DESMOPAN 790 013102

Version 2.3 Revision Date 08.04.2024 Print Date 09.04.2024

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

1.1 Product identifier

DESMOPAN 790 013102

Material number: 00361353

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

Use:
Production of moulded plastic articles

1.3 Details of the supplier of the safety data sheet

Covestro Deutschland AG
COV Global Product Safety
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

No classification in accordance with the Regulation (EC) No. 1272/2008.

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 Appendix II (special regulations for the labeling and packaging of certain substances and mixtures)

Supplementary hazardous characteristics and labeling elements:
EUH204 Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

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

Thermoplastic polyurethane

Hazardous components

titanium dioxide
Concentration [wt.-%]: >= 0,3 - < 1

EC-No.: 236-675-5
REACH Registration Number: 01-2119489379-17-xxxx
CAS-No.: 13463-67-7
Classification (1272/2008/CE): Carc. 2 Inhalative H351

Bis(2,6-diisopropylphenyl)carbodiimide
Concentration [wt.-%]: >= 0,1 - < 0,3
EC-No.: 218-487-5
REACH Registration Number: 01-2119958154-35-0002
CAS-No.: 2162-74-5
Classification (1272/2008/CE): Acute Tox. 4 Oral H302 Repr. 1B H360F STOT RE 1 H372 (Heart, Blood, Lymphatic System, Gastro-intestinal system, Kidney)
ATE (oral): 500 mg/kg

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

In case of skin contact: CONTACT WITH THE HOT MELT: Cool immediately with plenty of water. Do not remove product crusts which may have formed neither forcibly nor by applying any solvents to the skin involved. To obtain treatment for possible burns, and appropriate skin care, seek medical advice immediately.

The following information refers to the handling of the product at room temperature. In case of skin contact wash affected areas thoroughly with soap and plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

Notes to physician: No information available.

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: sprayed water jet, extinguishing powder, Carbon dioxide (CO2), Foam, Dry chemical

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for fire-fighters

Firemen must wear self-contained breathing apparatus.

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). Granules - slip hazard! Ensure adequate ventilation/exhaust

extraction. Keep unauthorized persons away.

6.2 Environment related measures

Do not flush into surface water or sanitary sewer system.

6.3 Methods and material for containment and cleaning up

Use mechanical handling equipment. Avoid dust formation. Sweep up and shovel into suitable containers for disposal.

6.4 Reference to other sections

For further disposal measures see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Adequate ventilation and if necessary, effective exhaust must be provided at the workplace when opening fresh packaging, drying granules and processing the material. Under recommended processing conditions small amounts of emissions may occur.

In the case of thermal processing of the product, provide for effective extraction at the machines. Workplace thresholds (see section 8) and environmental protection thresholds (see section 15) may not be exceeded. In case of mechanical processing, dust must be removed by effective exhaust ventilation.

At processing temperatures above about 120 °C, additives may start to decompose and 2,6-diisopropyl phenyl isocyanate can be released. The decomposition temperature of the TPU itself is much higher and shown in the SECTIONS 9 and 10.

Keep away from foodstuffs, drinks and tobacco. Wash hands and face before breaks and at the end of work. Keep working clothes separately. Change contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and dry.

Storage class (TRGS 510) : 11: Combustible Solids
Recommended storage temperature: < 40 °C

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
titanium dioxide	13463-67-7	TRGS 900		1,25 mg/m3		
titanium dioxide	13463-67-7	TRGS 900		10 mg/m3	2	

The regulations for the substances listed below must be observed when processing this product, particularly if processing takes place at elevated temperatures. In our experience the provision of effective fresh-air and exhaust ventilation equipment at the points where vapors may be generated will ensure compliance with the tolerance limits quoted below.

