SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Residual Solvents Class 2 - Mixture A

Product Number : 1601281
Brand : US Pharmacopeia

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : After February 3, 2025, this chemical substance (as defined in TSCA section 3(2))/product cannot be distributed in commerce to retailers. After January 28, 2026, this chemical substance (as defined in TSCA section 3(2))/product is and can only be distributed in commerce or processed with a concentration of methylene chloride equal to or greater than 0.1% by weight for the following purposes: (1) Processing as a reactant; (2) Processing for incorporation into a formulation, mixture, or reaction product; (3) Processing for repackaging; (4) Processing for recycling; (5) Industrial or commercial use as a laboratory chemical; (6) Industrial or commercial use as a bonding agent for solvent welding; (7) Industrial and commercial use as a paint and coating remover from safety critical, corrosion-sensitive components of aircraft and spacecraft; (8) Industrial and commercial use as a processing aid; (9) Industrial and commercial use for plastic and rubber products manufacturing; (10) Industrial and commercial use as a solvent that becomes part of a formulation or mixture, where that formulation or mixture will be used inside a manufacturing process, and the solvent (methylene chloride) will be reclaimed; (11) Industrial and commercial use in the refinishing for wooden furniture, decorative pieces, and architectural fixtures of artistic, cultural or historic value until May 8, 2029; (12) Industrial and commercial use in adhesives and sealants in aircraft, space vehicle, and turbine applications for structural and safety critical non-structural applications until May 8, 2029; (13) Disposal; and (14) Export.
The product is being supplied under the TSCA R&D Exemption

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(40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone number

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Flammable liquids	:	Category 4
Skin irritation	:	Category 2
Carcinogenicity	:	Category 1B
Reproductive toxicity	:	Category 2
Specific target organ toxicity - repeated exposure	:	Category 2 (hearing organs)
Specific target organ toxicity - repeated exposure (Inhalation)	:	Category 2 (Central nervous system, Liver, Kidney)
Short-term (acute) aquatic hazard	:	Category 2
Long-term (chronic) aquatic hazard	:	Category 2

Other hazards

None known.

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GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H227 Combustible liquid.
H315 Causes skin irritation.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (hearing organs) through prolonged or repeated exposure.
H373 May cause damage to organs (Central nervous system, Liver, Kidney) through prolonged or repeated exposure if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.

Storage:

P403 Store in a well-ventilated place.
P405 Store locked up.

Disposal:

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

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

CAS-No. : Not Assigned

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
dimethyl sulphoxide	67-68-5*	>= 80 - <= 100	TSC
Methanol	67-56-1*	>= 1 - <= 5	TSC
Cyclohexane	110-82-7*	>= 1 - <= 5	TSC
Tetrahydrofuran	109-99-9*	>= 0.5 - <= 1.5	TSC
Dichloromethane	75-09-2*	>= 0.5 - <= 1.5	TSC
Toluene	108-88-3*	>= 0.5 - <= 1.5	TSC
Acetonitrile	75-05-8*	>= 0.5 - <= 1.5	TSC
p-xylene	106-42-3*	>= 0.5 - <= 1.5	TSC
m-xylene	108-38-3*	>= 0.5 - <= 1.5	TSC
o-xylene	95-47-6*	>= 0.5 - <= 1.5	TSC
ethylbenzene	100-41-4*	>= 0.5 - <= 1.5	TSC
trans-Dichloroethylene	156-60-5*	>= 0.5 - <= 1.5	TSC
chlorobenzene	108-90-7*	>= 0.5 - <= 1.5	TSC
cis-Dichloroethylene	156-59-2*	>= 0.5 - <= 1.5	TSC
methylcyclohexane	108-87-2*	>= 0.5 - <= 1.5	TSC
1,4-Dioxane	123-91-1*	>= 0.5 - <= 1.5	TSC
Xylene	1330-20-7*	>= 0.5 - <= 1.5	TSC
1,2-Dichloroethylene	540-59-0*	>= 0.5 - <= 1.5	TSC
cumene	98-82-8*	> 0 - <= 0.1	TSC

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* Indicates that the identifier is a CAS No.
TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	Show this safety data sheet to the doctor in attendance.
If inhaled	:	After inhalation: fresh air. Call in physician.
In case of skin contact	:	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	:	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed	:	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	:	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Protection of first-aiders	:	For personal protection see section 8.
Notes to physician	:	No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Combustible. Vapours are heavier than air and may spread along floors.

