



SAFETY DATA SHEET
DDP SPECIALTY PRODUCTS GERMANY
GMBH & CO. KG

Safety Data Sheet according to Reg. (EU) No 2015/830

Product name: MEGUM™ 508

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DDP SPECIALTY PRODUCTS GERMANY GMBH & CO. KG encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name: MEGUM™ 508

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

Identified uses: Rubber to metal bonding

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

DDP SPECIALTY PRODUCTS GERMANY
GMBH & CO. KG
AUGUST-WOLFF-STR. 13
29699 WALSRODE
GERMANY

Customer Information Number:

800-3876-6838

SDSQuestion-EU@dupont.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: +(49)- 69643508409

Local Emergency Contact: +(49)- 69643508409

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:

Flammable liquids - Category 3 - H226
Acute toxicity - Category 4 - Inhalation - H332
Acute toxicity - Category 4 - Dermal - H312
Skin irritation - Category 2 - H315
Eye irritation - Category 2 - H319
Respiratory sensitisation - Category 1 - H334
Skin sensitisation - Category 1 - H317

Carcinogenicity - Category 2 - H351
Specific target organ toxicity - single exposure - Category 3 - H335
Specific target organ toxicity - repeated exposure - Category 2 - Inhalation - H373
Aspiration hazard - Category 1 - H304
Long-term (chronic) aquatic hazard - Category 3 - H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms



Signal word: DANGER

Hazard statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312 + H332	Harmful in contact with skin or if inhaled.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs (Auditory system) through prolonged or repeated exposure if inhaled.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Supplemental information

EUH205 Contains epoxy constituents. May produce an allergic reaction.

Contains xylene; ethylbenzene; Diphenylmethane Diisocyanate, isomers and homologues

2.3 Other hazards

This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Solution of organic compounds

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 1330-20-7 EC-No. 215-535-7 Index-No. 601-022-00-9	01-2119488216-32	>= 60,0 - < 70,0 %	xylene	Flam. Liq. - 3 - H226 Acute Tox. - 4 - H332 Acute Tox. - 4 - H312 Skin Irrit. - 2 - H315 Eye Irrit. - 2 - H319 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 3 - H412
CASRN 100-41-4 EC-No. 202-849-4 Index-No. 601-023-00-4	01-2119489370-35	>= 10,0 - < 20,0 %	ethylbenzene	Flam. Liq. - 2 - H225 Acute Tox. - 4 - H332 STOT RE - 2 - H373 Asp. Tox. - 1 - H304 Aquatic Chronic - 3 - H412
CASRN 9016-87-9 EC-No. 618-498-9 Index-No. -	-	>= 1,0 - < 5,0 %	Diphenylmethane Diisocyanate, isomers and homologues	Acute Tox. - 4 - 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 - H373
CASRN 1314-13-2 EC-No. 215-222-5 Index-No. 030-013-00-7	01-2119463881-32	>= 1,0 - < 2,5 %	zinc oxide	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410

CASRN 108-88-3 EC-No. 203-625-9 Index-No. 601-021-00-3	–	>= 0,25 - < 1,0 %	toluene	Flam. Liq. - 2 - H225 Skin Irrit. - 2 - H315 Repr. - 2 - H361d STOT SE - 3 - H336 STOT RE - 2 - H373 Asp. Tox. - 1 - H304 Aquatic Chronic - 3 - H412
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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:

No hazards which require special first aid measures. Remove from exposure, lie down. Never give anything by mouth to an unconscious person.

Inhalation: Move to fresh air. Give artificial respiration if breathing has stopped. In case of shortness of breath, give oxygen. Immediate medical attention is required.

Skin contact: Remove contaminated clothing. Wash off with soap and plenty of water. Wash contaminated clothing before re-use. Do not take clothing home to be laundered. Consult a physician.

Eye contact: Rinse immediately with plenty of water for at least 15 minutes. Get prompt medical attention.

