



DESMODUR Z 4470 MPA/X

Version 4.4

Revision Date 22.01.2020

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

1.1 Product identifier

DESMODUR Z 4470 MPA/X

Material number: 04287746

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

Use:

Hardener for coating materials

1.3 Details of the supplier of the safety data sheet

Covestro Pty Ltd.
Level 1, 700 Springvale Road
MULGRAVE, VIC 3170
AUSTRALIA

Phone: (61) 3-9581-9888
e-mail: productsafetyapac@covestro.com

1.4 Emergency telephone number

IXOM SH&E Shared Services
In Australia: 1800 033 111, In New Zealand: 0800 734 607

SECTION 2: Hazards identification

NZ importers please refer to the additional HSNO Cover Note provided by Covestro for more information specific to this product. The Cover Note should be read in conjunction with this SDS.

2.1 Classification of the substance or mixture

GHS Classification:

Flammable liquids, Category 3 (H226)
Skin irritation, Category 2 (H315)
Eye irritation, Category 2A (H319)
Sensitization of the skin, Category 1 (H317)
Specific target organ toxicity (single exposure), Category 3 (H335)
Specific target organ toxicity (repeated exposure), Category 2 (H373)

2.2 Label elements

GHS-Labeling



Warning

Hazardous components which must be listed on the label

isophorondiisocyanate Homopolymer
Reaction mass of ethylbenzene and xylene

Hazard statements:

H226 Flammable liquid and vapour.

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/ container to an approved waste disposal plant.

HAZARDOUS according to the criteria of NOHSC DANGEROUS GOODS

2.3 Other hazards

Risk of absorption through the skin of 1-methoxypropylacetate-2, xylene and ethylbenzene.

SECTION 3: Composition/information on ingredients

Type of product: Mixture

3.2 Mixtures

aliphatic polyisocyanate

ca. 70 % in 1-methoxypropylacetate-2 / xylene 1 : 1

Hazardous components

isophorondiisocyanate Homopolymer

Concentration [wt.-%]: ca. 70

EC-No.: 500-125-5

CAS-No.: 53880-05-0

GHS Classification: Skin Sens. 1 H317 STOT SE 3 H335

Reaction mass of ethylbenzene and xylene

Concentration [wt.-%]: ca. 15

GHS Classification: Flam. Liq. 3 H226 Acute Tox. 4 Inhalative H332 Acute Tox. 4 Dermal H312 Skin Irrit.

2 H315 Eye Irrit. 2 H319 STOT SE 3 H335 STOT RE 2 H373 Asp. Tox. 1 H304 Aquatic Chronic 3 H412

This contains:

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate; isophorone di-isocyanate

Concentration [wt.-%]: < 0,35

EC-No.: 223-861-6

CAS-No.: 4098-71-9

GHS Classification: Acute Tox. 1 Inhalative H330 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Resp. Sens. 1 H334

Skin Sens. 1 H317 STOT SE 3 H335 Aquatic Chronic 2 H411 Aquatic Acute 2 H401

Specific threshold concentration (GHS):

Skin Sens. 1	H317	>= 0,5 %
Resp. Sens. 1	H334	>= 0,5 %

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Take off all contaminated clothing immediately.

If inhaled: Take the person into the fresh air and keep him warm, let him rest; if there is difficulty in breathing, medical advice is required.

In case of skin contact: In case of skin contact wash affected areas thoroughly with soap and plenty of water. Consult a doctor in the event of a skin reaction.

In case of eye contact: Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist.

If swallowed: DO NOT induce the patient to vomit, medical advice is required.

4.2 Most important symptoms and effects, both acute and delayed

Notes to physician: Basic first aid, decontamination, symptomatic treatment.

4.3 Indication of any immediate medical attention and special treatment needed

Therapeutic measures: No information available.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media: Carbon dioxide (CO₂), Foam, extinguishing powder, in cases of larger fires, water spray should be used.

Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture

Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen, isocyanate vapors and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes.

