

Safety Data Sheet

Material Name: ~~XXXXXX~~

SDS No: 10-2615A

Other Information: If necessary, information on other physical and chemical parameters is indicated in this section

Section 10 - STABILITY AND REACTIVITY

Reactivity

Corrosion to metals: No corrosive effect on metal.

Oxidizing properties: Not fire-propagating

Chemical Stability

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

Possibility of Hazardous Reactions

Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalis. Reacts with amines. Risk of exothermic reaction. Risk of polymerization.

Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.

Conditions to Avoid

Avoid moisture.

Incompatible Materials

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

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

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact.

Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Inhalation of vapours may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed.

Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Diphenylmethane-4,4'-diisocyanate (MDI) (101-68-8)

Oral LD50 Rat 2000 mg/kg

Dermal LD50 Rabbit >9,400 mg/kg

Inhalation LD50 Rat 2.0 (OECD Guideline 403)

An aerosol was tested

Assessment other acute effects

Assessment of STOT single:

Causes temporary irritation of the respiratory tract.

Irritation / corrosion

Assessment of irritating effects: Irritating to eyes, respiratory system and skin. Skin contact may result in dermatitis, either irritative or allergic.

Skin

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Eye

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Sensitization

Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapour-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Buehler test

Species: guinea pig

Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

Result: sensitizing

Mouse Local Lymph Node Assay (LLNA)

Species: mouse

Result: sensitizin

Can cause skin sensitization

other

Species: guinea pig

Result: sensitizing

Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The substance may cause damage to the olfactory epithelium after repeated inhalation. The substance may cause damage to the lung after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Experimental/calculated data: rat (Wistar) (male/female) Inhalation 2 yrs, 6 hr/day 0, 0.2, 1, 6 mg/m³, olfactory epithelium

NOAEL: 0.2 mg/m³

LOAEL: 1 mg/m³

The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure. Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Genetic toxicity

Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, these results could not be confirmed in tests with mammals.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Genetic toxicity in vitro: OECD Guideline 471 Ames-test Salmonella typhimurium:with and without metabolic activation ambiguous

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Genetic toxicity in vivo: OECD Guideline 474 Micronucleus assay rat (male) Inhalation negative.

No clastogenic effect reported.

Carcinogenicity

Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure.

Experimental/calculated data: OECD Guideline 453 rat Inhalation 0, 0.2, 1, 6 mg/m³

Result: Lung tumors

Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

Reproductive toxicity

Assessment of reproduction toxicity: Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Teratogenicity

Assessment of teratogenicity: The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Development

OECD Guideline 414 rat Inhalation 0, 1, 4, 12 mg/m³

NOAEL Mat.: 4 mg/m³

NOAEL Teratog.: 4 mg/m³

The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Symptoms of Exposure

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

Medical conditions aggravated by overexposure

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

Section 12 - ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Based on long-term (chronic) toxicity study data, the product is very likely not harmful to aquatic organisms.

The product may hydrolyse. The test result maybe partially due to degradation products. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Toxicity to fish

LC₀ (96 h) > 1,000 mg/l, Brachydanio rerio (OECD Guideline 203, static)

Aquatic invertebrates

Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

EC50 (24 h) > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants

EC0 (72 h) 1,640 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 aquaticaerobic bacteria from a domestic water treatment plant/EC50 (3 h): > 100 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H₂O) Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Elimination information

0 % BOD of the ThOD (28 d) (OECD Guideline 302 C) (aerobic, activated sludge) Poorly biodegradable.

Assessment of stability in water

In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis)

t_{1/2} 20 h (25 °C)

Bioaccumulative potential

Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.

Bioaccumulation potential

Bioconcentration factor: 200 (28 d), Cyprinus carpio (OECD Guideline 305 E)

Mobility in soil

Assessment transport between environmental compartments.

The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Section 13 - DISPOSAL CONSIDERATIONS

Waste disposal of substance:

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

Container disposal:

DRUMS:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to

Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

Section 14 - TRANSPORT INFORMATION

US DOT Information:

Not classified as a dangerous good under transport regulations

Sea transport IMDG

Not classified as a dangerous good under transport regulations

Air transportation IATA/ICAO

Not classified as a dangerous good under transport regulations

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

Registration status:

Chemical TSCA, US released / listed.

EPCRA 311/312 (Hazard categories)

Acute;Chronic

EPCRA SECTION 313 SUPPLIER NOTIFICATION

Chemical Name	CAS
Diphenylmethane-4,4'-diisocyanate (MDI)	101-68-8
P-MDI	9016-87-9

CERCLA-RQ (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

Chemical Name	CAS	CERCLA RQ
Diphenylmethane-4,4'-diisocyanate (MDI);	101-68-8	5000 lbs
P-MDI	9016-87-9	5,000 lbs

Reportable Quantity for release: 13,157.9 lb

STATE REGULATIONS

Chemical Name	CAS	State RTK
Diphenylmethane-4,4'-diisocyanate (MDI);	101-68-8	MA, NJ, PA
P-MDI	9016-87-9	MA, NJ, PA
Methylenediphenyl diisocyanate	26447-40-5	NJ

Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 2 Fire: 1 Physical Hazard: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 2 Fire: 1 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

New SDS: April 17, 2015

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:

The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition



Safety Data Sheet

Material Name: Helix® Max Low-Rise Adhesive - Part A

SDS No: 10-2615A

that the person receiving it shall make his own determination of the suitability of the material for his particular use.