Ingestion: Drink 1 or 2 glasses of water. Do not induce vomiting: contains petroleum distillates and/or aromatic solvents. Careful gastric lavage may be indicated. IMMEDIATELY see a physician. If vomiting occurs spontaneously, keep airway clear. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Exposure to xylene can affect the CNS, pulmonary, cardiovascular, and gastrointestinal systems. Liver enzymes, EKG, serum electrolytes, and a chest X-ray should be done in cases of massive exposure. Bronchial constriction may develop after extensive exposure to isocyanates, even in individuals who have not been shown to be previously sensitized.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use the following extinguishing media when fighting fires involving this material:.. Carbon dioxide (CO2). Dry powder. Foam. Water in very large quantities..

Unsuitable extinguishing media: No data available

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: No data available

Unusual Fire and Explosion Hazards: Vapors can travel to a source of ignition and flash back.. Heated material can form flammable or explosive vapors with air.. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.. During a fire, irritating and highly toxic gases and/or fumes may be generated during combustion or decomposition.. DO NOT permit water to enter containers.. Closed containers may explode when heated or contents contaminated with water..

5.3 Advice for firefighters

Fire Fighting Procedures: EXPLOSION HAZARD. Fight advanced fires from a protected location.. Cool closed containers exposed to fire with water spray.. DO NOT permit water to enter containers.. Remain upwind.. Avoid breathing smoke.. Contain run-off..

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. MATERIAL IS A POTENTIAL SENSITIZER. If exposed to material during clean-up operations, IMMEDIATELY remove all contaminated clothing and wash exposed skin areas with soap and water. See SECTION 4, First Aid Measures, for further information. Wash contaminated clothing before re-use. Do not take clothing home to be laundered.

6.2 Environmental precautions: WARNING: KEEP SPILLS AND CLEANING RUNOFFS OUT OF MUNICIPAL SEWERS AND OPEN BODIES OF WATER.

6.3 Methods and materials for containment and cleaning up: Eliminate all ignition sources. Evacuate personnel to safe areas. Ventilate the area. Floor may be slippery; use care to avoid falling. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up or vacuum up spillage and collect in suitable container for disposal. No sparking tools should be used. Avoid all contact. Avoid breathing vapor. NOTE: Spills on porous surfaces can contaminate groundwater.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Vapors can be evolved when material is heated during processing operations. See SECTION 8, Exposure Controls/Personal Protection, for types of ventilation required. Use non-sparking tools and grounding cables when transferring. This material is a potential sensitizer. See SECTION 8, Exposure Controls/Personal Protection, prior to handling. Wash after handling and shower at end of work period. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

7.2 Conditions for safe storage, including any incompatibilities: Residual vapors in empty containers may explode on ignition. DO NOT cut, drill, grind or weld on or near container. Avoid temperature extremes during storage; ambient temperature preferred. Store away from excessive heat (e.g. steampipes, radiators), from sources of ignition and from reactive materials. Keep away from direct sunlight. Keep container tightly closed. Store in a cool and dry place. Keep away from heat, sparks, flame, and other sources of ignition. Ground all metal containers during storage and handling.

Do not store with the following product types: No special restrictions on storage with other products..

Storage class according to TRGS 510: Flammable liquids

7.3 Specific end use(s): See the technical data sheet on this product for further information.

Other data: CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied. Improper disposal or re-use of this container may be dangerous and illegal. Refer to applicable local, state and federal regulations.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
xylene	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
	2000/39/EC	TWA	221 mg/m ³ 50 ppm
	2000/39/EC	STEL	442 mg/m ³ 100 ppm
	2000/39/EC	TWA	SKIN
	2000/39/EC	STEL	SKIN
	DE TRGS 900	AGW	440 mg/m ³ 100 ppm
	DE TRGS 900	AGW	SKIN
ethylbenzene	ACGIH	TWA	20 ppm
	2000/39/EC	TWA	442 mg/m ³ 100 ppm
	2000/39/EC	STEL	884 mg/m ³ 200 ppm
	2000/39/EC	TWA	SKIN
	2000/39/EC	STEL	SKIN
	DE TRGS 900	AGW	SKIN
	DE TRGS 900	AGW	88 mg/m ³ 20 ppm

Diphenylmethane Diisocyanate, isomers and homologues	DE TRGS 900	AGW Inhalable fraction	0,05 mg/m ³ , MDI
zinc oxide	DE TRGS 900	AGW	SKIN, SEN
	ACGIH	TWA Respirable fraction	2 mg/m ³
toluene	ACGIH	STEL Respirable fraction	10 mg/m ³
	ACGIH	TWA	20 ppm
	2006/15/EC	TWA	192 mg/m ³ 50 ppm
	2006/15/EC	STEL	384 mg/m ³ 100 ppm
	2006/15/EC	TWA	SKIN
	2006/15/EC	STEL	SKIN
	DE TRGS 900	AGW	SKIN
	DE TRGS 900	AGW	190 mg/m ³ 50 ppm