Substance	CAS-No.	Basis	Type	Value	Ceiling Limit Value	Remarks
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	101-68-8	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.
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900				Listed.
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900		0,05 mg/m3	=2=	Y
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900	STEL FAC		1	Substance listed with both Peak factor and STEL factor. The Peak factor is supplied with the AGW values.
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	101-68-8	TRGS 900				Dermal absorption possible
General limiting value of dust		TRGS 900		10 mg/m3	2	inhalable fraction
General limiting value of dust		TRGS 900		3 mg/m3	2	alveolar fraction
General limiting value of dust		TRGS 900	STEL CL			Category II: substances with a resorptive effect.

Derived No Effect Level (DNEL)

Bis(2,6-diisopropylphenyl)carbodiimide

Value type	Route of exposure	Health Effects	Value	Remarks
Workers	Inhalation	Long-term systemic effects	0,094 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Inhalation	Acute systemic effects		Hazard unknown (no further information necessary)
Workers	Inhalation	Long-term local effects		Hazard unknown (no further information necessary)
Workers	Inhalation	Acute local effects		Hazard unknown (no further information necessary)
Workers	Dermal	Long-term systemic effects	0,013 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Dermal	Acute systemic effects		No hazard identified
Workers	Dermal	Long-term local effects		No hazard identified
Workers	Dermal	Acute local effects		No hazard identified
Workers	Eye contact	Local effects		Low hazard (no threshold derived)
Consumers	Inhalation	Long-term systemic effects	0,023 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Inhalation	Acute systemic effects		Hazard unknown (no further information necessary)

Consumers	Inhalation	Long-term local effects		Hazard unknown (no further information necessary)
Consumers	Inhalation	Acute local effects		Hazard unknown (no further information necessary)
Consumers	Dermal	Long-term systemic effects	0,007 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Dermal	Acute systemic effects	20 mg/kg bw/day	Most sensitive endpoint: Acute toxicity oral
Consumers	Dermal	Long-term local effects		No hazard identified
Consumers	Dermal	Acute local effects		No hazard identified
Consumers	Oral	Long-term systemic effects	0,007 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Oral	Acute systemic effects	0,021 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity
Consumers	Eye contact	Local effects		Low hazard (no threshold derived)

Predicted No Effect Concentration (PNEC)

Bis(2,6-diisopropylphenyl)carbodiimide

Compartment	Value	Remarks
Fresh water	0,0001 mg/l	
Fresh water sediment	5,461 mg/kg	dry weight
Marine water	0,00001 mg/l	
Marine sediment		Exposure of the sediment is not expected.
Sewage treatment plant	10 mg/l	
Air		No hazard identified
Soil	4,445 mg/kg	dry weight
Oral		Does not bioaccumulate.
Intermittent use/release	0,001 mg/l	

8.2 Exposure controls

Respiratory protection
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

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 dust formation use respiratory equipment with filter type particle filter P1 according to EN 143.

Hand protection
Suitable materials for safety gloves; EN 374:
Polyvinyl chloride - PVC (>= 0.5 mm)
Contaminated and/or damaged gloves must be changed.

Eye protection
Wear eye/face protection.

Skin and body protection
Wear suitable protective clothing.

Further protective measures
Do not breathe dust/vapor. Grease skin.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	solid at 20 °C at 1.013 hPa	
Appearance:	granular	
Colour:	white	
Odour:	almost odourless	
Odour Threshold:	not established	
pH:	not applicable	
Softening point:	> 120 °C	
Boiling point/boiling range:	not established	
Flash point:	not established	
Evaporation rate:	not established	
Flammability:	not established	
Burning number:	not established	
Upper/lower flammability or explosive limits:	not applicable	
Vapour pressure:	not applicable	
Relative vapour density:	not established	
Density:	ca. 1,2 g/cm³	
Bulk density:	500 - 700 kg/m³	
Miscibility with water:	not established	
Water solubility:	practically insoluble	
Surface tension:	not established	
Partition coefficient (n−octanol/water):	not established	
Auto-ignition temperature:	not applicable	
Ignition temperature:	> 320 °C Ignition temperature with spark ignition	ASTM-D 1929 B
	> 360 °C Ignition temperature without spark ignition	ASTM-D 1929 B
Decomposition temperature:	> 230 °C	
Heat of combustion:	not established	
Viscosity, dynamic:	not applicable	
Viscosity, kinematic:	not established	
Particle characteristics		
Particle size:	not established	

9.2 Other information

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

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

SECTION 10: Stability and reactivity

10.1 Reactivity

This information is not available.