5.3 Advice for fire-fighters

During fire-fighting respirator with independent air-supply and airtight garment is required.

Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Put on protective equipment (see section 8). Keep away from sources of ignition. Ensure adequate ventilation/exhaust extraction. Keep unauthorized persons away.

6.2 Environment related measures

Do not allow to escape into waterways, wastewater or soil.

6.3 Methods and material for containment and cleaning up

Remove mechanically; cover the remainder with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approx. one hour transfer to waste container and do not seal (evolution of CO₂!). Keep damp in a safe ventilated area for several days.

6.4 Reference to other sections

For further disposal measures see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Provide sufficient air exchange and/or exhaust in work rooms. Exhaust ventilation necessary if product is sprayed.

The threshold limit values noted in section 8 must be monitored. In all areas where isocyanate aerosols and/or vapor concentrations are produced in elevated concentrations, exhaust ventilation must be provided in such a way that the workplace exposure limits (WEL) is not exceeded. The air should be drawn away from the personnel handling the product

Explosion protection required.

The personal protective measures described in section 8 must be observed. The precautions required in the handling of solvents and isocyanates must be taken. Avoid contact with skin and eyes and the inhalation of vapor.

Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work and use skin-protecting ointment. Keep working clothes separately. Take off all contaminated clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities

Keep container dry and tightly closed in a cool and well ventilated place. Further information on the storage conditions which must be observed to preserve quality can be found in our product information sheet.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Components with workplace control parameters**

Substance	CAS-No.	Basis	Type	Value	Ceiling Limit Value	Remarks
2-methoxy-1-methylethyl acetate	108-65-6	AU NOEL	STEL	100 ppm 548 mg/m3		
2-methoxy-1-methylethyl acetate	108-65-6	AU NOEL				Dermal absorption possible
2-methoxy-1-methylethyl acetate	108-65-6	AU NOEL	TWA	50 ppm 274 mg/m3		
2-methoxy-1-methylethyl acetate	108-65-6	AU OEL	TWA	50 ppm 274 mg/m3		
2-methoxy-1-methylethyl acetate	108-65-6	AU OEL	STEL	100 ppm 548 mg/m3		
2-methoxy-1-methylethyl acetate	108-65-6	AU OEL				Dermal absorption possible
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate; isophorone di-isocyanate	4098-71-9	AU NOEL	TWA	0,02 mg/m3		

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate; isophorone di-isocyanate	4098-71-9	AU NOEL	STEL	0,07 mg/m ³		
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8.2 Exposure controls**Respiratory protection**

Respiratory protection required in insufficiently ventilated working areas and during spraying. An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter A2-P2 (EN529) is recommended.

In case of hypersensitivity of the respiratory tract and skin (e.g. asthmatics and those who suffer from chronic bronchitis and chronic skin complaint) it is inadvisable to work with the product.

Hand protection

Conditionally suitable materials for protective gloves; EN 374:

Fluorinated rubber - FKM ($\geq 0,4$ mm)

Only suitable as splash protection. Only suitable for brief exposure. In the event of contamination, change protective gloves immediately.

Eye protection

Wear eye/face protection.

Skin and body protection

Wear suitable protective clothing.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Appearance:	liquid	
Colour:	colourless to yellowish	
Odour:	solvent-like	
Odour Threshold:	not established	
pH:	not established	
Pour point:	ca. -10 °C	DIN 51556
Boiling point/boiling range:	140 °C	
Flash point:	40 °C	
Evaporation rate:	not established	
Flammability:	not established	
Burning number:	not established	
Vapour pressure:	98 hPa at 55 °C	EG A4
	82 hPa at 50 °C	EG A4
	25 hPa at 20 °C	EG A4
Vapour density:	not established	
Density:	ca. 1,08 g/cm ³ at 20 °C	DIN EN ISO 2811
Miscibility with water:	immiscible at 15 °C	
Water solubility of ingredients:		
2-methoxy-1-methylethyl acetate	ca. 200 g/l at 20 °C	
Surface tension:	not established	
Partition coefficient (n-octanol/water):	not established	
Auto-ignition temperature:	not established	
Ignition temperature:	460 °C	DIN 51794
Decomposition temperature:	not established	
Viscosity, dynamic:	1.500 mPa.s at 23 °C	DIN EN ISO 3219/A.3
Explosive properties:	not established	

Dust explosion class: not established
Oxidising properties: not established

9.2 Other information

The indicated values do not necessarily correspond to the product specification. Please refer to the technical information sheet for specification data.