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
xylene	1330-20-7	xylene	Blood	Immediately after exposure or after working hours	1,5 mg/l	TRGS 903
		Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
ethylbenzene	100-41-4	mandelic acid + phenylglyoxylic acid	Urine	Immediately after exposure or after working hours	250 mg/g Creatinine	TRGS 903
		Sum of mandelic acid and phenylglyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	0.15 g/g creatinine	ACGIH BEI
toluene	108-88-3	toluene	Blood	End of shift	600 µg/l	TRGS 903
		o-cresol	Urine	Immediately after exposure or after	1,5 mg/l	TRGS 903

			working hours, In case of long-term exposure: after more than one shift			
Toluene	In blood		Prior to last shift of workweek	0,02 mg/l	ACGIH BEI	
Toluene	Urine		End of shift (As soon as possible after exposure ceases)	0,03 mg/l	ACGIH BEI	
o-Cresol	Urine		End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI	

Derived No Effect Level

ethylbenzene

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	293 mg/m3	180 mg/kg bw/day	77 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	15 mg/m3	1,6 mg/kg bw/day	n.a.	n.a.

toluene

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation

n.a.	384 mg/m3	n.a.	384 mg/m3	384 mg/kg bw/day	192 mg/m3	n.a.	192 mg/m3
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Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	226 mg/m3	n.a.	n.a.	226 mg/m3	226 mg/kg bw/day	56,5 mg/m3	8,13 mg/kg bw/day	n.a.	56,5 mg/m3

Predicted No Effect Concentration

xylene

Compartment	PNEC
Fresh water	0,327 mg/l
Marine water	0,327 mg/l
Intermittent use/release	0,327 mg/l
Sewage treatment plant	6,58 mg/l
Fresh water sediment	12,46 mg/kg
Marine sediment	12,46 mg/kg
Soil	2,31 mg/kg

ethylbenzene

Compartment	PNEC
Fresh water	0,1 mg/l
Marine water	0,01 mg/l
Intermittent use/release	0,1 mg/l
Sewage treatment plant	9,6 mg/l
Fresh water sediment	13,7 mg/kg
Soil	2,68 mg/kg
Oral (Secondary Poisoning)	0,02 mg/kg food

toluene

Compartment	PNEC
Fresh water	0,68 mg/l
Marine water	0,68 mg/l
Intermittent use/release	0,68 mg/l
Sewage treatment plant	13,61 mg/l
Fresh water sediment	16,39 mg/kg
Marine sediment	16,39 mg/kg
Soil	2,89 mg/kg

8.2 Exposure controls**Engineering controls:** Use only in area provided with appropriate exhaust ventilation.**Protective measures:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Use chemical splash goggles (ANSI Z87.1 or approved equivalent).

Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation.

(Gloves of other chemically resistant materials may not provide adequate protection):

VITON Synthetic Rubber (registered Trademark of Dupont Dow Elastomers)

Polyvinyl alcohol 4H Glove (Trademark of Safety 4 A/S of Denmark) Gloves should

be removed and replaced immediately if there is any indication of degradation or

chemical breakthrough. Rinse and remove gloves immediately after use. Wash

hands with soap and water.

Other protection: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact. Where splashing is possible, full chemically resistant protective clothing (e.g. acid suit) and boots are required.

Respiratory protection: Use certified respiratory protection equipment meeting EU requirements(89/656/EEC, 89/686/EEC), or equivalent, when respiratory risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization.

