

SAFETY DATA SHEET

Polyurethane Resin UR5604, Part A

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name Polyurethane Resin UR5604, Part A

Product number UR5604A, EUR5604RP100G, EUR5604RP250G, EUR5604RP500G, EUR5604K5K, EUR5604K25K, EUR5604AB5K, EUR5604AB10K, EUR5604AB25K, ZE

Recommended use of the chemical and restrictions on use

Application Resin.

Uses advised against No specific uses advised against are identified.

Details of the supplier of the safety data sheet

Supplier

ELECTROLUBE. A division of HK WENTWORTH LTD
HK WENTWORTH-AMERICA
PO Box 126257
Benbrook, Texas 76126
USA
info@hkw.us.com
+1 888-501-9203

Emergency telephone number

Emergency telephone +1 202 464 2554 (USA only)
+44 1235 239670

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Not Classified

Environmental hazards Not Classified

Label elements

Hazard statements NC Not Classified

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

Polyurethane Resin UR5604, Part A

Propane-1,2-diol, propoxylated	10-30%
CAS number: 25322-69-4	
Classification	
Acute Tox. 4 - H302	
Kaolin	5-10%
CAS number: 1332-58-7	
Classification	
Not Classified	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information	Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.
Ingestion	Rinse mouth thoroughly with water. Remove any dentures. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.
Skin Contact	Remove affected person from source of contamination. Rinse immediately with plenty of water.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue.

Most important symptoms and effects, both acute and delayed

General information	See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	Prolonged inhalation of high concentrations may damage respiratory system.
Ingestion	Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	May cause temporary eye irritation.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
Specific treatments	No special treatment required.

5. Fire-fighting measures

Extinguishing media

Polyurethane Resin UR5604, Part A

Suitable extinguishing media	The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
<u>Special hazards arising from the substance or mixture</u>	
Specific hazards	Containers can burst violently or explode when heated, due to excessive pressure build-up.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.
<u>Advice for firefighters</u>	
Protective actions during firefighting	Avoid breathing fire gases or vapors. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage.

Environmental precautions

Environmental precautions Avoid discharge to the aquatic environment. Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Reuse or recycle products wherever possible. Approach the spillage from upwind. Small Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Large Spillages: If leakage cannot be stopped, evacuate area. Flush spilled material into an effluent treatment plant, or proceed as follows. Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labeled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spilled material. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Polyurethane Resin UR5604, Part A

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid the formation of mists.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

Conditions for safe storage, including any incompatibilities

Storage precautions Store away from incompatible materials (see Section 10). Store in accordance with local regulations.

Storage class Chemical storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

Kaolin

Long-term exposure limit (8-hour TWA): ACGIH 2 mg/m³ respirable fraction
A4

Long-term exposure limit (8-hour TWA): OSHA 5 mg/m³ respirable fraction

Long-term exposure limit (8-hour TWA): OSHA 15 mg/m³ total dust

Carbon Black

Long-term exposure limit (8-hour TWA): ACGIH 3 mg/m³ inhalable fraction
A3

Long-term exposure limit (8-hour TWA): OSHA 3.5 mg/m³

ethyl formate

Short-term exposure limit (15-minute): ACGIH 100 ppm 303 mg/m³
A4

Long-term exposure limit (8-hour TWA): OSHA 100 ppm 300 mg/m³

Ethanol

Short-term exposure limit (15-minute): ACGIH 1000 ppm 1880 mg/m³
A3

Long-term exposure limit (8-hour TWA): OSHA 1000 ppm 1900 mg/m³

ACGIH = American Conference of Governmental Industrial Hygienists.

A4 = Not Classifiable as a Human Carcinogen.

A3 = Confirmed Animal Carcinogen with Unknown Relevance to Humans.

OSHA = Occupational Safety and Health Administration.

Amorphous Silica (CAS: 7631-86-9)

Immediate danger to life and health 3000 mg/m³

Carbon Black (CAS: 1333-86-4)

Immediate danger to life and health 1750 mg/m³

Polyurethane Resin UR5604, Part A

Ethanol (CAS: 64-17-5)

Immediate danger to life and health 3300 ppm

ethyl formate (CAS: 109-94-4)

Immediate danger to life and health 1500 ppm

Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Good general ventilation should be adequate to control worker exposure to airborne contaminants.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with OSHA 1910.133. The following protection should be worn: Chemical splash goggles.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

Hygiene measures

Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Provide adequate ventilation. Large Spillages: If ventilation is inadequate, suitable respiratory protection must be worn.