SECTION 10: Stability and reactivity

10.1 Reactivity

This information is not available.

10.2 Chemical stability

This information is not available.

10.3 Possibility of hazardous reactions

Exothermic reaction with amines and alcohols; reacts slowly with water forming CO₂, in closed containers risk of bursting owing to increase of pressure.

10.4 Conditions to avoid

This information is not available.

10.5 Incompatible materials

This information is not available.

10.6 Hazardous decomposition products

No hazardous decomposition products when stored and handled correctly.

SECTION 11: Toxicological information

Toxicological studies on the product are not yet available.

Please find below the toxicological data available to us for the components (hazardous components).

11.1 Information on toxicological effects

Acute toxicity, oral

isophorondiisocyanate Homopolymer
LD50 rat, male/female: > 14.000 mg/kg
Toxicological studies at the product containing solvent.

Reaction mass of ethylbenzene and xylene
LD50 rat, male: 3.523 mg/kg
Method: Directive 67/548/EEC, Annex V, B.1.

Acute toxicity, dermal

isophorondiisocyanate Homopolymer
Assessment: The substance or mixture has no acute dermal toxicity

Reaction mass of ethylbenzene and xylene
Assessment: Harmful in contact with skin.
Classification (1272/2008/CE)

Acute toxicity, inhalation

isophorondiisocyanate Homopolymer
LC50 rat, male/female: > 5 mg/l, 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Reaction mass of ethylbenzene and xylene

Assessment: Harmful if inhaled.
Classification (1272/2008/CE)

Primary skin irritation

isophorondiisocyanate Homopolymer
Species: rabbit
Exposure duration: 4 h
Result: non-irritant
Classification: No skin irritation
Method: OECD Test Guideline 404

Reaction mass of ethylbenzene and xylene
Classification: Causes skin irritation.
Regulation (EC) No 1272/2008

Primary mucosae irritation

isophorondiisocyanate Homopolymer
Species: rabbit
Result: slight irritant
Classification: No eye irritation
Method: OECD Test Guideline 405
Toxicological studies at the product containing solvent.

Reaction mass of ethylbenzene and xylene
Classification: Causes serious eye irritation.
Regulation (EC) No 1272/2008

Sensitisation

isophorondiisocyanate Homopolymer
Skin sensitization (local lymph node assay (LLNA)):
Species: Mouse
Result: positive
Classification: May cause sensitization by skin contact (Sub cat. 1B)
Method: OECD Test Guideline 429
Toxicological studies at the product containing solvent.

Skin sensitisation according to Magnusson/Kligmann (maximizing test):
Species: Guinea pig
Result: positive
Classification: May cause sensitization by skin contact (Sub cat. 1B)
Method: OECD Test Guideline 406
Toxicological studies at the product containing solvent.

Respiratory sensitization

Classification: No classification according to EC Directives 2006/121/EC or 1999/45/EC as respiratory sensitizer.
No pulmonary sensitisation observed in animal tests.
No pulmonary sensitisation potential was observed in guinea pigs after either intradermal or inhalative induction with polyisocyanate based on isophorone diisocyanate.

Reaction mass of ethylbenzene and xylene
Skin sensitization (local lymph node assay (LLNA)):
Species: Mouse
Result: negative
Classification: Does not cause skin sensitization.
Method: OECD Test Guideline 429

Respiratory sensitization

No data available.

