



DESMODUR ULTRA N 3580 BA

Version 1.1

Revision Date 04.08.2022

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

1.1 Product identifier

DESMODUR ULTRA N 3580 BA

Material number: 86671042

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

Use:

Hardener for coating materials or adhesives for industrial and trade applications

Uses advised against:

Not suitable for use in homemaker (DIY) applications.

1.3 Details of the supplier of the safety data sheet

Covestro Deutschland AG
COVDEAG-CEO-GI-GQ-GPS&RA-GPS&I
51365 Leverkusen

Tel.: +49 214 6009 8134
Email: ProductSafetyEMLA@covestro.com

1.4 Emergency telephone number

+1-703-527-3887 (Chemtrec)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 3 (H226)
Acute toxicity, Inhalative, Category 4 (H332)
Sensitization of the skin, Category 1 (H317)
Specific target organ toxicity (single exposure), Category 3 (H336 (Central nervous system))
Specific target organ toxicity (single exposure), Category 3 (H335 (Respiratory system))

2.2 Label elements



Warning

Hazardous components which must be listed on the label

Aliphatic Diisocyanate Prepolymer
n-butyl acetate

Hazard statements:

H226 Flammable liquid and vapour.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P261 Avoid breathing mist or vapours.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P403 + P235 Store in a well-ventilated place. Keep cool.

Supplementary hazardous characteristics and labeling elements:

EUH066 Repeated exposure may cause skin dryness or cracking.
 EUH204 Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

In case of hypersensitivity of the respiratory tract (e.g. asthmatics and those who suffer from chronic bronchitis) it is inadvisable to work with the product.
 Symptoms affecting the respiratory tract can also occur several hours after overexposure.
 Dust, vapors and aerosols are the primary risk to the respiratory tract.

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

Type of product: Mixture

3.2 Mixtures

aliphatic polyisocyanate

ca. 80 % in n-butyl acetate

Hazardous components

Aliphatic Diisocyanate Prepolymer

Concentration [wt.-%]: ca. 80

CAS-No.: 30322-28-2

Classification (1272/2008/CE): Acute Tox. 4 Inhalative H332 Skin Sens. 1 H317 STOT SE 3 H335 (Respiratory system)

ATE (inhalation, dust/mist): 1,5 mg/l

n-butyl acetate

Concentration [wt.-%]: ca. 20

Index-No.: 607-025-00-1

EC-No.: 204-658-1

REACH Registration Number: 01-2119485493-29, 01-2119485493-29-0059

CAS-No.: 123-86-4

Classification (1272/2008/CE): Flam. Liq. 3 H226 STOT SE 3 H336 (Central nervous system)

This contains:

hexamethylene-di-isocyanate

Concentration [wt.-%]: < 0,1

Index-No.: 615-011-00-1

REACH Registration Number: 01-2119457571-37-0000, 01-2119457571-37-0005, 01-2119457571-37-0006

CAS-No.: 822-06-0

Classification (1272/2008/CE): Acute Tox. 4 Oral H302 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 (Respiratory system)

Specific threshold concentration (GHS):

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

Skin Sens. 1 H317 >= 0,5 %

ATE (oral): 746 mg/kg

ATE (inhalation, vapour): 0,124 mg/l

No annex is required for the impurities of the substance according to article 3(1) of Regulation (EC) No 1907/2006 mentioned above.

Candidate List of Substances of Very High Concern for Authorisation

This product contains no substances of very high concern in concentrations where an information obligation applies (REACH Regulation (EC) No. 1907/2006, Article 59).

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 vomiting. Wash/clean mouth with water. 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.

Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.

5.3 Advice for fire-fighters

For firefighting, self-contained breathing apparatus is required, plus a gas-tight chemical hazmat suit.

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.