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Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NOx) Sulphur oxides Hydrogen chloride gas
Specific extinguishing methods	:	No data available
Further information	:	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains.

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Methods and materials for containment and cleaning up	:	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on protection against fire and explosion	:	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Advice on safe handling	:	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
Further information on storage conditions	:	Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.
Storage class	:	6.1C, Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects
Recommended storage temperature	:	36 - 86 °F / 2 - 30 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
dimethyl sulphoxide	67-68-5	TWA	250 ppm	US WEEL
Methanol	67-56-1	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		ST	250 ppm 325 mg/m3	NIOSH REL
		TWA	200 ppm 260 mg/m3	NIOSH REL
		TWA	200 ppm 260 mg/m3	OSHA Z-1
Cyclohexane	110-82-7	TWA	100 ppm	ACGIH

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		TWA	300 ppm 1,050 mg/m3	NIOSH REL
		TWA	300 ppm 1,050 mg/m3	OSHA Z-1
Tetrahydrofuran	109-99-9	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		ST	250 ppm 735 mg/m3	NIOSH REL
		TWA	200 ppm 590 mg/m3	NIOSH REL
		TWA	200 ppm 590 mg/m3	OSHA Z-1
Dichloromethane	75-09-2	TWA	50 ppm	ACGIH
		PEL	25 ppm	OSHA CARC
		STEL	125 ppm	OSHA CARC
		ECEL-TWA	2 ppm 8 mg/m3	TSCA ECEL
		EPA STEL	16 ppm 57 mg/m3	TSCA ECEL
Toluene	108-88-3	TWA	100 ppm 375 mg/m3	OSHA P0
		STEL	150 ppm 560 mg/m3	OSHA P0
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm	OSHA Z-2
		TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m3	NIOSH REL
		ST	150 ppm 560 mg/m3	NIOSH REL
Acetonitrile	75-05-8	TWA	20 ppm	ACGIH
		TWA	20 ppm 34 mg/m3	NIOSH REL
		TWA	40 ppm 70 mg/m3	OSHA Z-1
p-xylene	106-42-3	TWA	100 ppm 435 mg/m3	NIOSH REL
		ST	150 ppm 655 mg/m3	NIOSH REL
		TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	20 ppm	ACGIH
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL
m-xylene	108-38-3	TWA	100 ppm 435 mg/m3	NIOSH REL

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		ST	150 ppm 655 mg/m3	NIOSH REL
		TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	20 ppm	ACGIH
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL
o-xylene	95-47-6	ST	150 ppm 655 mg/m3	NIOSH REL
		TWA	100 ppm 435 mg/m3	NIOSH REL
		TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	20 ppm	ACGIH
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL
ethylbenzene	100-41-4	TWA	100 ppm 435 mg/m3	NIOSH REL
		ST	125 ppm 545 mg/m3	NIOSH REL
		TWA	100 ppm 435 mg/m3	OSHA Z-1
trans-Dichloroethylene	156-60-5	TWA	200 ppm	ACGIH
chlorobenzene	108-90-7	TWA	10 ppm	ACGIH
		TWA	75 ppm 350 mg/m3	OSHA Z-1
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL
cis-Dichloroethylene	156-59-2	TWA	200 ppm	ACGIH
methylcyclohexane	108-87-2	TWA	100 ppm	ACGIH
		TWA	400 ppm 1,600 mg/m3	NIOSH REL
		TWA	500 ppm 2,000 mg/m3	OSHA Z-1
1,4-Dioxane	123-91-1	TWA	20 ppm	ACGIH
		TWA	25 ppm 90 mg/m3	OSHA P0
		TWA	100 ppm 360 mg/m3	OSHA Z-1
		C	1 ppm 3.6 mg/m3	NIOSH REL
Xylene	1330-20-7	TWA	100 ppm 435 mg/m3	OSHA Z-1
		TWA	20 ppm	ACGIH
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL
1,2-Dichloroethylene	540-59-0	TWA	200 ppm 790 mg/m3	NIOSH REL
		TWA	200 ppm	OSHA Z-1

