

PUR RAPID, Structural adhesive, 310 mL

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|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 11/15/2022 |
| 2.2 | 03/23/2023 | 6115087-00007 | Date of first issue: 07/13/2020 |

SECTION 1. IDENTIFICATION

Product name : PUR RAPID, Structural adhesive, 310 mL

Product code : 892.100102

Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Würth Canada Limited

Address : 345 Hanlon Creek Blvd
GUELPH, ON N1C 0A1

Telephone : +1 (905) 564 6225

Telefax : +1 (905) 564 3671

Emergency telephone : Emergencies involving a spill, fire, explosion or exposure:
CHEMTREC (24/7): 1-800-424-9300
Transport related emergencies:
CANUTEC (24/7): 1-613-996-6666 or * 666 (cell)

Urgences impliquant un déversement, incendie, explosion ou exposition:
CHEMTREC (24/7): 1-800-424-9300
Urgences liées au transport:
CANUTEC (24/7): 1-613-996-6666 ou * 666 (cellulaire)

E-mail address : prodsafe@wurth.ca

Recommended use of the chemical and restrictions on use

Recommended use : Adhesives

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Eye irritation : Category 2A

Respiratory sensitization : Category 1

Skin sensitization : Category 1

Carcinogenicity : Category 2

Specific target organ toxicity : Category 3

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- single exposure

Specific target organ toxicity : Category 2 (Respiratory Tract)
- repeated exposure (Inhalation)

GHS label elements

Hazard pictograms :



Signal Word : Danger

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.
H373 May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P284 Wear respiratory protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.
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 attention.
P333 + P313 If skin irritation or rash occurs: Get medical attention.
P337 + P313 If eye irritation persists: Get medical attention.
P342 + P311 If experiencing respiratory symptoms: Call a doctor.
P362 + P364 Take off contaminated clothing and wash it before reuse.

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Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards

Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

| Chemical name | Common Name/Synonym | CAS-No. | Concentration (% w/w) |
|--|--|--------------|-----------------------|
| 4,4'-Methylenediphenyl diisocyanate, oligomers | 1,1'-methylenebis(4-isocyanatobenzene) homopolymer | 25686-28-6 | $\geq 10 - < 30$ * |
| Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate | No data available | Not Assigned | $\geq 10 - < 30$ * |
| 4,4'-Diphenylmethane diisocyanate | Benzene, 1,1'-methylenebis[4-isocyanato- | 101-68-8 | $\geq 10 - < 30$ * |

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

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|---|---|--|
| In case of eye contact | : | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention. |
| If swallowed | : | If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water. |
| Most important symptoms and effects, both acute and delayed | : | Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure if inhaled. Respiratory symptoms, including pulmonary edema, may be delayed. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). |
| Protection of first-aiders | : | First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8). |
| Notes to physician | : | Treat symptomatically and supportively. |
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SECTION 5. FIRE-FIGHTING MEASURES

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- | | | |
|---------------------------------------|---|--|
| Suitable extinguishing media | : | Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical Water spray in large fire situations |
| Unsuitable extinguishing media | : | High volume water jet |
| Specific hazards during fire fighting | : | Exposure to combustion products may be a hazard to health. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure. |
| Hazardous combustion products | : | Silicon oxides Carbon oxides Hydrogen cyanide (hydrocyanic acid) Isocyanates Nitrogen oxides (NO _x) |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. |

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Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g., by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
After approximately one hour, transfer to waste container and do not seal, due to evolution of carbon dioxide.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.
Do not breathe vapors.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.

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Keep away from water.
 Protect from moisture.
 Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers.
 Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.
 Store locked up.
 Protect from moisture.
 Keep in a cool, well-ventilated place.
 Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
 Strong oxidizing agents
 Gases

Recommended storage temperature : 15 - 25 °C

Further information on storage stability : Keep away from direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|--|--------------|-------------------------------|--|-----------|
| 4,4'-Methylenediphenyl diisocyanate, oligomers | 25686-28-6 | TWA | 0.005 ppm | CA BC OEL |
| | | C | 0.01 ppm | CA BC OEL |
| Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate | Not Assigned | TWAEV | 0.005 ppm 0.051 mg/m ³ | CA QC OEL |
| | | TWA | 0.005 ppm | CA BC OEL |
| | | C | 0.01 ppm | CA BC OEL |
| 4,4'-Diphenylmethane diisocyanate | 101-68-8 | TWA | 0.005 ppm | CA BC OEL |
| | | C | 0.01 ppm | CA BC OEL |
| | | TWA | 0.005 ppm | CA ON OEL |
| | | C | 0.02 ppm | CA ON OEL |
| | | TWAEV | 0.005 ppm 0.051 mg/m ³ | CA QC OEL |
| | | TWA | 0.005 ppm | ACGIH |

Engineering measures : Processing may form hazardous compounds (see section 10).