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties****Appearance**

Physical state	liquid
Color	black
Odor	Aromatic solvent odor
Odor Threshold	No data available
pH	Not applicable
Melting point/range	-34,97 °C Xylene
Freezing point	No data available
Boiling point (760 mmHg)	140 °C Xylene
Flash point	26 °C Method Not Specified.
Evaporation Rate (Butyl Acetate = 1)	0,86 Xylene
Flammability (solid, gas)	Not Applicable
Lower explosion limit	1,0 % vol Xylene
Upper explosion limit	6,6 % vol Xylene
Vapor Pressure	679,9422 Pa at 20 °C Xylene
Relative Vapor Density (air = 1)	3,7 Xylene
Relative Density (water = 1)	0,96 at 20 °C
Water solubility	insoluble

Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	526 °C Xylene
Decomposition temperature	No data available
Dynamic Viscosity	200 - 600 mPa.s at 20 °C
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other information

Molecular weight	No data available
Percent volatility	77 - 80,5 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available

10.2 Chemical stability: No data available

10.3 Possibility of hazardous reactions: This material is considered stable. However, keep away from moisture, heat or flame. However, this material can undergo hazardous polymerization. See Hazardous Polymerization for conditions to avoid.

Hazardous polymerization will also occur if contaminated with the following: - water (moisture)

10.4 Conditions to avoid: No data available

10.5 Incompatible materials: Avoid contact with the following: Strong Oxidizers Acids Water Bases Amines

10.6 Hazardous decomposition products: Thermal decomposition may yield the following: Hydrogen cyanide (hydrocyanic acid). isocyanate monomers. acetaldehyde.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Product test data not available. Refer to component data.

Acute dermal toxicity

Product test data not available. Refer to component data.

Acute inhalation toxicity

Product test data not available. Refer to component data.

Skin corrosion/irritation

Product test data not available. Refer to component data.

Serious eye damage/eye irritation

Product test data not available. Refer to component data.

Sensitization

Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)

Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Product test data not available. Refer to component data.

Carcinogenicity

Product test data not available. Refer to component data.

Teratogenicity

Product test data not available. Refer to component data.

Reproductive toxicity

Product test data not available. Refer to component data.

Mutagenicity

Product test data not available. Refer to component data.

Aspiration Hazard

Product test data not available. Refer to component data.

Additional information

No toxicity data are available for this material.

COMPONENTS INFLUENCING TOXICOLOGY:

xylene

Acute oral toxicity

LD50, Rat, 4 300 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 2 000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 27,5 mg/l

Skin corrosion/irritation

Prolonged contact may cause skin irritation with local redness.

Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Vapor may cause skin irritation.

May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight temporary corneal injury.

Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory system

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs:

Liver

kidney

Blood

Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.

Carcinogenicity

Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

Teratogenicity

Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. Available data are inadequate for evaluation of maternal toxicity.

Reproductive toxicity

In animal studies, did not interfere with reproduction.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

May be fatal if swallowed and enters airways.

ethylbenzene**Acute oral toxicity**

LD50, Rat, 3 500 mg/kg

Acute dermal toxicity

LD50, Rabbit, 15 500 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 17,2 mg/l

Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness.

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

Vapor may cause lacrimation (tears).

Sensitization

For skin sensitization:

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs:

May cause hearing loss based on animal data.

Kidney.

Liver.

Lung.

Although one early inhalation study on ethylbenzene reported an adverse effect on the testes, recent, more comprehensive studies have not shown this effect.

Carcinogenicity

Ethylbenzene has been shown to cause cancer in laboratory animals. There is no evidence that these findings are relevant to humans.

Teratogenicity

Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in lab animals at doses nontoxic to the mother.

Reproductive toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. May be fatal if swallowed and enters airways.

Diphenylmethane Diisocyanate, isomers and homologues**Acute oral toxicity**

Typical for this family of materials. LD50, Rat, > 10 000 mg/kg

Acute dermal toxicity

Typical for this family of materials. LD50, Rabbit, > 9 400 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, 0,49 mg/l

For similar material(s): 4,4'-Methylenediphenyl diisocyanate (CAS 101-68-8). LC50, Rat, 1 Hour, Aerosol, 2,24 mg/l

For similar material(s): 2,4'-Diphenylmethane diisocyanate (CAS 5873-54-1). LC50, Rat, 4 Hour, Aerosol, 0,387 mg/l

Skin corrosion/irritation

Prolonged contact may cause slight skin irritation with local redness.
May stain skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.
May cause slight temporary corneal injury.

Sensitization

Skin contact may cause an allergic skin reaction.
Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.
MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.
Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Carcinogenicity

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Teratogenicity

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

Reproductive toxicity

No relevant data found.