Subacute, subchronic and prolonged toxicity

isophorondiisocyanate Homopolymer
NOAEL: 2,9 mg/m³ air
Application Route: Inhalative
Species: rat, male/female

Dose Levels: 0 - 2,9 - 15 - 75 mg/m³
Exposure duration: 13 w
Frequency of treatment: 6 hours a day, 5 days a week
Test substance: aerosol
Method: OECD Test Guideline 413
Evidence of damage to organs other than the organs of respiration was not found.

Reaction mass of ethylbenzene and xylene
NOAEL: 250 mg/kg
Application Route: Oral
Species: rat, male/female
Dose Levels: 0 - 150 - 750 - 1500 mg/kg bw/day
Exposure duration: 90 Days
Method: OECD Test Guideline 408

Carcinogenicity

isophorondiisocyanate Homopolymer
No data available.

Reaction mass of ethylbenzene and xylene
NOAEL (Toxicity): 500 mg/kg body weight/day
Species: rat, male/female
Application Route: Oral
Dose Levels: 0 - 250 - 500 mg/kg body weight/day
Exposure duration: 103 week(s)
Frequency of treatment: 5 times/week
Method: Regulation (EC) No. 440/2008, Annex, B.32

NOAEL (Toxicity): 1.000 mg/kg body weight/day
Species: Mouse, male/female
Application Route: Oral
Dose Levels: 0 - 500 - 1000 mg/kg body weight/day
Exposure duration: 103 week(s)
Frequency of treatment: 5 times/week
Method: Regulation (EC) No. 440/2008, Annex, B.32

Reproductive toxicity/Fertility

isophorondiisocyanate Homopolymer
Available data show no indications for reproductive toxicity.

Reaction mass of ethylbenzene and xylene
NOAEL - Parents: 500 ppm
NOAEL – F1: 500 ppm
NOAEL (parents, generally toxicity): 500 ppm
Test type: One-generation study
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 60 - 250 - 500 ppm
Test substance: (as vapour)

NOAEL - Parents: >= 500 ppm
NOAEL – F1: >= 500 ppm
NOAEL – F2: >= 500 ppm
Test type: Two-generation study
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 25 - 100 - 500 ppm
Test substance: (as vapour)

Reproductive toxicity/Teratogenicity

isophorondiisocyanate Homopolymer
Animal experiments on structurally similar compounds showed no indication of specific reproductive toxicity.

Reaction mass of ethylbenzene and xylene
NOAEL (teratogenicity): >= 2000 ppm
NOAEL (maternal): 500 ppm
NOAEL (developmental toxicity): 100 ppm

Species: rat, female
Application Route: Inhalative
Dose Levels: 0, 100, 500, 1000, 2000 ppm
Frequency of treatment: 6 hours/day 7 days/week
Test substance: (as vapour)
Method: OECD Test Guideline 414

NOAEL (teratogenicity): \geq 2000 ppm
NOAEL (maternal): 500 ppm
NOAEL (developmental toxicity): 500 ppm
Species: rat, female
Application Route: Inhalative
Dose Levels: 0, 100, 500, 1000, 2000 ppm
Frequency of treatment: 6 hours/day 7 days/week
Test substance: (as vapour)
Method: OECD Test Guideline 414
Studies of a comparable product.

NOAEL (developmental toxicity): \geq 500 ppm
Species: rat, female
Application Route: Inhalative
Dose Levels: 0, 100, 500, 1000 ppm
Frequency of treatment: 6 hours/day 7 days/week
Test substance: (as vapour)
Studies of a comparable product.

Genotoxicity in vitro

isophorondiisocyanate Homopolymer
Test type: Salmonella/microsome test (Ames test)
Metabolic activation: with/without
Result: No indication of mutagenic effects.
Method: OECD Test Guideline 471

Test type: Point mutation in mammalian cells (HPRT test)
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 476

Test type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary (CHO) cells
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 473

Reaction mass of ethylbenzene and xylene
Test type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 471

Test type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary (CHO) cells
Metabolic activation: with/without
Result: negative
Method: Directive 67/548/EEC, Annex V, B.10.