10.2 Chemical stability

TPU-Decomposition begins at 230 °C.

10.3 Possibility of hazardous reactions

No hazardous reactions observed.

10.4 Conditions to avoid

This information is not available.

10.5 Incompatible materials

This information is not available.

10.6 Hazardous decomposition products

Smouldering or incomplete combustion leads to the formation of toxic gas mixtures consisting mainly of CO, CO2 and nitrogen oxides.

Small quantities of isocyanates may be released when packagings are opened for the first time and when the product is exposed to elevated temperatures (e.g. during drying or processing above 120°C). It is primarily a matter of 2,6-diisopropylphenyl isocyanate.

Exceeding the recommended processing temperatures leads to a significant increase in the amount of isocyanate vapor generated.

Over-exposure entails a risk of concentration-dependent inhalatory irritation and/or sensitization by isocyanates (delayed appearance of difficult breathing, coughing, asthma is possible).
Hypersensitive persons may suffer from these effects even at low isocyanate concentrations.

The regulations for the substances listed below must be observed when processing this product, particularly if processing takes place at elevated temperatures.

4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate
Index-No. 615-005-00-9
CAS-No.: 101-68-8
Classification (1272/2008/CE): Acute Tox. 4 Inhalative H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Resp. Sens. 1 H334 Skin Sens. 1 H317 Carc. 2 H351 STOT SE 3 H335 STOT RE 2 Inhalative H373

2,6-diisopropyl-phenylisocyanate
EC-No.: 248-885-4
CAS-No.: 28178-42-9
Classification (1272/2008/CE): Acute Tox. 4 Oral H302 Acute Tox. 1 Inhalative H330 Skin Corr. 1B H314 Eye Dam. 1 H318 Resp. Sens. 1 H334 STOT SE 3 H335

SECTION 11: Toxicological information

Toxicological studies on the product are not yet available.

Please find below the data available to us:

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity, oral
Thermoplastic polyurethane
LD50 rat: > 5.000 mg/kg
Method: OECD Test Guideline 423
Studies of a comparable product.

titanium dioxide
LD50 rat, male/female: > 5.000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
Method: OECD Test Guideline 420

Bis(2,6-diisopropylphenyl)carbodiimide
LD50 rat, female: > 300 - < 2.000 mg/kg
Method: OECD Test Guideline 423

Assessment: Harmful if swallowed.

Acute toxicity, dermal
Thermoplastic polyurethane
LD50 rat: > 2.000 mg/kg
Studies of a comparable product.

titanium dioxide
Study scientifically not justified.

Bis(2,6-diisopropylphenyl)carbodiimide
LD50 rat, male/female: > 2.000 mg/kg
Method: OECD Test Guideline 402

Acute toxicity, inhalation
Thermoplastic polyurethane
Assessment: The substance or mixture has no acute inhalation toxicity
Studies of a comparable product.

titanium dioxide
LC50 rat, male/female: > 6,82 mg/l, 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Method: OECD Test Guideline 403

Bis(2,6-diisopropylphenyl)carbodiimide
Not a relevant route of exposure

Primary skin irritation
Thermoplastic polyurethane
Species: rabbit
Result: non-irritant
Classification: No skin irritation
Method: OECD Test Guideline 404
Studies of a comparable product.

titanium dioxide
Species: rabbit
Result: slight irritant
Classification: No skin irritation
Method: OECD Test Guideline 404

Bis(2,6-diisopropylphenyl)carbodiimide
Species: rabbit
Result: non-irritant
Classification: No skin irritation
Method: OECD Test Guideline 404

Primary mucosae irritation
Thermoplastic polyurethane
Species: rabbit
Result: non-irritant
Classification: No eye irritation
Studies of a comparable product.