Spill area can be decontaminated with the following recommended decontamination solution:

Decontamination solution 1: 8-10% sodium carbonate and 2% of liquid soap in water

Decontamination solution 2: Liquid/yellow soap (potassium soap with ~15% anionic tenside): 20ml;
Water:700ml; Polyethylenglycol (PEG 400): 350ml

Decontamination solution 3: 30 % commercial laundry detergent containing monoethanolamine, 70 % water

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

Products containing solvent: 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.

Storage class (TRGS 510) : 3: Flammable liquids

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
n-butyl acetate	123-86-4	TRGS 900				Listed.
n-butyl acetate	123-86-4	TRGS 900		62 ppm 300 mg/m ³	2	Y
n-butyl acetate	123-86-4	TRGS 900	STEL CL			Category II: substances with a respiratory effect.
n-butyl acetate	123-86-4	EU ELV	STEL	150 ppm 723 mg/m ³		Indicative
n-butyl acetate	123-86-4	EU ELV	TWA	50 ppm 241 mg/m ³		Indicative
hexamethylene-di-isocyanate	822-06-0	TRGS 900				Listed.
hexamethylene-di-isocyanate	822-06-0	TRGS 900		0,005 ppm 0,035 mg/m ³	=2=	
hexamethylene-di-isocyanate	822-06-0	TRGS 900	STEL CL			Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.
hexamethylene-di-isocyanate	822-06-0	TRGS 900	STEL FAC		1	Substance listed with both Peak factor and STEL factor. The Peak factor is supplied with the AGW values.

Derived No Effect Level (DNEL)**Aliphatic Diisocyanate Prepolymer**

Value type	Route of exposure	Health Effects	Value	Remarks
				not required

n-butyl acetate

Value type	Route of exposure	Health Effects	Value	Remarks
Workers	Inhalation	Long-term systemic effects	300 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Workers	Inhalation	Acute systemic effects	600 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Workers	Inhalation	Long-term local effects	300 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Workers	Inhalation	Acute local effects	600 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Workers	Dermal	Long-term systemic effects	11 mg/kg bw/day	Most sensitive endpoint: Neurotoxicity
Workers	Dermal	Acute systemic effects	11 mg/kg bw/day	Most sensitive endpoint: Neurotoxicity
Workers	Dermal	Long-term local effects		No hazard identified
Workers	Dermal	Acute local effects		No hazard identified
Workers	Eye contact	Local effects		No hazard identified
Consumers	Inhalation	Long-term systemic effects	35,7 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)

Consumers	Inhalation	Acute systemic effects	300 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Consumers	Inhalation	Long-term local effects	35,7 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Consumers	Inhalation	Acute local effects	300 mg/m ³	Most sensitive endpoint: Irritation (respiratory tract)
Consumers	Dermal	Long-term systemic effects	6 mg/kg bw/day	Most sensitive endpoint: Neurotoxicity
Consumers	Dermal	Acute systemic effects	6 mg/kg bw/day	Most sensitive endpoint: Neurotoxicity
Consumers	Dermal	Long-term local effects		No hazard identified
Consumers	Dermal	Acute local effects		No hazard identified
Consumers	Oral	Long-term systemic effects	2 mg/kg bw/day	Most sensitive endpoint: Neurotoxicity
Consumers	Oral	Acute systemic effects	2 mg/kg bw/day	Most sensitive endpoint: Neurotoxicity
Consumers	Eye contact	Local effects		No hazard identified

Predicted No Effect Concentration (PNEC)**Aliphatic Diisocyanate Prepolymer**

Compartment	Value	Remarks
		not required

n-butyl acetate

Fresh water	0,18 mg/l	
Fresh water sediment	0,981 mg/kg dry weight (d.w.)	
Marine water	0,018 mg/l	
Marine sediment	0,0981 mg/kg dry weight (d.w.)	
Sewage treatment plant	35,6 mg/l	
Air		No hazard identified
Soil	0,0903 mg/kg dry weight (d.w.)	
Oral		Does not bioaccumulate.
Intermittent use/release	0,36 mg/l	

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 (e.g. asthmatics and those who suffer from chronic bronchitis) it is inadvisable to work with the product.