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Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Combined particulates and organic vapor type

Hand protection

| | |
|--------------------|------------------|
| Material | : Nitrile rubber |
| Break through time | : ≥ 480 min |
| Glove thickness | : ≥ 0.35 mm |
| Protective index | : Class 6 |
| Wearing time | : ≤ 240 min |

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety goggles

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : paste

Color : transparent

Odor : characteristic

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|--|---|---|
| Odor Threshold | : | No data available |
| pH | : | Solvent mixture; pH value determination not possible, no aqueous solution |
| Melting point/freezing point | : | No data available |
| Initial boiling point and boiling range | : | No data available |
| Flash point | : | No data available |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | Not applicable |
| Flammability (liquids) | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapor pressure | : | No data available |
| Relative vapor density | : | No data available |
| Density | : | 1.12 g/cm ³ |
| Solubility(ies) | | |
| Water solubility | : | No data available |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity | | |
| Viscosity, dynamic | : | ca. 37,000 mPa.s (25 °C) |
| Viscosity, kinematic | : | No data available |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Particle size | : | Not applicable |

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SECTION 10. STABILITY AND REACTIVITY

- | | | |
|------------------------------------|---|---|
| Reactivity | : | Not classified as a reactivity hazard. |
| Chemical stability | : | Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions. Polymerizes at high temperatures with evolution of carbon dioxide. |
| Possibility of hazardous reactions | : | Isocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the isocyanate. Exothermic reaction with acids, amines and alcohols Reacts with water to form carbon dioxide and heat Isocyanates are not soluble in water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Hazardous decomposition products will be formed upon contact with water or humid air. |
| Conditions to avoid | : | Exposure to moisture. |
| Incompatible materials | : | Oxidizing agents Acids Bases Water Alcohols Amines Ammonia Aluminum Zinc Brass Tin Copper Galvanized metals Humid air |
| Hazardous decomposition products | : | No hazardous decomposition products are known. |

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if inhaled.

Product:

- | | | |
|---------------------------|---|---|
| Acute inhalation toxicity | : | Assessment: The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations. |
|---------------------------|---|---|

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Acute toxicity estimate: 2.62 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 425
Remarks: Based on data from similar materials

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 9,400 mg/kg
Remarks: Based on data from similar materials

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): 0.49 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 9,400 mg/kg
Remarks: Based on data from similar materials

4,4'-Diphenylmethane diisocyanate:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 2.24 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Remarks: Based on data from similar materials

Skin corrosion/irritation

Causes skin irritation.

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Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | | |
|---------|---|--------------------------------------|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | Skin irritation |
| Remarks | : | Based on data from similar materials |

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | | |
|---------|---|-------------------------|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | Skin irritation |

4,4'-Diphenylmethane diisocyanate:

| | | |
|---------|---|--------------------------------------|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | Skin irritation |
| Remarks | : | Based on data from similar materials |

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | | |
|---------|---|---|
| Result | : | Irritation to eyes, reversing within 7 days |
| Remarks | : | Based on data from similar materials |

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | | |
|---------|---|--|
| Result | : | Irritation to eyes, reversing within 21 days |
| Remarks | : | Based on national or regional regulation. |

4,4'-Diphenylmethane diisocyanate:

| | | |
|---------|---|---|
| Result | : | Irritation to eyes, reversing within 7 days |
| Remarks | : | Based on national or regional regulation. |

Respiratory or skin sensitization**Skin sensitization**

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | | |
|--------------------|---|-------------------|
| Test Type | : | Maximization Test |
| Routes of exposure | : | Skin contact |
| Species | : | Guinea pig |