titanium dioxide
Species: rabbit
Result: slight irritant
Classification: No eye irritation
Method: OECD Test Guideline 405

Bis(2,6-diisopropylphenyl)carbodiimide
Species: rabbit
Result: slight irritant
Classification: No eye irritation
Method: OECD Test Guideline 405

Sensitisation

Thermoplastic polyurethane
Skin sensitisation according to Magnusson/Kligmann (maximizing test):
Species: Guinea pig
Result: negative
Classification: Does not cause skin sensitization.
Method: OECD Test Guideline 406
Studies of a comparable product.

titanium dioxide
Skin sensitization (local lymph node assay (LLNA)):
Species: Mouse
Result: negative
Classification: Does not cause skin sensitization.
Method: OECD Test Guideline 429

Respiratory sensitization
Species: Human experience
Result: negative
Classification: Does not cause respiratory sensitization.

Bis(2,6-diisopropylphenyl)carbodiimide
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
Thermoplastic polyurethane
No data available.

titanium dioxide
NOAEL: 962 mg/kg
Application Route: Oral
Species: rat, male/female
Dose Levels: 0 - 67 - 258 - 962 mg/kg bw/day
Exposure duration: 92 Days
Frequency of treatment: daily
Method: OECD Test Guideline 408

Bis(2,6-diisopropylphenyl)carbodiimide
NOAEL: 4 mg/kg
LOAEL (Lowest observable adverse effect level): 16 mg/kg
Application Route: Oral
Species: rat, male/female
Dose Levels: 0 - 1 - 4 - 16 mg/kg
Exposure duration: 28 d
Target Organs: Heart, White blood cells, Lymphatic System, Gastro-intestinal system, Kidney
Assessment: Causes damage to organs through prolonged or repeated exposure.
Method: OECD Test Guideline 407

Carcinogenicity
Thermoplastic polyurethane
No data available.

titanium dioxide
NOAEL (Toxicity): 7.500 mg/kg body weight/day
Species: Mouse, male/female
Application Route: Oral
Dose Levels: 0 - 3750 - 7500 mg/kg body weight/day
Exposure duration: 103 week(s)
Frequency of treatment: daily
Result: no increase in tumors observed

NOAEL (Toxicity): 2.500 mg/kg body weight/day

Species: rat, male/female
Application Route: Oral
Dose Levels: 0 - 1250 - 2500 mg/kg body weight/day
Exposure duration: 103 week(s)
Frequency of treatment: daily
Result: no increase in tumors observed

NOAEL (Toxicity): 5 mg/m³
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 5 mg/m³
Exposure duration: 24 month(s)
Frequency of treatment: 6 hours/day, 5 days/week
Method: OECD Test Guideline 453
Result: no increase in tumors observed

NOAEL (Toxicity): 10 mg/m³
Species: Mouse, female
Application Route: Inhalative
Dose Levels: 0 - 10 mg/m³
Exposure duration: 13,5 month(s)
Frequency of treatment: 5 times/week
Result: no increase in tumors observed

LOAEL (Toxicity): 10 mg/m³
Species: rat, female
Application Route: Inhalative
Dose Levels: 0 - 10 mg/m³
Exposure duration: 24 month(s)
Frequency of treatment: 5 times/week
Result: positive
Increase in the incidence of tumors.

NOAEL (Toxicity): 50,68 mg/m³
LOAEL (Toxicity): 250,1 mg/m³
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 10,55 - 50,68 - 250,1 mg/m³
Exposure duration: 24 month(s)
Frequency of treatment: 6 hours/day, 5 days/week
Result: positive
Increase in the incidence of tumors.

NOAEL (Toxicity): 5 mg/m³
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 5 mg/m³
Exposure duration: 24 month(s)
Frequency of treatment: 6 hours/day, 5 days/week
Method: OECD Test Guideline 453
Result: no increase in tumors observed

Bis(2,6-diisopropylphenyl)carbodiimide
No data available.