Hand protection

Conditionally suitable materials for protective gloves; EN 374:

Nitrile rubber - NBR (>= 0.35 mm)

Breakthrough time not tested; dispose of immediately after contamination.

Eye protection

Wear eye/face protection.

Skin and body protection

Wear suitable protective clothing.

In case of hypersensitivity of the skin it is inadvisable to work with the product.

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

Physical state:	liquid at 20 °C at 1.013 hPa	
Appearance:	liquid	
Colour:	colourless to yellowish	
Odour:	strong, solvent-like	
Odour Threshold:	not established	
pH:	not applicable	
Pour point:	ca. -54 °C	ISO 3016
Boiling point/boiling range:	ca. 126 °C at 1.013 hPa	DIN 53171
Flash point:	ca. 31 °C at 1.013 hPa	DIN EN ISO 2719
Evaporation rate:	not established	
Flammability (solid, gas):	not applicable	
Burning number:	not applicable	
Upper/lower flammability or explosive limits:		
n-butyl acetate	upper: 7,5 %(V) / lower: 1,2 %(V)	
Vapour pressure:	ca. 18 hPa at 20 °C	EG A4
	ca. 54 hPa at 50 °C	EG A4
	ca. 65 hPa at 55 °C	EG A4
Relative vapour density:	not established	
Density:	ca. 1,10 g/cm ³ at 20 °C	DIN 51757
Miscibility with water:	not established	
Water solubility:	not established	
Surface tension:	not established	
Partition coefficient (n-octanol/water):	not established	
Auto-ignition temperature:	not applicable	
Ignition temperature:	ca. 415 °C	DIN 51794
Decomposition temperature:	not established	
Heat of combustion:	not established	
Viscosity, dynamic:	ca. 605 mPa.s at 20 °C	DIN 53019
Viscosity, kinematic:	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.

Explosive properties:	not established
Dust explosion class:	not applicable
Oxidising properties:	not established

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 hazard classes as defined in Regulation (EC) No 1272/2008**Acute toxicity, oral**

Aliphatic Diisocyanate Prepolymer

LD50 rat, female: > 2.500 mg/kg

Method: OECD Test Guideline 423

Studies of a comparable product.

n-butyl acetate

LD50 rat, female: 10.760 mg/kg

Method: OECD Test Guideline 423

Acute toxicity, dermal

Aliphatic Diisocyanate Prepolymer

LD50 rat, male/female: > 2.000 mg/kg

Method: OECD Test Guideline 402

Studies of a comparable product.

LD50 rabbit, male/female: > 2.000 mg/kg

Studies of a comparable product.

n-butyl acetate

LD50 rat, male/female: 14.112 mg/kg

Method: OECD Test Guideline 402

Acute toxicity, inhalation

ATEmix (inhal.): 1,88 mg/l, 4 h

Test atmosphere: dust/mist

Method: Calculation method

Aliphatic Diisocyanate Prepolymer

LC50 rat, female: 0,390 mg/l, 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified. Studies of a comparable product.

Converted acute toxicity point estimate 1,5 mg/l
Test atmosphere: dust/mist
Method: Expert judgement

Assessment: Harmful if inhaled.

n-butyl acetate
LC50 rat, male/female: > 21 mg/l, 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Primary skin irritation

Aliphatic Diisocyanate Prepolymer
Species: rabbit
Exposure duration: 4 h
Result: slight irritant
Classification: No skin irritation
Method: OECD Test Guideline 404
Studies of a comparable product.

n-butyl acetate
Species: rabbit
Result: non-irritant
Classification: No skin irritation
Method: OECD Test Guideline 404

Species: Human experience
Classification: Repeated exposure may cause skin dryness or cracking.