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|--------------------|--|
| Method | : OECD Test Guideline 406 |
| Result | : positive |
| Remarks | : Based on data from similar materials |
| Assessment | : Probability or evidence of skin sensitization in humans |
| Routes of exposure | : Inhalation |
| Species | : Rat |
| Result | : positive |
| Remarks | : Based on data from similar materials |
| Assessment | : Probability of respiratory sensitization in humans based on animal testing |

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | |
|--------------------|--|
| Test Type | : Buehler Test |
| Routes of exposure | : Skin contact |
| Species | : Guinea pig |
| Result | : positive |
| Remarks | : Based on data from similar materials |
| Assessment | : Probability or evidence of skin sensitization in humans |
| Routes of exposure | : Inhalation |
| Species | : Rat |
| Result | : positive |
| Remarks | : Based on data from similar materials |
| Assessment | : Probability of respiratory sensitization in humans based on animal testing |

4,4'-Diphenylmethane diisocyanate:

| | |
|--------------------|--|
| Test Type | : Buehler Test |
| Routes of exposure | : Skin contact |
| Species | : Guinea pig |
| Result | : positive |
| Assessment | : Probability or evidence of skin sensitization in humans |
| Routes of exposure | : Inhalation |
| Species | : Rat |
| Result | : positive |
| Remarks | : Based on data from similar materials |
| Assessment | : Probability of respiratory sensitization in humans based on animal testing |

Germ cell mutagenicity

Not classified based on available information.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

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| Genotoxicity in vitro | : Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative Remarks: Based on data from similar materials |
| Genotoxicity in vivo | : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Rat Application Route: inhalation (dust/mist/fume) Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials |

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | |
|-----------------------|--|
| Genotoxicity in vitro | : Test Type: Bacterial reverse mutation assay (AMES) Result: negative Remarks: Based on data from similar materials |
| Genotoxicity in vivo | : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials |

4,4'-Diphenylmethane diisocyanate:

| | |
|-----------------------|---|
| Genotoxicity in vitro | : Test Type: Bacterial reverse mutation assay (AMES) Result: negative |
| Genotoxicity in vivo | : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Rat Application Route: inhalation (dust/mist/fume) Method: OECD Test Guideline 474 Result: negative |

Carcinogenicity

Suspected of causing cancer.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | |
|------------------------------|---|
| Species | : Rat |
| Application Route | : inhalation (dust/mist/fume) |
| Exposure time | : 2 Years |
| Result | : positive |
| Remarks | : Based on data from similar materials |
| Carcinogenicity - Assessment | : Limited evidence of carcinogenicity in animal studies |

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Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | |
|-------------------|--|
| Species | : Rat |
| Application Route | : inhalation (dust/mist/fume) |
| Exposure time | : 2 Years |
| Result | : positive |
| Remarks | : Based on data from similar materials |

| | |
|------------------------------|---|
| Carcinogenicity - Assessment | : Limited evidence of carcinogenicity in animal studies |
|------------------------------|---|

4,4'-Diphenylmethane diisocyanate:

| | |
|-------------------|--|
| Species | : Rat |
| Application Route | : inhalation (dust/mist/fume) |
| Exposure time | : 2 Years |
| Result | : positive |
| Remarks | : Based on data from similar materials |

| | |
|------------------------------|---|
| Carcinogenicity - Assessment | : Limited evidence of carcinogenicity in animal studies |
|------------------------------|---|

Reproductive toxicity

Not classified based on available information.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | |
|------------------------------|--|
| Effects on fetal development | : Test Type: Embryo-fetal development |
| | Species: Rat |
| | Application Route: inhalation (dust/mist/fume) |
| | Method: OECD Test Guideline 414 |
| | Result: negative |
| | Remarks: Based on data from similar materials |

4,4'-Diphenylmethane diisocyanate:

| | |
|------------------------------|--|
| Effects on fetal development | : Test Type: Embryo-fetal development |
| | Species: Rat |
| | Application Route: inhalation (dust/mist/fume) |
| | Result: negative |
| | Remarks: Based on data from similar materials |

STOT-single exposure

May cause respiratory irritation.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | |
|------------|--|
| Assessment | : May cause respiratory irritation. |
| Remarks | : Based on data from similar materials |

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Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Assessment : May cause respiratory irritation.

4,4'-Diphenylmethane diisocyanate:

Assessment : May cause respiratory irritation.