Reproductive toxicity/Fertility
Thermoplastic polyurethane
No data available.

titanium dioxide
No data available.

Bis(2,6-diisopropylphenyl)carbodiimide
NOAEL - Parents: 3 mg/kg
NOAEL (parents, fertility): 1 mg/kg
Species: rat, male/female
Application Route: Oral
Dose Levels: 0 - 1 - 3 - 8 (5) mg/kg

Method: OECD Test Guideline 421
May impair fertility.

Reproductive toxicity/Developmental Toxicity/Teratogenicity
Thermoplastic polyurethane
No data available.

titanium dioxide
NOAEL (teratogenicity): 1.000 mg/kg
NOAEL (maternal): 1.000 mg/kg
NOAEL (developmental toxicity): 1000 mg/kg body weight/day
Species: rat, female
Application Route: Oral
Dose Levels: 0 - 100 - 300 - 1000 mg/kg body weight/day
Frequency of treatment: daily
Method: OECD Test Guideline 414

Bis(2,6-diisopropylphenyl)carbodiimide
NOAEL (teratogenicity): 1 mg/kg
Species: rat
Application Route: Oral
Dose Levels: 0 - 1 - 3 - 8 (5) mg/kg
Method: OECD Test Guideline 421

Genotoxicity in vitro
Thermoplastic polyurethane
Test type: Salmonella/microsome test (Ames test)
Result: No indication of mutagenic effects.
Method: OECD Test Guideline 471
Studies of a comparable product.

titanium dioxide
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: Chromosome aberration test in vitro
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 473

Test type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma cells
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 476

Bis(2,6-diisopropylphenyl)carbodiimide
Test type: Salmonella/microsome test (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 V79 cell line
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 473

Test type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster V79 cell line
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 476

Genotoxicity in vivo
Thermoplastic polyurethane
No data available.

titanium dioxide
Test type: In vivo micronucleus test
Species: rat, male/female
Application Route: intratracheal
Result: negative

Bis(2,6-diisopropylphenyl)carbodiimide
No data available.

STOT evaluation – one-time exposure
Thermoplastic polyurethane
Based on available data, the classification criteria are not met.

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

Bis(2,6-diisopropylphenyl)carbodiimide
Based on available data, the classification criteria are not met.

STOT evaluation – repeated exposure
Thermoplastic polyurethane
no data available

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

Bis(2,6-diisopropylphenyl)carbodiimide
Target Organs: Cardiac, White blood cells, Lymphatic System, Gastro-intestinal system, Kidney
Causes damage to organs through prolonged or repeated exposure.

Aspiration toxicity

Thermoplastic polyurethane
No data available.

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

Bis(2,6-diisopropylphenyl)carbodiimide
Based on available data, the classification criteria are not met.

CMR Assessment
Thermoplastic polyurethane
Carcinogenicity: No data available.
Mutagenicity: Based on available data, the classification criteria are not met.
Teratogenicity: No data available.
Reproductive toxicity/Fertility: No data available.

titanium dioxide
Carcinogenicity: Suspected of causing cancer (Carc. 2).
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.

Bis(2,6-diisopropylphenyl)carbodiimide
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: May damage fertility (Repr. 1B).

Toxicology Assessment
titanium dioxide
Acute effects: Based on available data, the classification criteria are not met.
Sensitization: Based on available data, the classification criteria are not met.

Bis(2,6-diisopropylphenyl)carbodiimide
Acute effects: Harmful if swallowed.
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.

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
Thermoplastic polyurethane
EC50 > 100 mg/l
Species: Danio rerio (zebra fish)
Exposure duration: 96 h
Method: Tested according to Directive 92/69/EEC.
Studies of a comparable product.

titanium dioxide
LC50 > 100 mg/l
Species: Carassius auratus (goldfish)
Exposure duration: 96 h
Method: OECD Test Guideline 203

Bis(2,6-diisopropylphenyl)carbodiimide
Species: Oncorhynchus mykiss (rainbow trout)
Exposure duration: 96 h
Method: OECD Test Guideline 203
No toxic effects in the water-soluble range.

