-(P-Isocyanatobenzyl)Phenyl Isocyanate	4.51	200	low
Ethylbenzene	3.6	-	low

Mobility in soil

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

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Butanone	78-93-3	Listed	U159
Toluene	108-88-3	Listed	U220

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1263	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT	PAINT
Transport hazard class(es)	3 	3 	3 	3 



Section 14. Transport information

Packing group	III (see 49CFR 173.121)	III (see TDGR 2.19 (3))	III (see IMDG 2.3.2.2.)	III (see IATA 3.3.3.1.1.)
Environmental hazards	No.	No.	No.	No.

AERG : 128

DOT-RQ Details : Toluene 1000 lbs / 454 kg [137.86 gal / 521.84 L]
Xylene 100 lbs / 45.4 kg [13.946 gal / 52.791 L]

Additional information

DOT Classification : **Reportable quantity** 8629.6 lbs / 3917.8 kg [967.27 gal / 3661.5 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

Special provisions 383

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).

IMDG : **Emergency schedules** F-E, S-E

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.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) PAIR**: 4,4'-Methylenediphenyl Diisocyanate; O-(P-Isocyanatobenzyl)Phenyl Isocyanate; 2-Methoxy-1-methylethyl acetate

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

TSCA 8(c) calls for record of SAR: 4,4'-Methylenediphenyl Diisocyanate; O-(P-Isocyanatobenzyl)Phenyl Isocyanate

Clean Water Act (CWA) 307: 4,4'-Methylenediphenyl Diisocyanate; Toluene; Ethylbenzene

Clean Water Act (CWA) 311: Benzoyl chloride; Toluene; Ethylbenzene; Xylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.



Section 15. Regulatory information

SARA 311/312

Classification : FLAMMABLE LIQUIDS - Category 2
 SKIN CORROSION/IRRITATION - Category 2
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 RESPIRATORY SENSITIZATION - Category 1
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 2
 TOXIC TO REPRODUCTION (Unborn child) - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bladder, hearing organs, kidneys, liver, respiratory system) - Category 2

Composition/information on ingredients

Name	Classification
Toluene	FLAMMABLE LIQUIDS - Category 2 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Unborn child) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bladder, hearing organs, kidneys, liver, respiratory system) - Category 2
Butanone	ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Calcium oxide	SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
4,4'-Methylenediphenyl Diisocyanate	ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A RESPIRATORY SENSITIZATION - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
Titanium dioxide	CARCINOGENICITY - Category 2
Lubricating oils, used, residues	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 2
Benzene,1,1 Methylenebis Isocyanato Homopolymer O-(P-Isocyanatobenzyl)Phenyl Isocyanate	RESPIRATORY SENSITIZATION - Category 1 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A RESPIRATORY SENSITIZATION - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
4-Isocyanatosulphonyltoluene	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A RESPIRATORY SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Ethylbenzene	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2 ASPIRATION HAZARD - Category 1



Section 15. Regulatory information

SARA 313

	Product name	CAS number
Form R - Reporting requirements	Toluene 4,4'-Methylenediphenyl Diisocyanate Ethylbenzene	108-88-3 101-68-8 100-41-4
Supplier notification	Toluene 4,4'-Methylenediphenyl Diisocyanate Ethylbenzene	108-88-3 101-68-8 100-41-4

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: Asphalt; Distillates (petroleum), solvent-dewaxed heavy paraffinic; 4,4'-Methylenediphenyl Diisocyanate; Butanone; Toluene; Titanium dioxide; Calcium oxide
- New York** : The following components are listed: 4,4'-Methylenediphenyl Diisocyanate; Butanone; Toluene; Ethylbenzene
- New Jersey** : The following components are listed: Asphalt; Distillates (petroleum), solvent-dewaxed heavy paraffinic; 4,4'-Methylenediphenyl Diisocyanate; O-(P-Isocyanatobenzyl)Phenyl Isocyanate; Butanone; Toluene; Titanium dioxide; Calcium oxide; Ethylbenzene
- Pennsylvania** : The following components are listed: Asphalt; Soybean oil; 4,4'-Methylenediphenyl Diisocyanate; Butanone; Toluene; Titanium dioxide; Calcium oxide; Ethylbenzene

California Prop. 65

⚠ WARNING: This product can expose you to chemicals including Titanium dioxide, Ethylbenzene, which are known to the State of California to cause cancer, and Toluene, N-methyl-2-pyrrolidone, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Since the carcinogenic ingredients in this compound are encapsulated, the risk of exposure by inhalation is minimum when used in accordance with the user documentation.

Canada

Canadian lists

- Canadian NPRI** : The following components are listed: 4,4'-Methylenediphenyl Diisocyanate; Butanone; 2-Methoxy-1-methylethyl acetate; Toluene
- CEPA Toxic substances** : None of the components are listed.
- Canada inventory (DSL NDSL)** : All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	Calculation method
RESPIRATORY SENSITIZATION - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
CARCINOGENICITY - Category 2	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bladder, hearing organs, kidneys, liver, respiratory system) - Category 2	Calculation method
AQUATIC HAZARD (ACUTE) - Category 3	Calculation method

Section 16. Other information

History

Date of issue mm/dd/yyyy : 06/15/2018
Date of previous issue : 04/30/2018
Version : 1.1
Prepared by : KMK Regulatory Services Inc.

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