Test type: DNA damage and repair (SCE test)
Test system: Chinese hamster ovary (CHO) cells
Metabolic activation: with/without
Result: negative
Method: Regulation (EC) No. 440/2008, Annex, B.19

Test type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma cells
Metabolic activation: with/without
Result: negative
Method: Regulation (EC) No. 440/2008, Annex, B.17

Genotoxicity in vivo

isophorondiisocyanate Homopolymer
No data available.

Reaction mass of ethylbenzene and xylene

Test type: dominant lethal test
Species: rat, male/female
Application Route: intraperitoneal
Dose: 1 ml/kg
Result: negative
Method: OECD Test Guideline 478

Test type: dominant lethal test
Species: Mouse, male/female
Application Route: intraperitoneal
Dose: 1 ml/kg
Result: negative
Method: OECD Test Guideline 478

STOT evaluation – one-time exposure

isophorondiisocyanate Homopolymer
May cause respiratory irritation.

Reaction mass of ethylbenzene and xylene
May cause respiratory irritation.

STOT evaluation – repeated exposure

isophorondiisocyanate Homopolymer
Based on available data, the classification criteria are not met.

Reaction mass of ethylbenzene and xylene
Target Organs: inner ear
May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity

isophorondiisocyanate Homopolymer
Based on available data, the classification criteria are not met.

Reaction mass of ethylbenzene and xylene
May be fatal if swallowed and enters airways.

CMR Assessment

isophorondiisocyanate Homopolymer
Carcinogenicity: Based on available data, the classification criteria are not met.
Mutagenicity: In vitro tests did not show mutagenic effects Based on available data, the classification criteria are not met.
Teratogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity/Fertility: Based on available data, the classification criteria are not met.

Reaction mass of ethylbenzene and xylene
Carcinogenicity: Based on available data, the classification criteria are not met.
Mutagenicity: Based on available data, the classification criteria are not met.
Teratogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity/Fertility: Based on available data, the classification criteria are not met.

Toxicology Assessment

isophorondiisocyanate Homopolymer
Acute effects: Based on available data, the classification criteria are not met.
Sensitization: May cause sensitization by skin contact.

Reaction mass of ethylbenzene and xylene

Acute effects: Harmful in contact with skin or if inhaled Causes skin irritation. Causes serious eye irritation.
Sensitization: Based on available data, the classification criteria are not met.

Additional information

Special properties/effects: Over-exposure entails the risk of concentration-dependent irritating effects on eyes, nose throat, and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations, including concentrations below the occupational exposure limit. Prolonged contact with the skin may cause tanning and irritant effects.

Animal tests and other research indicate that skin contact with diisocyanates can play a role in causing isocyanate sensitization and respiratory reaction.

Aromatic hydrocarbons irritate the skin and mucous membranes and are narcotic if inhaled in high concentrations. repeated or prolonged contact may cause irritation and dermatitis. Risk of cutaneous absorption.

SECTION 12: Ecological information

Ecotoxicological studies of the product are not available.

Do not allow to escape into waterways, wastewater or soil.

Please find below the ecotoxicological data available to us for the components.

12.1 Toxicity**Acute Fish toxicity**

isophorondiisocyanate Homopolymer

LC50 > 1,51 mg/l

Species: Cyprinus carpio (Carp)

Exposure duration: 96 h

Method: Directive 67/548/EEC, Annex V, C.1.

Ultra turrax: 60 sec. 8000 rpm; 24h magnetic stirrer; Filtration.

No toxic effects with saturated solution.

Ecotoxicological studies of the product

Reaction mass of ethylbenzene and xylene

LC50 2,6 mg/l

Species: Oncorhynchus mykiss (rainbow trout)

Exposure duration: 96 h

Method: OECD Test Guideline 203

Studies of a comparable product.