Chronic Fish toxicity
Thermoplastic polyurethane
No data available.

titanium dioxide
NOEC > 100 mg/l
Species: Danio rerio (zebra fish)
Exposure duration: 8 d
Method: OECD Test Guideline 212

Bis(2,6-diisopropylphenyl)carbodiimide
Study scientifically not justified.

Acute toxicity for daphnia
Thermoplastic polyurethane
EC50 > 100 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 48 h
Method: Tested according to Directive 92/69/EEC.
Studies of a comparable product.

titanium dioxide
EC50 > 100 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 48 h
Method: OECD Test Guideline 202

Bis(2,6-diisopropylphenyl)carbodiimide
Species: Daphnia magna (Water flea)
Exposure duration: 48 h
Method: OECD Test Guideline 202
No toxic effects in the water-soluble range.

Chronic toxicity to daphnia
Thermoplastic polyurethane
No data available.

titanium dioxide
NOEC > 1 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 28 d

Bis(2,6-diisopropylphenyl)carbodiimide
NOEC (Reproduction) 5,43 µg/l
Species: Daphnia magna (Water flea)
Exposure duration: 21 d
Method: OECD Test Guideline 211
No toxic effects in the water-soluble range.

Acute toxicity for algae
Thermoplastic polyurethane
endpoint: Growth inhibition
Species: scenedesmus subspicatus
Exposure duration: 72 h
Method: OECD Test Guideline 201
No toxic effects with saturated solution.
Studies of a comparable product.

titanium dioxide
EC50 > 10.000 mg/l
Species: Skeletonema costatum (marine diatom)
Exposure duration: 72 h

EC50 > 2 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 72 h

Bis(2,6-diisopropylphenyl)carbodiimide
Test type: Growth inhibition
Species: Desmodesmus subspicatus (Green algae)
Exposure duration: 72 h
Method: OECD Test Guideline 201
No toxic effects in the water-soluble range.

Acute bacterial toxicity
Thermoplastic polyurethane
EC50 > 10.000 mg/l
Test type: Respiration inhibition
Species: activated sludge
Exposure duration: 3 h
Method: OECD Test Guideline 209

Studies of a comparable product.

titanium dioxide
NOEC > 1.000 mg/l
Species: activated sludge
Exposure duration: 3 h
Method: OECD Test Guideline 209

Bis(2,6-diisopropylphenyl)carbodiimide
EC50 > 1.000 mg/l
Test type: Respiration inhibition
Species: activated sludge
Exposure duration: 3 h
Method: OECD Test Guideline 209

Ecotoxicology Assessment
titanium dioxide
Short-term (acute) aquatic hazard: Based on available data, the classification criteria are not met.
Long-term (chronic) aquatic hazard: Based on available data, the classification criteria are not met.

Bis(2,6-diisopropylphenyl)carbodiimide
Short-term (acute) aquatic hazard: Based on available data, the classification criteria are not met.
Long-term (chronic) aquatic hazard: Based on available data, the classification criteria are not met.
Toxicity Data on Soil: Adsorbs on soil.
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
Thermoplastic polyurethane
Biodegradation: 1 %, 28 d, i.e. not readily degradable
Method: Tested according to Directive 92/69/EEC.
Studies of a comparable product.

titanium dioxide
The methods for determining the biological degradability are not applicable to inorganic substances.

Bis(2,6-diisopropylphenyl)carbodiimide
Inoculum: activated sludge
Concentration: 100 mg/l calculated with Test substance
Biodegradation: 1 %, 28 d, i.e. not readily degradable
Method: OECD Test Guideline 301 F

Stability in water
Bis(2,6-diisopropylphenyl)carbodiimide
Test type: Hydrolysis
Half life: 15 d at 25 °C (pH: 7)
Method: Directive 67/548/EEC, Annex V, C.7.
Hydrolyses on contact with water.