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			790 mg/m3	
		TWA	200 ppm	ACGIH
cumene	98-82-8	TWA	5 ppm	ACGIH
		TWA	50 ppm 245 mg/m3	NIOSH REL
		TWA	50 ppm 245 mg/m3	OSHA Z-1
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI
Cyclohexane	110-82-7	1,2-Cyclohexanediol	Urine	End of shift at end of workweek	50 mg/g creatinine	ACGIH BEI
Tetrahydrofuran	109-99-9	Tetrahydrofuran	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI
Dichloromethane	75-09-2	Dichloromethane	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/l	ACGIH BEI
Toluene	108-88-3	Toluene	In blood	Prior to last shift of	0.02 mg/l	ACGIH BEI

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				workweek		
		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
p-xylene	106-42-3	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	0.3 g/g creatinine	ACGIH BEI
m-xylene	108-38-3	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	0.3 g/g creatinine	ACGIH BEI
o-xylene	95-47-6	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	0.3 g/g creatinine	ACGIH BEI
ethylbenzene	100-41-4	Sum of mandelic acid and	Urine	End of shift (As	150 mg/g creatinine	ACGIH BEI

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		phenyl glyoxylic acid		soon as possible after exposure ceases)		
chlorobenzene	108-90-7	4-Chlorocatechol	Urine	End of shift at end of workweek	100 mg/g creatinine	ACGIH BEI
		p-Chlorophenol	Urine	End of shift at end of workweek	20 mg/g creatinine	ACGIH BEI
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	0.3 g/g creatinine	ACGIH BEI

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type ABEK

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

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Remarks	:	required
Eye protection	:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Skin and body protection	:	protective clothing
Hygiene measures	:	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	No data available
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	189 °F / 87 °C Method: ASTM D 93, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	No data available
Burning rate	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapour density	:	No data available

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Relative density	:	No data available
Density	:	No data available
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Particle characteristics Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	:	No data available
Conditions to avoid	:	Strong heating.
Incompatible materials	:	Acid chlorides Phosphorus halides Strong acids Strong oxidizing agents Strong reducing agents

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Hazardous decomposition products : In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Mixture

Acute toxicity
Oral: No data available
Acute toxicity estimate Oral - 3,238 mg/kg
(Calculation method)

Inhalation: No data available

Acute toxicity estimate Inhalation - 4 h - 58.87 mg/l - vapour(Calculation method)

Dermal: No data available

Acute toxicity estimate Dermal - > 5,000 mg/kg
(Calculation method)

Skin corrosion/irritation
Remarks: Mixture causes skin irritation.

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Possible carcinogen.

IARC: 2A - Group 2A: Probably carcinogenic to humans (Dichloromethane)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Tetrahydrofuran)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (ethylbenzene)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (1,4-Dioxane)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (cumene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Dichloromethane)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (1,4-Dioxane)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (cumene)

OSHA: OSHA specifically regulated carcinogen (Dichloromethane)

Reproductive toxicity
Suspected of damaging the unborn child.
Suspected of damaging fertility.