STOT-repeated exposure

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Components:**4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | |
|--------------------|---|
| Routes of exposure | : inhalation (dust/mist/fume) |
| Target Organs | : Respiratory Tract |
| Assessment | : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d. |

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | |
|--------------------|--|
| Routes of exposure | : inhalation (dust/mist/fume) |
| Target Organs | : Respiratory Tract |
| Assessment | : May cause damage to organs through prolonged or repeated exposure. |

4,4'-Diphenylmethane diisocyanate:

| | |
|--------------------|---|
| Routes of exposure | : inhalation (dust/mist/fume) |
| Target Organs | : Respiratory Tract |
| Assessment | : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d. |

Repeated dose toxicity**Components:****4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | |
|-------------------|--|
| Species | : Rat |
| NOAEL | : 0.2 mg/m ³ |
| LOAEL | : 1 mg/m ³ |
| Application Route | : inhalation (dust/mist/fume) |
| Exposure time | : 2 y |
| Remarks | : Based on data from similar materials |

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

| | |
|-------------------|-------------------------------|
| Species | : Rat |
| NOAEL | : 0.0002 mg/l |
| LOAEL | : 0.001 mg/l |
| Application Route | : inhalation (dust/mist/fume) |
| Exposure time | : 2 y |

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| | | | |
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Remarks : Based on data from similar materials

4,4'-Diphenylmethane diisocyanate:

| | |
|-------------------|--|
| Species | : Rat |
| NOAEL | : 0,2 mg/m ³ |
| LOAEL | : 1 mg/m ³ |
| Application Route | : inhalation (dust/mist/fume) |
| Exposure time | : 2 y |
| Remarks | : Based on data from similar materials |

Aspiration toxicity

Not classified based on available information.

Experience with human exposure**Components:****Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:**

| | |
|--------------|---|
| Inhalation | : Symptoms: Sensitization, respiratory tract irritation |
| Skin contact | : Symptoms: Skin irritation |
| Eye contact | : Symptoms: Eye irritation |

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****4,4'-Methylenediphenyl diisocyanate, oligomers:**

| | |
|---|---|
| Toxicity to fish | : LC50 (Danio rerio (zebra fish)): > 1,000 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 24 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials |
| Toxicity to algae/aquatic plants | : ErC50 (Desmodesmus subspicatus (green algae)): > 1,640 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (Desmodesmus subspicatus (green algae)): 1,640 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials |

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 1,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EL50 (Scenedesmus subspicatus): > 1,640 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

NOELR (Scenedesmus subspicatus): 1,640 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia): >= 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

4,4'-Diphenylmethane diisocyanate:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 3,000 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 129.7 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 1,640 mg/l
Exposure time: 72 h

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Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): 1,640 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Persistence and degradability**Components:****4,4'-Methylenediphenyl diisocyanate, oligomers:**

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302
Remarks: Based on data from similar materials

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Remarks: Based on data from similar materials

4,4'-Diphenylmethane diisocyanate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302
Remarks: Based on data from similar materials

Bioaccumulative potential**Components:****4,4'-Methylenediphenyl diisocyanate, oligomers:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Based on data from similar materials

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Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 4.51

4,4'-Diphenylmethane diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200

Partition coefficient: n-octanol/water : log Pow: 4.51

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

Do not dispose of waste into sewer.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

UN/ID No. : UN 3334

Proper shipping name : Aviation regulated liquid, n.o.s.
(4,4'-Methylenediphenyl diisocyanate, oligomers, Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate)

Class : 9

Packing group : III

Labels : Miscellaneous

Packing instruction (cargo aircraft) : 964

Packing instruction (passen- : 964

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ger aircraft)

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**TDG**

Not regulated as a dangerous good

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION**The ingredients of this product are reported in the following inventories:**

NDSL : This product contains one or several components listed in the Canadian NDSL.

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

| | | |
|-------------------|---|--|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| CA BC OEL | : | Canada. British Columbia OEL |
| CA ON OEL | : | Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act. |
| CA QC OEL | : | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for air-borne contaminants |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| CA BC OEL / TWA | : | 8-hour time weighted average |
| CA BC OEL / C | : | ceiling limit |
| CA ON OEL / C | : | Ceiling Limit (C) |
| CA ON OEL / TWA | : | Time-Weighted Average Limit (TWA) |
| CA QC OEL / TWAEV | : | Time-weighted average exposure value |

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemi-

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cal Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 03/23/2023
Date format : mm/dd/yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

CA / Z8