Mutagenicity

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

zinc oxide**Acute oral toxicity**

LD50, Rat, > 5 000 mg/kg

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

Exposure to metal oxide fumes may cause metal fume fever, characterized by influenza-like symptoms. Dust may cause irritation to upper respiratory tract (nose and throat).

LC50, Rat, 4 Hour, dust/mist, > 5 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause slight temporary eye irritation.
Corneal injury is unlikely.

Sensitization

For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Available data are inadequate to determine single exposure specific target organ toxicity.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs:
Lung.

In humans, effects have been reported on the following organs:
Respiratory tract.

Carcinogenicity

Available data are inadequate to evaluate carcinogenicity.

Teratogenicity

No relevant data found.

Reproductive toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

In vitro genetic toxicity studies were negative in some cases and positive in other cases.

toluene**Acute oral toxicity**

LD50, Rat, 5 580 mg/kg

Acute dermal toxicity

LD50, Rabbit, 12 267 mg/kg

Acute inhalation toxicity

Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene. LC50, Rat, male, 4 Hour, vapour, 25,7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Prolonged contact may cause moderate skin irritation with local redness.

May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause slight eye irritation.

May cause slight temporary corneal injury.

Vapor may cause eye irritation experienced as mild discomfort and redness.

Vapor may cause lacrimation (tears).

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Central nervous system

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs:

central nervous system (CNS) effects

Excessive exposure may cause neurologic signs and symptoms.

Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.

Intentional misuse by deliberately inhaling toluene may cause nervous system damage,

hearing loss, liver and kidney effects and death.

Carcinogenicity

Did not cause cancer in laboratory animals.

Teratogenicity

In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it has caused birth defects in mice when administered orally, but not by inhalation.

Reproductive toxicity

In animal studies, did not interfere with reproduction.

Mutagenicity

The majority and most reliable of the many genetic toxicity studies on toluene, both in vitro and in animals, indicate that it is not genetically toxic.

Aspiration Hazard

May be fatal if swallowed and enters airways.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

General Information

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

12.1 Toxicity**xylene****Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 2,6 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

IC50, *Daphnia magna* (Water flea), 24 Hour, 1 - 4,7 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (algae), Static, 73 Hour, Growth rate, 4,36 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, *Pseudokirchneriella subcapitata* (green algae), 73 Hour, Growth rate, 0,44 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, *Oncorhynchus mykiss* (rainbow trout), flow-through, 56 d, mortality, > 1,3 mg/l

ethylbenzene**Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 4,2 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), Static, 48 Hour, 1,8 - 2,4 mg/l

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth inhibition (cell density reduction), 3,6 - 4,6 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Bacteria, 16 Hour, > 12 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, 0,96 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 2 d, survival, 0,047 mg/cm²

Diphenylmethane Diisocyanate, isomers and homologues

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1 000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1 000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1 640 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1 000 mg/kg

Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1 000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1 000 mg/l

zinc oxide

Acute toxicity to fish

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 0,14 - 1,1 mg/l

LC50, Danio rerio (zebra fish), 96 Hour, 1 - 10 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 1 - 10 mg/l

Acute toxicity to algae/aquatic plants

IC50, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, 0,136 mg/l

Chronic toxicity to fish

NOEC, Danio rerio (zebra fish), 32 d, mortality, >= 0,540 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 0,04 mg/l

toluene

Acute toxicity to fish

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 5,8 mg/l

Acute toxicity to aquatic invertebrates

LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3,78 mg/l

Acute toxicity to algae/aquatic plants

EbC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 12,5 mg/l, OECD Test Guideline 201

Chronic toxicity to fish

NOEC, Fish, flow-through test, 40 d, growth, 1,4 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0,74 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 150 - 280 mg/kg

12.2 Persistence and degradability

xylene

Biodegradability: Material is expected to be readily biodegradable.