Test type: Hydrolysis
Half life: 10 d at 25 °C (pH: 4)
Method: Directive 67/548/EEC, Annex V, C.7.
Hydrolyses on contact with water.

Test type: Hydrolysis
Half life: 25 d at 25 °C (pH: 9)
Method: Directive 67/548/EEC, Annex V, C.7.
Hydrolyses on contact with water.

Photodegradation
Bis(2,6-diisopropylphenyl)carbodiimide
Test type: Phototransformation in air
sensitizer: OH-radicals
Concentration sensibilisator: 1.500.000 1/cm3
Rate constant: 3,3177E-11 cm3/s
Half-life indirect photolysis: 3,87 h
Method: SRC - AOP (calculation)

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

Volatility (Henry's Law constant)
Bis(2,6-diisopropylphenyl)carbodiimide
Calculated value = 29,3 Pa*m3/mol
The substance has to be scored as being slightly volatile from water.

12.3 Bioaccumulative potential

Bioaccumulation
titanium dioxide
Accumulation in aquatic organisms is unlikely.

Bis(2,6-diisopropylphenyl)carbodiimide
Bioconcentration factor (BCF): 1.912
Method: (calculated)
Accumulation in aquatic organisms is unlikely.

Partition coefficient (n−octanol/water)
Bis(2,6-diisopropylphenyl)carbodiimide

log Pow: > 6,2
Method: EG A8

12.4 Mobility in soil

Distribution among environmental compartments
Bis(2,6-diisopropylphenyl)carbodiimide
Adsorption/Soil
Koc value: 2511886,4
log Koc value: 6,4
Method: OECD Test Guideline 121
immobile

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

The product does not add to the AOX-value of effluent water (EN 1485).

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 containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), they can be sent to an appropriate collection point 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.

The product is suitable for mechanical recycling. After appropriate treatment it can be remelted and reprocessed into new moulded articles. Mechanical recycling is only possible if the material has been selectively retrieved and carefully segregated according to type.

No disposal into waste water.

SECTION 14: Transport information

ADR/RID

14.1 UN number or ID number	:	Not dangerous goods
14.2 UN proper shipping name	:	Not dangerous goods
14.3 Transport hazard class(es)	:	Not dangerous goods
14.4 Packing group	:	Not dangerous goods
14.5 Environmental hazards	:	Not dangerous goods

ADN

14.1 UN number or ID number	:	Not dangerous goods
14.2 UN proper shipping name	:	Not dangerous goods
14.3 Transport hazard class(es)	:	Not dangerous goods
14.4 Packing group	:	Not dangerous goods
14.5 Environmental hazards	:	Not dangerous goods

Dangerous goods classification for inland waterways tanker by request only.

IATA

14.1 UN number or ID number	:	Not dangerous goods
14.2 UN proper shipping name	:	Not dangerous goods
14.3 Transport hazard class(es)	:	Not dangerous goods
14.4 Packing group	:	Not dangerous goods
14.5 Environmental hazards	:	Not dangerous goods

IMDG

14.1 UN number or ID number	:	Not dangerous goods
14.2 UN proper shipping name	:	Not dangerous goods
14.3 Transport hazard class(es)	:	Not dangerous goods
14.4 Packing group	:	Not dangerous goods
14.5 Environmental hazards	:	Not dangerous goods

14.6 Special precautions for user

See section 6 - 8.

Additional information	:	Not dangerous cargo. Slight smell. Keep dry. Keep separated from foodstuffs.

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.
not applicable

TA Luft List (Germany)
Type: 5.2.5 Organic Substances
portion Class 1: < 0,01 %

Fraction of other substances: 99,39 %

Type: 5.2.7.1.3 Substances toxic to reproduction
Fraction of other substances: 0,21 %

Water contaminating class (Germany)
nw not water endangering
Identification number according to AwSV: 766

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for:
Bis(2,6-diisopropylphenyl)carbodiimide

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.

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
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.
H351	Suspected of causing cancer.
H360F	May damage fertility.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

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

Relevant 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.