Chronic Fish toxicity

isophorondiisocyanate Homopolymer

Study scientifically not justified.

Reaction mass of ethylbenzene and xylene

NOEC > 1,3 mg/l

Species: Oncorhynchus mykiss (rainbow trout)

Exposure duration: 56 d

Acute toxicity for daphnia

isophorondiisocyanate Homopolymer

EC50 > 3,36 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 48 h
Method: OECD Test Guideline 202
Ultra turrax: 60 sec. 8000 rpm; 24h magnetic stirrer; Filtration.
No toxic effects with saturated solution.
Ecotoxicological studies of the product containing solvent.

Reaction mass of ethylbenzene and xylene
EC50 1 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 24 h
Method: OECD Test Guideline 202
Studies of a comparable product.

Chronic toxicity to daphnia

isophorondiisocyanate Homopolymer
Study scientifically not justified.

Reaction mass of ethylbenzene and xylene
NOEC 1,17 mg/l
Species: Ceriodaphnia dubia
Exposure duration: 7 d
Studies of a comparable product.

NOEC 0,96 mg/l
Species: Ceriodaphnia dubia
Exposure duration: 7 d
Studies of a comparable product.

Acute toxicity for algae

isophorondiisocyanate Homopolymer
ErC50 > 3,1 mg/l
Test type: Growth inhibition
Species: scenedesmus subspicatus
Exposure duration: 72 h
Method: OECD Test Guideline 201
Ultra turrax: 60 sec. 8000 rpm; 24h magnetic stirrer; Filtration.
No toxic effects with saturated solution.
Ecotoxicological studies of the product containing solvent.

Reaction mass of ethylbenzene and xylene
EC50 2,2 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 73 h
Method: OECD Test Guideline 201
Studies of a comparable product.

NOEC 0,44 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 73 h
Method: OECD Test Guideline 201
Studies of a comparable product.

Acute bacterial toxicity

isophorondiisocyanate Homopolymer
EC50 > 10.000 mg/l
Test type: Respiration inhibition
Species: activated sludge
Exposure duration: 3 h
Method: OECD Test Guideline 209
Ecotoxicological studies of the product

Reaction mass of ethylbenzene and xylene
EC50 > 157 mg/l
endpoint: Growth rate
Species: activated sludge

Exposure duration: 3 h
Method: OECD Test Guideline 209
Studies of a comparable product.

EC50 96 mg/l
endpoint: nitrification inhibition
Species: activated sludge
Exposure duration: 24 h
Studies of a comparable product.

Toxicity to terrestrial plants

Reaction mass of ethylbenzene and xylene
EC50 (Growth inhibition) > 1 mg/kg
Species: Lactuca sativa (lettuce)
Test period: 14 d
Method: OECD Test Guideline 208
Studies of a comparable product.

Ecotoxicology Assessment

isophorondiisocyanate Homopolymer

Acute aquatic toxicity: The substance is graded as non-critical to water organisms.

Chronic aquatic toxicity: A chronic aquatic toxicity is not expected.

Impact on Sewage Treatment: Because of the low bacterial toxicity, there is no risk of an adverse effect on the performance of biological waste water treatment plants.

Reaction mass of ethylbenzene and xylene

Chronic aquatic toxicity: Harmful to aquatic life with long lasting effects.

Impact on Sewage Treatment: Because of the low bacterial toxicity, there is no risk of an adverse effect on the performance of biological waste water treatment plants.

12.2 Persistence and degradability**Biodegradability**

isophorondiisocyanate Homopolymer

Test type: aerobic

Inoculum: activated sludge

Biodegradation: 0 %, 28 d, i.e. not readily degradable

Method: OECD Test Guideline 301 F

Ecotoxicological studies of the product

Reaction mass of ethylbenzene and xylene

Test type: aerobic

Inoculum: activated sludge

Biodegradation: 87,8 %, 28 d, i.e. readily biodegradable

Method: OECD Test Guideline 301 F

Stability in water

isophorondiisocyanate Homopolymer

Test type: Hydrolysis

Half life: 3,62 - 7,66 h at 22,6 °C (pH: 7)

Method: OECD Test Guideline 111

The substance hydrolyzes rapidly in water.