Environmental exposure controls

Not regarded as dangerous for the environment.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Black.
Odor	Characteristic.
pH	Not available.

Polyurethane Resin UR5604, Part A

Melting point	Not available.
Initial boiling point and range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Bulk density	1.62 kg/l
Solubility(ies)	Not available.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	20000 mPa s @ 23°C/73.4°F
Explosive properties	Not considered to be explosive.
Oxidizing properties	Does not meet the criteria for classification as oxidizing.

10. Stability and reactivity

Reactivity	See the other subsections of this section for further details.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	No potentially hazardous reactions known.
Conditions to avoid	There are no known conditions that are likely to result in a hazardous situation.
Materials to avoid	No specific material or group of materials is likely to react with the product to produce a hazardous situation.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

11. Toxicological information

Information on toxicological effects

Toxicological effects	Not regarded as a health hazard under current legislation.
<u>Acute toxicity - oral</u>	
Notes (oral LD₅₀)	Based on available data the classification criteria are not met.
ATE oral (mg/kg)	2,243.16
<u>Acute toxicity - dermal</u>	
Notes (dermal LD₅₀)	Based on available data the classification criteria are not met.

Polyurethane Resin UR5604, Part A

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Based on available data the classification criteria are not met.

Skin corrosion/irritation

Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitization

Respiratory sensitization Based on available data the classification criteria are not met.

Skin sensitization

Skin sensitization Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

IARC carcinogenicity

Contains a substance/a group of substances which may cause cancer. IARC Group 1
Carcinogenic to humans.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

General information

No specific health hazards known. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation

Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion

Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

Skin Contact

Prolonged contact may cause dryness of the skin.

Eye contact

May cause temporary eye irritation.

Route of entry

Ingestion Inhalation Skin and/or eye contact

Target Organs

No specific target organs known.

Propane-1,2-diol, propoxylated

Acute toxicity - oral

ATE oral (mg/kg) 500.0

Polyurethane Resin UR5604, Part A

12. Ecological Information

Ecotoxicity	Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.
Toxicity	Based on available data the classification criteria are not met.
<u>Persistence and degradability</u>	
Persistence and degradability	The degradability of the product is not known.
<u>Bioaccumulative potential</u>	
Bio-Accumulative Potential	No data available on bioaccumulation.
Partition coefficient	Not available.
<u>Mobility in soil</u>	
Mobility	No data available.
<u>Other adverse effects</u>	
Other adverse effects	None known.

13. Disposal considerations

Waste treatment methods

General information	The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.
Disposal methods	Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste packaging should be collected for reuse or recycling. Incineration or landfill should only be considered when recycling is not feasible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of the local water authority.

14. Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).
<u>UN Number</u>	
Not applicable.	
<u>UN proper shipping name</u>	
Not applicable.	
<u>Transport hazard class(es)</u>	
No transport warning sign required.	
<u>Transport labels</u>	
No transport warning sign required.	
<u>DOT transport labels</u>	
No transport warning sign required.	
<u>Packing group</u>	

Polyurethane Resin UR5604, Part A

Not applicable.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Not applicable.

DOT TIH Zone Not applicable.

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

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

None of the ingredients are listed or exempt.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

None of the ingredients are listed or exempt.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

None of the ingredients are listed or exempt.

SARA 313 Emission Reporting

The following ingredients are listed or exempt:

(neodecanoato-O)phenylmercury

0 %

CAA Accidental Release Prevention

None of the ingredients are listed or exempt.

FDA - Essential Chemical

None of the ingredients are listed or exempt.

FDA - Precursor Chemical

None of the ingredients are listed or exempt.

SARA (311/312) Hazard Categories

None of the ingredients are listed or exempt.

OSHA Highly Hazardous Chemicals

None of the ingredients are listed or exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

The following ingredients are listed or exempt:

Carbon Black

Known to the State of California to cause cancer.

Amphorous Silica

Known to the State of California to cause cancer.

Polyurethane Resin UR5604, Part A

California Air Toxics "Hot Spots" (A-I)

The following ingredients are listed or exempt:

Amphorous Silica

California Air Toxics "Hot Spots" (A-II)

None of the ingredients are listed or exempt.