Primary mucosae irritation

Aliphatic Diisocyanate Prepolymer
Species: rabbit
Result: slight irritant
Classification: No eye irritation
Method: OECD Test Guideline 405
Studies of a comparable product.

n-butyl acetate
Species: rabbit
Result: slight irritant
Classification: No eye irritation
Method: OECD Test Guideline 405

Sensitisation

Aliphatic Diisocyanate Prepolymer
Skin sensitization (local lymph node assay (LLNA)):
Species: Mouse
Result: positive
Classification: May cause sensitization by skin contact.
Method: OECD Test Guideline 429
Studies of a comparable product.

Skin sensitisation according to Magnusson/Kligmann (maximizing test):

Species: Guinea pig
Result: positive
Classification: May cause sensitization by skin contact.
Method: OECD Test Guideline 406
Studies of a comparable product.

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 hexamethylene diisocyanate.

n-butyl acetate

Skin sensitisation according to Magnusson/Kligmann (maximizing test):

Species: Guinea pig

Result: negative

Classification: Does not cause skin sensitization.

Method: OECD Test Guideline 406

Respiratory sensitization

No data available.

Subacute, subchronic and prolonged toxicity

Aliphatic Diisocyanate Prepolymer

NOAEL: 3,3 mg/m³ air

Application Route: Inhalative

Species: rat, male/female

Dose Levels: 0 - 0,5 - 3,3 - 26,4 mg/m³

Exposure duration: 90 d

Frequency of treatment: 6 hours a day, 5 days a week

Test substance: as aerosol

Method: OECD Test Guideline 413

Evidence of damage to organs other than the organs of respiration was not found.

Studies of a comparable product.

n-butyl acetate

NOAEL: 500 ppm

Application Route: inhalation (vapour)

Species: rat, male/female

Dose Levels: 500 - 1500 - 3000 ppm

Exposure duration: 90 d

Frequency of treatment: 6 hours a day, 5 days a week

Carcinogenicity

Aliphatic Diisocyanate Prepolymer

No data available.

n-butyl acetate

No data available.

Reproductive toxicity/Fertility

Aliphatic Diisocyanate Prepolymer

Available data show no indications for reproductive toxicity.

n-butyl acetate

Test type: Two-generation study

Species: rat, male/female

Application Route: Inhalative

Method: OECD Test Guideline 416

Animal testing did not show any effects on fertility.

Reproductive toxicity/Developmental Toxicity/Teratogenicity

Aliphatic Diisocyanate Prepolymer

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

n-butyl acetate

NOAEL (teratogenicity): 1500 ppm

Species: rat, female

Application Route: Inhalative

Method: OECD Test Guideline 414

Did not show teratogenic effects in animal experiments.

Genotoxicity in vitro

Aliphatic Diisocyanate Prepolymer
Test type: Salmonella/microsome test (Ames test)
Metabolic activation: with/without
Result: No indication of mutagenic effects.
Method: OECD Test Guideline 471
Studies of a comparable product.

Test type: Point mutation in mammalian cells (HPRT test)
Test system: Chinese hamster ovary (CHO) cells
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 476
Studies of a comparable product.

Test type: Chromosome aberration test in vitro
Test system: Chinese hamster V79 cell line
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 473
Studies of a comparable product.

n-butyl acetate
Test type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 471

Test type: Ames test
Test system: Escherichia coli
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 471

Test type: In vitro mammalian cell gene mutation test
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 473

Genotoxicity in vivo

Aliphatic Diisocyanate Prepolymer
No data available.

n-butyl acetate
Test type: In vivo micronucleus test
Species: Mouse
Application Route: Oral
Result: negative
Method: OECD Test Guideline 474
Studies of a comparable product.

STOT evaluation – one-time exposure

Aliphatic Diisocyanate Prepolymer
Route of exposure: Inhalative
May cause respiratory irritation.

n-butyl acetate
Target Organs: Central nervous system
May cause drowsiness or dizziness.

STOT evaluation – repeated exposure

Aliphatic Diisocyanate Prepolymer
Based on available data, the classification criteria are not met.

n-butyl acetate
Based on available data, the classification criteria are not met.