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Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Mixture may cause damage to organs through prolonged or repeated exposure.
- hearing organs
Mixture may cause damage to organs through prolonged or repeated exposure.
- Central nervous system, Liver, Kidney

Aspiration hazard
No data available

11.2 Additional Information

Effects due to ingestion may include:, Nausea, Fatigue, Headache
Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

Eyes - Eye disease - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

Components

dimethyl sulphoxide

Acute toxicity
LD50 Oral - Rat - male and female - 28,300 mg/kg
(OECD Test Guideline 401)
LC0 Inhalation - Rat - male and female - 4 h - > 5.33 mg/l - dust/mist
(OECD Test Guideline 403)
LD50 Dermal - Rat - male and female - 40,000 mg/kg
Remarks: (ECHA)

Skin corrosion/irritation
Skin - Rabbit
Result: slight irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: slight irritation - 24 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Local lymph node assay (LLNA) - Mouse

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Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 474
Species: Rat - male and female
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Methanol

Acute toxicity
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Symptoms: Nausea, Vomiting
Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapour
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Symptoms: Irritation symptoms in the respiratory tract.
Acute toxicity estimate Dermal - 300.1 mg/kg
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
Remarks: (ECHA)
Remarks: Drying-out effect resulting in rough and chapped skin.

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Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
Remarks: (ECHA)

Respiratory or skin sensitization
Sensitisation test: - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Based on available data the classification criteria are not met.
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity
Did not show carcinogenic effects in animal experiments.

Reproductive toxicity
Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure
Causes damage to organs. - Eyes, Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute oral toxicity - Nausea, Vomiting
Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Cyclohexane

Acute toxicity
LD50 Oral - Rat - male and female - > 5,000 mg/kg
(OECD Test Guideline 401)
Symptoms: gastric pain, Stomach/intestinal disorders
LC50 Inhalation - Rat - male and female - 4 h - > 32,800 mg/l - vapour
(OECD Test Guideline 403)
Symptoms: Possible damages:, Irritation symptoms in the respiratory tract., Inhalation may lead to the formation of oedemas in the respiratory tract.

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LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Remarks: Causes skin irritation.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 475
Species: Rat - male and female - Bone marrow
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.
Acute oral toxicity - gastric pain, Stomach/intestinal disorders
Acute inhalation toxicity - Possible damages:, Irritation symptoms in the respiratory tract., Inhalation may lead to the formation of oedemas in the respiratory tract.

Specific target organ toxicity - repeated exposure

Aspiration hazard
May be fatal if swallowed and enters airways.Aspiration hazard, Aspiration may cause pulmonary oedema and pneumonitis.

Tetrahydrofuran

Acute toxicity
LD50 Oral - Rat - male and female - 1,650 mg/kg
Remarks: (ECHA)
Symptoms: Irritation of mucous membranes

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LC50 Inhalation - Rat - male and female - 6 h - > 14.7 mg/l - vapour
(US-EPA)
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 72 h
(Draize Test)
Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Serious eye damage/eye irritation
Eyes - Rabbit
(Evaluated according F.H.S.A.= Federal Hazardous Substance Act.)
Remarks: Causes serious eye damage.
(ECHA)
Eyes - Rabbit
(Tested according to Annex V of Directive 67/548/EEC.)
Remarks: Causes serious eye damage.
(ECHA)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Red blood cells (erythrocytes)
Result: negative

Carcinogenicity
Suspected of causing cancer.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
May cause drowsiness or dizziness.
Acute oral toxicity - Irritation of mucous membranes

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Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Dichloromethane

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Mouse - 4 h - 86 mg/l - vapour
Remarks: (ECHA)
Symptoms: Possible damages:, mucosal irritations
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Irritations - 4 h
(OECD Test Guideline 404)
Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation
Remarks: (ECHA)
Remarks: Risk of corneal clouding.

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: positive
Test Type: Ames test
Test system: Salmonella typhimurium
Result: positive
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity
Suspected of causing cancer.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause drowsiness or dizziness. - Central nervous system
Acute inhalation toxicity - Possible damages:, mucosal irritations

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Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Toluene

Acute toxicity
LD50 Oral - Rat - male - 5,580 mg/kg
(Directive 67/548/EEC, Annex V, B.1.)
LC50 Inhalation - Rat - male - 4 h - 25.7 mg/l - vapour
(OECD Test Guideline 403)
LD50 Dermal - Rabbit - male - > 5,000 mg/kg
Remarks: (ECHA)

Skin corrosion/irritation
Skin - Rabbit
Result: irritating - 4 h
(Regulation (EC) No. 440/2008, Annex, B.4)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Species: Rat - Bone marrow
Result: negative
Remarks: (ECHA)

Carcinogenicity
No data available

Reproductive toxicity
Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure
Inhalation - May cause drowsiness or dizziness. - Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
Inhalation - May cause damage to organs through prolonged or repeated exposure. - Central nervous system

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Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
Aspiration may cause pulmonary oedema and pneumonitis.