California Directors List of Hazardous Substances

The following ingredients are listed or exempt:

Carbon Black

Amphorous Silica

ethyl formate

Ethanol

Massachusetts "Right To Know" List

The following ingredients are listed or exempt:

Carbon Black

Amphorous Silica

Kaolin

ethyl formate

Ethanol

Triethyl orthoformate

Rhode Island "Right To Know" List

The following ingredients are listed or exempt:

Carbon Black

Kaolin

ethyl formate

Ethanol

Minnesota "Right To Know" List

The following ingredients are listed or exempt:

Carbon Black

Propane-1,2-diol, propoxylated

Amphorous Silica

Kaolin

ethyl formate

Ethanol

New Jersey "Right To Know" List

The following ingredients are listed or exempt:

Carbon Black

Kaolin

ethyl formate

Ethanol

Triethyl orthoformate

Polyurethane Resin UR5604, Part A

Pennsylvania "Right To Know" List

The following ingredients are listed or exempt:

Carbon Black

Amphorous Silica

Kaolin

ethyl formate

Ethanol

Triethyl orthoformate

Inventories

US - TSCA

The following ingredients are listed or exempt:

Castor Oil

Carbon Black

Glycol Propylene Oxide Polymer

Aluminium Hydroxide

Propane-1,2-diol, propoxylated

Amphorous Silica

Kaolin

neodecanoic acid

(neodecanoato-O)phenylmercury

ethyl formate

Ethanol

Triethyl orthoformate

US - TSCA 12(b) Export Notification

None of the ingredients are listed or exempt.

16. Other information

Training advice	Read and follow manufacturer's recommendations. Only trained personnel should use this material.
Issued by	Bethan Massey
Revision date	6/5/2017
Revision	0
SDS No.	1485
Hazard statements in full	H302 Harmful if swallowed.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

SAFETY DATA SHEET

Polyurethane Resin UR5604, Part B

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name Polyurethane Resin UR5604, Part B

Product number UR5604B, EUR5604RP100G, EUR5604RP250G, EUR5604RP500G, EUR5604K5K, EUR5604K25K, EUR5604BB0.805K, EUR5604BB5K, ZE

Recommended use of the chemical and restrictions on use

Application Hardener.

Uses advised against No specific uses advised against are identified.

Details of the supplier of the safety data sheet

Supplier

ELECTROLUBE. A division of HK WENTWORTH LTD
 HK WENTWORTH-AMERICA
 PO Box 126257
 Benbrook, Texas 76126
 USA
 info@hkw.us.com
 +1 888-501-9203

Emergency telephone number

Emergency telephone +1 202 464 2554 (USA only)
 +44 1235 239670

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 Repr. 2 - H361fd STOT SE 3 - H335 STOT RE 2 - H373

Environmental hazards Aquatic Chronic 3 - H412

Label elements

Pictogram



Signal word

Danger

Polyurethane Resin UR5604, Part B

Hazard statements

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H351 Suspected of causing cancer.
 H361fd Suspected of damaging fertility. 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.

Precautionary statements

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe vapor/ spray.
 P264 Wash contaminated skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P284 [In case of inadequate ventilation] wear respiratory protection.
 P302+P352 If on skin: Wash with plenty of water.
 P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P313 If exposed or concerned: Get medical advice/ attention.
 P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337+P313 If eye irritation persists: Get medical advice/ attention.
 P342+P311 If experiencing respiratory symptoms: Call a poison center/ doctor.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/ container in accordance with national regulations.

Contains

4,4'-Methylenediphenyl diisocyanate, oligomers, Diphenylmethane-4,4'-Diisocyanate (MDI) Isomers, Phenol, isopropylated, phosphate (3:1)

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

4,4'-Methylenediphenyl diisocyanate, oligomers	30-60%
CAS number: 25686-28-6	
Classification	
Acute Tox. 4 - H332	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
Resp. Sens. 1 - H334	
Skin Sens. 1 - H317	
Carc. 2 - H351	
STOT SE 3 - H335	
STOT RE 2 - H373	