Aspiration toxicity

Aliphatic Diisocyanate Prepolymer

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

n-butyl acetate

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

CMR Assessment

Aliphatic Diisocyanate Prepolymer

Carcinogenicity: No data available.

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.

n-butyl acetate

Carcinogenicity: No data available.

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

Aliphatic Diisocyanate Prepolymer

Acute effects: Harmful if inhaled.

Sensitization: May cause an allergic skin reaction.

n-butyl acetate

Acute effects: Based on available data, the classification criteria are not met.

Sensitization: Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other information

Special properties/effects: Over-exposure, especially when spraying coatings containing isocyanate without the necessary precautions, 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.

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

Aliphatic Diisocyanate Prepolymer

LC50 > 100 mg/l

Test type: Acute Fish toxicity

Species: Danio rerio (zebra fish)

Exposure duration: 96 h

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

Studies of a comparable product.

n-butyl acetate
LC50 18 mg/l
Species: Pimephales promelas (fathead minnow)
Exposure duration: 96 h
Method: OECD Test Guideline 203

Chronic Fish toxicity

Aliphatic Diisocyanate Prepolymer
No data available.

n-butyl acetate
No data available.

Acute toxicity for daphnia

Aliphatic Diisocyanate Prepolymer
EC50 > 100 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 48 h
Method: Directive 67/548/EEC, Annex V, C.2.
Studies of a comparable product.

n-butyl acetate
EC50 44 mg/l
Species: Daphnia (water flea)
Exposure duration: 48 h

Chronic toxicity to daphnia

Aliphatic Diisocyanate Prepolymer
No data available.

n-butyl acetate
NOEC 23,2 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 21 d
Method: OECD Test Guideline 211
Studies of a comparable product.

Acute toxicity for algae

Aliphatic Diisocyanate Prepolymer
ErC50 > 1.000 mg/l
Test type: Growth inhibition
Species: scenedesmus subspicatus
Exposure duration: 72 h
Method: DIN 38412
Studies of a comparable product.

n-butyl acetate
ErC50 397 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 72 h
Method: OECD Test Guideline 201
Studies of a comparable product.

NOEC 196 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 72 h
Method: OECD Test Guideline 201
Studies of a comparable product.

Acute bacterial toxicity

Aliphatic Diisocyanate Prepolymer
EC50 3.828 mg/l
Test type: Respiration inhibition
Species: activated sludge
Exposure duration: 3 h
Method: OECD Test Guideline 209
Studies of a comparable product.

n-butyl acetate
IC50 356 mg/l
Species: Tetrahymena pyriformis
Exposure duration: 40 h

Ecotoxicology Assessment

Aliphatic Diisocyanate Prepolymer

Acute aquatic toxicity: Based on available data, the classification criteria are not met.

Chronic aquatic toxicity: Based on available data, the classification criteria are not met.

n-butyl acetate

Acute aquatic toxicity: Based on available data, the classification criteria are not met.

Chronic aquatic toxicity: Based on available data, the classification criteria are not met.

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**

Aliphatic Diisocyanate Prepolymer

Test type: aerobic

Inoculum: activated sludge

Biodegradation: 1 %, 28 d, i.e. not readily degradable

Method: Directive 67/548/EEC Annex V, C.4.E.

Studies of a comparable product.

Test type: aerobic

Inoculum: activated sludge

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

Studies of a comparable product.

n-butyl acetate

Test type: aerobic

Biodegradation: 83 %, 28 d, i.e. readily biodegradable

Method: OECD Test Guideline 301 D

Stability in water

Aliphatic Diisocyanate Prepolymer

Test type: Hydrolysis

Half life: 7,7 h at 23 °C

The substance hydrolyzes rapidly in water.

Studies of a comparable product.

12.3 Bioaccumulative potential**Bioaccumulation**

n-butyl acetate

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 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). Packaging empty of usable product can be handed to a professional waste management company; in the EU, this is done per packaging type at collection points run by the existing take-back systems for the chemicals industry. The product and hazardous substance labelling must be left intact on the packaging.