Acetonitrile

Acute toxicity
LD50 Oral - Mouse - male and female - 617 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Mouse - male and female - 4 h - 6.022 mg/l - vapour
(OECD Test Guideline 403)
Acute toxicity estimate Dermal - 1,500 mg/kg
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Remarks: (ECHA)
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: Positive results were obtained in some in vitro tests.
Remarks: (National Toxicology Program)
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Remarks: Sister chromatid exchange

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Test system: Saccharomyces cerevisiae
Result: positive
Remarks: Cytogenetic analysis
(ECHA)
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female
Result: negative

Carcinogenicity
No evidence of carcinogenicity in animal studies.

Reproductive toxicity
Animal testing did not show any effects on fertility.

Specific target organ toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
No aspiration toxicity classification

p-xylene

Acute toxicity
LD50 Oral - Rat - male - 3,523 mg/kg
(EC Directive 92/69/EEC B.1 Acute Toxicity (Oral))
Acute toxicity estimate Inhalation - 4 h - 10.1 mg/l - vapour
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Dermal - 1,000.1 mg/kg
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 4 h
(Regulation (EC) No. 440/2008, Annex, B.4)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Remarks: Drying-out effect resulting in rough and chapped skin.
Dermatitis

Serious eye damage/eye irritation
Remarks: Causes serious eye irritation.
(ECHA)

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Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Remarks: (National Toxicology Program)
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male - Red blood cells (erythrocytes)
Result: negative
Remarks: (IUCLID)
Method: OECD Test Guideline 478
Species: Mouse - male and female
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract

Specific target organ toxicity - repeated exposure

Aspiration hazard
May be fatal if swallowed and enters airways.

m-xylene

Acute toxicity
LD50 Oral - Rat - male - 3,523 mg/kg
(EC Directive 92/69/EEC B.1 Acute Toxicity (Oral))
LC50 Inhalation - Rat - female - 4 h - 29.091 mg/l - vapour
Remarks: (Regulation (EC) No 1272/2008, Annex VI)
(ECHA)
Symptoms: Inhalation may lead to the formation of oedemas in the respiratory tract.
LD50 Dermal - Rabbit - male - 12,126 mg/kg
Remarks: (ECHA)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

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Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 4 h
(Regulation (EC) No. 440/2008, Annex, B.4)
Remarks: After long-term exposure to the chemical:
Dermatitis
Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Moderate eye irritation
Remarks: (ECHA)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Remarks: (National Toxicology Program)
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 478
Species: Mouse - male and female
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male - Red blood cells (erythrocytes)
Result: negative
Remarks: (IUCLID)

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity
Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract
Acute inhalation toxicity - Inhalation may lead to the formation of oedemas in the respiratory tract.

Specific target organ toxicity - repeated exposure

Aspiration hazard
May be fatal if swallowed and enters airways.

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o-xylene

Acute toxicity
LD50 Oral - Rat - male - 3,523 mg/kg
(EC Directive 92/69/EEC B.1 Acute Toxicity (Oral))
LC50 Inhalation - Rat - male and female - 4 h - 27.12 mg/l - vapour
(US-EPA)
Symptoms: Inhalation may lead to the formation of oedemas in the respiratory tract.
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
LD50 Dermal - Rabbit - male - 12,126 mg/kg
Remarks: (ECHA)
(Regulation (EC) No 1272/2008, Annex VI)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 4 h
(Regulation (EC) No. 440/2008, Annex, B.4)
Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male - Red blood cells (erythrocytes)
Result: negative
Remarks: (IUCLID)
Method: OECD Test Guideline 478
Species: Mouse - male and female
Result: negative