10-day Window: Pass

Biodegradation: > 60 %

Exposure time: 10 d

Method: OECD Test Guideline 301F or Equivalent

ethylbenzene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 100 %

Exposure time: 6 d

Method: OECD Test Guideline 301E or Equivalent

Diphenylmethane Diisocyanate, isomers and homologues

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

zinc oxide

Biodegradability: Biodegradation is not applicable.

toluene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 100 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

12.3 Bioaccumulative potential

xylene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 3,12 Measured

Bioconcentration factor (BCF): 25,9 Rainbow trout (Salmo gairdneri) Measured

ethylbenzene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 3,15 Measured

Bioconcentration factor (BCF): 15 Fish Measured

Diphenylmethane Diisocyanate, isomers and homologues

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Bioconcentration factor (BCF): 92 Cyprinus carpio (Carp) 28 d

zinc oxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

toluene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2,73 Measured

Bioconcentration factor (BCF): 13,2 - 90 Fish Measured

12.4 Mobility in soil

xylene

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 443 Estimated.

ethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 518 Estimated.

Diphenylmethane Diisocyanate, isomers and homologues

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

zinc oxide

No data available.

toluene

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 37 - 178 Estimated.

12.5 Results of PBT and vPvB assessment

xylene

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

ethylbenzene

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Diphenylmethane Diisocyanate, isomers and homologues

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

zinc oxide

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

toluene

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

xylene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

ethylbenzene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Diphenylmethane Diisocyanate, isomers and homologues

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

zinc oxide

No data available

toluene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

- | | |
|-----------------------------------|---|
| 14.1 UN number | UN 1133 |
| 14.2 UN proper shipping name | ADHESIVES |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | III |
| 14.5 Environmental hazards | Not considered environmentally hazardous based on available data. |
| 14.6 Special precautions for user | Hazard Identification Number: 30 |

Classification for SEA transport (IMO-IMDG):

- | | |
|---|---|
| 14.1 UN number | UN 1133 |
| 14.2 UN proper shipping name | ADHESIVES |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | III |
| 14.5 Environmental hazards | Not considered as marine pollutant based on available data. |
| 14.6 Special precautions for user | EmS: F-E, S-D |
| 14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code | Consult IMO regulations before transporting ocean bulk |

Classification for AIR transport (IATA/ICAO):

- | | |
|---------------------------------|-----------|
| 14.1 UN number | UN 1133 |
| 14.2 UN proper shipping name | Adhesives |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | III |

- 14.5 Environmental hazards Not applicable
- 14.6 Special precautions for user No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

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

REACH Regulation (EC) No 1907/2006

This product contains only components that have been either registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH)., Polymers are exempted from registration under REACH. All relevant starting materials and additives have been either registered, or are exempt from registration according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

Restrictions on the manufacture, placing on the market and use:

The following substance/s contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product have to comply with the restrictions placed upon it by the aforementioned provision.

CAS-No.: 9016-87-9	Name: Diphenylmethane Diisocyanate, isomers and homologues
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Restriction status: listed in REACH Annex XVII

Restricted uses: See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction

Number on the list: 56

CAS-No.: 108-88-3	Name: toluene
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Restriction status: listed in REACH Annex XVII

Restricted uses: See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction

Number on the list: 48

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Listed in Regulation: FLAMMABLE LIQUIDS

Number in Regulation: P5c

5 000 t

50 000 t

Wassergefährdungsklasse (Deutschland)

WGK 2: obviously hazardous to water

Further information

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

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

Not applicable

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
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.
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.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

Flam. Liq. - 3 - H226 - Based on product data or assessment

Acute Tox. - 4 - H332 - Calculation method

Acute Tox. - 4 - H312 - Calculation method

Skin Irrit. - 2 - H315 - Calculation method

Eye Irrit. - 2 - H319 - Calculation method

Resp. Sens. - 1 - H334 - Calculation method

Skin Sens. - 1 - H317 - Calculation method

Carc. - 2 - H351 - Calculation method

STOT SE - 3 - H335 - Calculation method

STOT RE - 2 - H373 - Calculation method

Asp. Tox. - 1 - H304 - Calculation method

Aquatic Chronic - 3 - H412 - Calculation method

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2006/15/EC	Europe. Indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
AGW	Time Weighted Average
DE TRGS 900	Germany. TRGS 900 - Occupational exposure limit values.
SKIN	Absorbed via skin
SKIN, SEN	Absorbed via Skin, Sensitizer
STEL	Short term exposure limit
TRGS 903	TRGS 903 - Biological limit values
TWA	Limit Value - eight hours
Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Repr.	Reproductive toxicity
Resp. Sens.	Respiratory sensitisation
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed

(Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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