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Diphenylmethane-4,4-Diisocyanate (MDI) Isomers	10-30%
CAS number: 9016-87-9	
Classification	
Acute Tox. 4 - H332	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
Resp. Sens. 1 - H334	
Skin Sens. 1 - H317	
Carc. 2 - H351	
STOT SE 3 - H335	
STOT RE 2 - H373	
Phenol, isopropylated, phosphate (3:1)	10-30%
CAS number: 68937-41-7	
Classification	
Repr. 2 - H361fd	
STOT RE 2 - H373	
Aquatic Chronic 2 - H411	
Triphenyl phosphate	<1%
CAS number: 115-86-6	
M factor (Acute) = 1	
Classification	
Aquatic Acute 1 - H400	
Aquatic Chronic 2 - H411	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information	Get medical attention immediately. Show this Safety Data Sheet to the medical personnel.
Inhalation	Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place. In the event of any sensitization symptoms developing, ensure further exposure is avoided.
Ingestion	Rinse mouth thoroughly with water. Remove any dentures. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.

Polyurethane Resin UR5604, Part B

Skin Contact	It is important to remove the substance from the skin immediately. In the event of any sensitization symptoms developing, ensure further exposure is avoided. Remove contamination with soap and water or recognized skin cleansing agent. Get medical attention if symptoms are severe or persist after washing.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue. If it is suspected that volatile contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

General information	See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	May cause sensitization or allergic reactions in sensitive individuals. A single exposure may cause the following adverse effects: Headache. Exhaustion and weakness. Prolonged or repeated exposure may cause the following adverse effects: Suspected of causing cancer.
Ingestion	May cause sensitization or allergic reactions in sensitive individuals. May cause irritation. Prolonged or repeated exposure may cause the following adverse effects: Suspected of causing cancer.
Skin contact	May cause skin sensitization or allergic reactions in sensitive individuals. Redness. Irritating to skin. Prolonged or repeated exposure may cause the following adverse effects: Suspected of causing cancer.
Eye contact	Irritating to eyes.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically. May cause sensitization or allergic reactions in sensitive individuals.
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5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards	Containers can burst violently or explode when heated, due to excessive pressure build-up. This product is toxic.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Toxic gases or vapors.
<u>Advice for firefighters</u>	

Polyurethane Resin UR5604, Part B

Protective actions during firefighting	Avoid breathing fire gases or vapors. Evacuate area. Keep upwind to avoid inhalation of gases, vapors, fumes and smoke. Ventilate closed spaces before entering them. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material. Avoid inhalation of vapors and spray/mists. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes.
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Environmental precautions

Environmental precautions	Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment. Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).
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Methods and material for containment and cleaning up

Methods for cleaning up	Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Provide adequate ventilation. Approach the spillage from upwind. Small Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Large Spillages: If leakage cannot be stopped, evacuate area. Flush spilled material into an effluent treatment plant, or proceed as follows. Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labeled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spilled material. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dangerous for the environment. Do not empty into drains. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
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Reference to other sections	For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.
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7. Handling and storage

Precautions for safe handling

Polyurethane Resin UR5604, Part B

Usage precautions

Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid the formation of mists. Suspected of causing cancer. Suspected of damaging fertility. Suspected of damaging the unborn child. Pregnant or breastfeeding women should not work with this product if there is any risk of exposure. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

Conditions for safe storage, including any incompatibilities

Storage precautions

Store away from incompatible materials (see Section 10). Store in accordance with local regulations. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Utilize retaining walls to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.

Storage class

Miscellaneous hazardous material storage.

Specific end uses(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

Triphenyl phosphate

Long-term exposure limit (8-hour TWA): OSHA 3 mg/m³

Long-term exposure limit (8-hour TWA): ACGIH 3 mg/m³

A4

OSHA = Occupational Safety and Health Administration.

ACGIH = American Conference of Governmental Industrial Hygienists.

A4 = Not Classifiable as a Human Carcinogen.

Triphenyl phosphate (CAS: 115-86-6)

Immediate danger to life and health 1000 mg/m³

Exposure controls

Protective equipment



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Appropriate engineering controls	Provide adequate ventilation. Personal, workplace environment 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. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure.
Eye/face protection	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with OSHA 1910.133. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.
Other skin and body protection	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
Hygiene measures	Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.
Respiratory protection	Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.
Environmental exposure controls	Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Brown.
Odor	No characteristic odor.
pH	Not available.
Melting point	Not available.
Initial boiling point and range	Not available.