Alternatively, the product and hazardous substance labelling can be removed if the product residues adhering to the sides are rendered non-hazardous. This packaging can also be handed to the collection points run by the existing take-back systems for the chemicals industry for packaging type-specific recycling.

Containers must be recycled in compliance with national legislation and environmental regulations.

No disposal into waste water.

SECTION 14: Transport information**ADR/RID**

14.1 UN number or ID number	: UN 1866
14.2 UN proper shipping name	: RESIN SOLUTION
14.3 Transport hazard class(es)	: 3
Hazard Identification Number	: 30
14.4 Packing group	: III
14.5 Environmental hazards	: no

Special regulation for 'viscous substances' applicable

ADN

14.1 UN number or ID number	: UN 1866
14.2 UN proper shipping name	: RESIN SOLUTION
14.3 Transport hazard class(es)	: 3
Hazard Identification Number	: 30
14.4 Packing group	: III
14.5 Environmental hazards	: no

This classification data does not apply to transportation by tanker. If required, additional information can be requested from the manufacturer.

IATA

14.1 UN number or ID number	: UN 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 or ID number	: UN 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. Intense smelling.
Keep dry. Keep away from cargo susceptible to odour.
Keep away from foodstuffs, acids and alkalis.

14.7 Maritime transport in bulk according to IMO instruments

Product is not transported by us in bulk.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

P5c Flammable liquids

Quantity1: 5.000 t Quantity2: 50.000 t

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)

Conditions of restriction for the following entries should be considered: 3, 40

This product contains substances subject to EU Regulation 1907/2006 (REACH), Annex XVII.

n-butyl acetate

CAS-No.: 123-86-4, EC-No.: 204-658-1

Subject to REACH Annex XVII, No. 40

TA Luft List (Germany)

Type: Organic Substances

portion Class 1: 0,1 %

Fraction of other substances: 99,9 %

Water contaminating class (Germany)

1 slightly water endangering

Classification according to AwSV, Annex 1 (5.2)

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

Products containing solvent:

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

Other regulations

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for:

n-butyl acetate

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.
H302	Harmful if swallowed.
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.
H336	May cause drowsiness or dizziness.

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 HDI 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.

Further details for safe handling of aliphatic isocyanates you find on the web page of ALIPA: ALIPA

Safeguard – We care that your care (www.alipa.org).

No annex is provided for this mixture, because the necessary information about operational conditions and Risk Management Measures (RMM) of the identified uses can be found in section 8 of this SDS.

Abbreviations and acronyms

ADN	Accord européen relatif au transport international des marchandises Dangereuses par voie de Navigation intérieure
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials (US)
ATE	Acute Toxic Estimate
AwSv	Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen
BCF	Bioconcentration Factor
CAS	Chemical Abstract Service
CLP	Regulation on Classification, Labelling and Packaging of Substances and Mixtures
CMR	Cancerogenic Mutagenic Reprotoxic
DIN	Deutsches Institut für Normung
DNEL	Derived No-Effect Level
EC...	Effect Concentration ... %
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LOAEL	Lowest Observable Adverse Effect Level
LC...	Lethal Concentration, ...%
LD...	Lethal Dose, ...%
MARPOL	International Convention for the Prevention of Pollution From Ships
NOAEL	No Observed Adverse Effect Level
NOEL/NOEC	No Observed Effect Level/Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire de marchandises Dangereuses
STOT	Specific Target Organ Toxicity
TRGS	Technische Regeln für Gefahrstoffe
vPvB	very Persistent, very Bioaccumulative
WGK	Wassergefährdungsklasse

Further information

Classification of the mixture:	Classification procedure:
Flam. Liq. 3 H226	Based on product data or assessment
Acute Tox. 4 H332	Calculation method
Skin Sens. 1 H317	Calculation method
STOT SE 3 H336	Calculation method
STOT SE 3 H335	Calculation method

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.