Photodegradation

isophorondiisocyanate Homopolymer

Test type: Phototransformation in air

sensitizer: OH-radicals

Concentration sensibilisator: 500.000 1/cm³

Rate constant: 4E-11 cm³/s

Half-life indirect photolysis: 9,6 d

Method: SRC - AOP (calculation)

After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes.

Reaction mass of ethylbenzene and xylene

Test type: Phototransformation in air

sensitizer: OH-radicals

Half-life indirect photolysis: 1 - 2 d

After evaporation or exposure to the air, the product will be moderately degraded by photochemical

processes.

Volatility (Henry's Law constant)

Reaction mass of ethylbenzene and xylene

Calculated value = 623 Pa*m³/mol at 25 °C

The substance has to be scored as being highly volatile from water.

12.3 Bioaccumulative potential**Bioaccumulation**

isophorondiisocyanate Homopolymer

An accumulation in aquatic organisms is not to be expected.

Reaction mass of ethylbenzene and xylene

Bioconcentration factor (BCF): 25,9

Species: *Oncorhynchus mykiss* (rainbow trout)

Exposure duration: 56 d

Concentration: 0,74 mg/l

Accumulation in aquatic organisms is unlikely.

12.4 Mobility in soil**Distribution among environmental compartments**

isophorondiisocyanate Homopolymer

Adsorption

not applicable

Reaction mass of ethylbenzene and xylene

Adsorption/Soil

Koc value: 537

log Koc value: 2,73

Method: OECD Test Guideline 121

Moderately mobile in soils

Environmental distribution

isophorondiisocyanate Homopolymer

not applicable

12.5 Results of PBT and vPvB assessment

No data available.

12.6 Other adverse effects

Isocyanate reacts with water at the interface forming CO₂ and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by watersoluble solvents. Previous experience shows that polyurea is inert and non-degradable.

SECTION 13: Disposal considerations

Dispose in accordance with applicable international, national and local laws, ordinances and statutes. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

13.1 Waste treatment methods

After final product withdrawal, all residues must be removed from containers (drip-free, powder-free or paste-free). Once the product residues adhering to the walls of the containers have been rendered harmless, the product and hazard labels must be invalidated. These containers can be returned for recycling to the appropriate centres set up within the framework of the existing take-back scheme of the chemical industry. Containers must be recycled in compliance with national legislation and environmental regulations.

None disposal into waste water.

SECTION 14: Transport information**ADG7 - Australia**

14.1 UN number	:	1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
Hazchem Code	:	3Y
14.4 Packing group	:	III
14.5 Environmental hazards	:	no

IATA

14.1 UN number	:	1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
14.4 Packing group	:	III
14.5 Environmental hazards	:	no

IMDG

14.1 UN number	:	1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
14.4 Packing group	:	III
14.5 Marine pollutant	:	no
EmS Code	:	F-E - <u>S-E</u>
Segregation Group IMDG	:	not applicable

14.6 Special precautions for user

See section 6 - 8.

Additional information	:	Combustible. Keep dry. Avoid heat above +50 °C. Keep away from foodstuffs, acids and alkalis.
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14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No poison schedule number allocated

Any existing national regulations on the handling of isocyanates and solvents must be observed.

SECTION 16: Other information**Full text of the hazard statements of the CLP classification (1272/2008/CE) referred to under sections 2, 3 and 10.**

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

The product is used mainly as a hardener in coating materials or adhesives. The handling of coating materials or adhesives containing reactive polyisocyanates and residual monomeric IPDI requires appropriate protective measures referred to in this safety data sheet. These products may therefore be used only in industrial or trade applications. They are not suitable for use in homemaker (DIY) applications.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Further information

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.