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Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Bulk density	1.21 kg/l
Solubility(ies)	Not available.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	50 mPa s @ 23°C/73.4°F
Explosive properties	Not considered to be explosive.
Oxidizing properties	Does not meet the criteria for classification as oxidizing.

10. Stability and reactivity

Reactivity	See the other subsections of this section for further details.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	No potentially hazardous reactions known.
Conditions to avoid	There are no known conditions that are likely to result in a hazardous situation.
Materials to avoid	No specific material or group of materials is likely to react with the product to produce a hazardous situation.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapors.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Acute Tox. 4 - H332 Harmful if inhaled.

ATE inhalation (gases ppm) 16,483.52

ATE inhalation (vapours mg/l) 18.53

Polyurethane Resin UR5604, Part B

ATE inhalation (dusts/mists mg/l)	2.53
<u>Skin corrosion/irritation</u>	
Animal data	Irritating.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye irritation.
<u>Respiratory sensitization</u>	
Respiratory sensitization	There is evidence that the product can cause respiratory hypersensitivity.
<u>Skin sensitization</u>	
Skin sensitization	May cause skin sensitization or allergic reactions in sensitive individuals.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Based on available data the classification criteria are not met.
<u>Carcinogenicity</u>	
Carcinogenicity	Suspected of causing cancer.
IARC carcinogenicity	None of the ingredients are listed or exempt.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Suspected of damaging fertility.
Reproductive toxicity - development	Suspected of damaging the unborn child.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	STOT SE 3 - H335 May cause respiratory irritation.
Target organs	Respiratory system, lungs
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	STOT RE 2 - H373 May cause damage to organs through prolonged or repeated exposure.
<u>Aspiration hazard</u>	
Aspiration hazard	Based on available data the classification criteria are not met.
<u>General information</u>	
General information	Avoid contact during pregnancy/while nursing. May cause cancer after repeated exposure. Risk of cancer depends on duration and level of exposure. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	May cause sensitization or allergic reactions in sensitive individuals. A single exposure may cause the following adverse effects: Headache. Exhaustion and weakness.
Ingestion	May cause sensitization or allergic reactions in sensitive individuals. May cause irritation.
Skin Contact	May cause skin sensitization or allergic reactions in sensitive individuals. Redness. Irritating to skin.
Eye contact	Irritating to eyes.
Route of entry	Ingestion Inhalation Skin and/or eye contact
Target Organs	Respiratory system, lungs
Medical considerations	Skin disorders and allergies.

Polyurethane Resin UR5604, Part B

4,4'-Methylenediphenyl diisocyanate, oligomers

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 11.0

ATE inhalation (dusts/mists mg/l) 1.5

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Acute toxicity - oral

Notes (oral LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Acute Tox. 4 - H332 Harmful if inhaled.

ATE inhalation (gases ppm) 4,500.0

ATE inhalation (vapours mg/l) 11.0

ATE inhalation (dusts/mists mg/l) 1.5

Skin corrosion/irritation

Animal data Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation.

Respiratory sensitization

Respiratory sensitization There is evidence that the product can cause respiratory hypersensitivity.

Skin sensitization

Skin sensitization May cause skin sensitization or allergic reactions in sensitive individuals.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Suspected of causing cancer.

IARC carcinogenicity None of the ingredients are listed or exempt.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

Polyurethane Resin UR5604, Part B

STOT - single exposure	STOT SE 3 - H335 May cause respiratory irritation.
Target organs	Respiratory system, lungs
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	STOT RE 2 - H373 May cause damage to organs through prolonged or repeated exposure.
<u>Aspiration hazard</u>	
Aspiration hazard	Based on available data the classification criteria are not met.
<u>General information</u>	
General information	May cause cancer after repeated exposure. Risk of cancer depends on duration and level of exposure. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<u>Inhalation</u>	
Inhalation	May cause sensitization or allergic reactions in sensitive individuals. A single exposure may cause the following adverse effects: Headache. Exhaustion and weakness.
<u>Ingestion</u>	
Ingestion	May cause sensitization or allergic reactions in sensitive individuals. May cause irritation.
<u>Skin Contact</u>	
Skin Contact	May cause skin sensitization or allergic reactions in sensitive individuals. Redness. Irritating to skin.
<u>Eye contact</u>	
Eye contact	Irritating to eyes.
<u>Route of entry</u>	
Route of entry	Ingestion Inhalation Skin and/or eye contact
<u>Target Organs</u>	
Target Organs	Respiratory system, lungs
<u>Medical considerations</u>	
Medical considerations	Skin disorders and allergies.

Phenol, isopropylated, phosphate (3:1)

<u>Acute toxicity - oral</u>	
Acute toxicity oral (LD₅₀ mg/kg)	5,000.0
Species	Rat
ATE oral (mg/kg)	5,000.0
<u>Acute toxicity - dermal</u>	
Acute toxicity dermal (LD₅₀ mg/kg)	10,000.0
Species	Rabbit
ATE dermal (mg/kg)	10,000.0
<u>Acute toxicity - inhalation</u>	
Acute toxicity inhalation (LC₅₀ vapours mg/l)	200.0
Species	Rat
ATE inhalation (vapours mg/l)	200.0

Polyurethane Resin UR5604, Part B

12. Ecological Information

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

Toxicity Aquatic Chronic 3 - H412 Harmful to aquatic life with long lasting effects.

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Toxicity Based on available data the classification criteria are not met.

Triphenyl phosphate

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Persistence and degradability

Persistence and degradability The degradability of the product is not known.

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Persistence and degradability The degradability of the product is not known.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient Not available.

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient Not available.

Mobility in soil

Mobility No data available.

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Mobility No data available.

Other adverse effects

Other adverse effects None known.

Diphenylmethane-4,4-Diisocyanate (MDI) Isomers

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

Polyurethane Resin UR5604, Part B

General information

The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods

Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

General

The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

Not applicable.

UN proper shipping name

Not applicable.

Transport hazard class(es)

No transport warning sign required.

Transport labels

No transport warning sign required.

DOT transport labels

No transport warning sign required.

Packing group

Not applicable.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Not applicable.

DOT TIH Zone

Not applicable.

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

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

None of the ingredients are listed or exempt.

Polyurethane Resin UR5604, Part B

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

None of the ingredients are listed or exempt.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

None of the ingredients are listed or exempt.

SARA 313 Emission Reporting

None of the ingredients are listed or exempt.

CAA Accidental Release Prevention

None of the ingredients are listed or exempt.

FDA - Essential Chemical

None of the ingredients are listed or exempt.

FDA - Precursor Chemical

None of the ingredients are listed or exempt.

SARA (311/312) Hazard Categories

None of the ingredients are listed or exempt.

OSHA Highly Hazardous Chemicals

None of the ingredients are listed or exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

None of the ingredients are listed or exempt.

California Air Toxics "Hot Spots" (A-I)

The following ingredients are listed or exempt:

Triphenyl phosphate

Triethyl phosphate

California Air Toxics "Hot Spots" (A-II)

None of the ingredients are listed or exempt.

California Directors List of Hazardous Substances

The following ingredients are listed or exempt:

Triphenyl phosphate

Massachusetts "Right To Know" List

The following ingredients are listed or exempt:

Triphenyl phosphate

Rhode Island "Right To Know" List

The following ingredients are listed or exempt:

Triphenyl phosphate

Minnesota "Right To Know" List

The following ingredients are listed or exempt:

Triphenyl phosphate

New Jersey "Right To Know" List

The following ingredients are listed or exempt:

Polyurethane Resin UR5604, Part B

Triphenyl phosphate

Pennsylvania "Right To Know" List

The following ingredients are listed or exempt:

Triphenyl phosphate

Inventories

US - TSCA

The following ingredients are listed or exempt:

Triphenyl phosphate

Phenol, isopropylated, phosphate (3:1)

Triethyl phosphate

4,4'-Methylenediphenyl diisocyanate, oligomers

US - TSCA 12(b) Export Notification

None of the ingredients are listed or exempt.

16. Other information

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Carc. = Carcinogenicity
 Eye Irrit. = Eye irritation
 Resp. Sens. = Respiratory sensitisation
 Repr. = Reproductive toxicity
 Skin Irrit. = Skin irritation
 Skin Sens. = Skin sensitisation
 STOT RE = Specific target organ toxicity-repeated exposure
 STOT SE = Specific target organ toxicity-single exposure
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Training advice

Read and follow manufacturer's recommendations. Only trained personnel should use this material.

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1468

Hazard statements in full

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H351 Suspected of causing cancer.
 H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.
 H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.