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

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Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory system
Acute inhalation toxicity - Inhalation may lead to the formation of oedemas in the respiratory tract.
Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Specific target organ toxicity - repeated exposure

Aspiration hazard
May be fatal if swallowed and enters airways.Aspiration hazard, Aspiration may cause pulmonary oedema and pneumonitis.

ethylbenzene

Acute toxicity
LD50 Oral - Rat - male and female - 3,500 mg/kg
Remarks: (ECHA)
LC50 Inhalation - Rat - male - 4 h - 17.8 mg/l - vapour
Remarks: (ECHA)
LD50 Dermal - Rabbit - 15,433 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 24 h
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation
Remarks: (ECHA)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male - Bone marrow
Result: negative
Method: OECD Test Guideline 486
Species: Mouse - male and female

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Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
- hearing organs
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
Aspiration may cause pulmonary oedema and pneumonitis.

trans-Dichloroethylene

Acute toxicity
LD50 Oral - Rat - 1,235 mg/kg
LD50 Oral - Mouse - 2,122 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).
Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia.
LC50 Inhalation - Rat - 24100 ppm
Remarks: Behavioral:Somnolence (general depressed activity).
LC50 Inhalation - 4 h - 11 mg/l - vapour
LD50 Dermal - Rabbit - > 5,000 mg/kg
Remarks: Prolonged skin contact may cause skin irritation and/or dermatitis.
Nutritional and Gross Metabolic:Weight loss or decreased weight gain.
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

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Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

chlorobenzene

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male - 4 h - 15.57 mg/l - vapour
(OECD Test Guideline 403)
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test):
Test system: Chinese hamster lung cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

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Aspiration hazard
No data available

cis-Dichloroethylene

Acute toxicity
LD50 Oral - Rat - 770 mg/kg
Remarks: (RTECS)
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l - vapour
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 24 h
Remarks: (RTECS)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

methylcyclohexane

Acute toxicity
LD50 Oral - Mouse - 2,250 mg/kg
Remarks: (RTECS)
LC50 Inhalation - Rat - male - 4 h - > 52.6 mg/l - vapour
Remarks: (Lit.)
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)
Remarks: The value is given in analogy to the following substances: Cyclohexane

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Skin corrosion/irritation
Remarks: Causes skin irritation.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: The value is given in analogy to the following substances: Cyclohexane

Germ cell mutagenicity
Did not show mutagenic effects in animal experiments.
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No toxicity to reproduction

Specific target organ toxicity - single exposure
Inhalation - May cause drowsiness or dizziness. - Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure

Aspiration hazard
Aspiration may cause pulmonary oedema and pneumonitis.

1,4-Dioxane

Acute toxicity
LD50 Oral - Rat - male and female - 5,150 mg/kg
(OECD Test Guideline 401)
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Lung oedema
LD50 Dermal - Rabbit - 7,378 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 20 h

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Remarks: (IUCLID)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation
(OECD Test Guideline 405)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Result: negative
Remarks: (ECHA)
Species: Rat - male - Liver cells
Result: negative
Remarks: (ECHA)

Carcinogenicity
Presumed to have carcinogenic potential for humans

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation. - Respiratory system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Lung oedema

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Xylene

Acute toxicity
LD50 Oral - Rat - male - 3,523 mg/kg
(EC Directive 92/69/EEC B.1 Acute Toxicity (Oral))
Remarks: (ECHA)

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LC50 Inhalation - Rat - male - 4 h - 29.09 mg/l - vapour
(Regulation (EC) No. 440/2008, Annex, B.2)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)
LD50 Dermal - Rabbit - > 1,700 mg/kg
Remarks: (RTECS)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 24 h
Remarks: (IUCLID)
Remarks: Drying-out effect resulting in rough and chapped skin.
After long-term exposure to the chemical:
Dermatitis

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation. - 24 h
Remarks: (RTECS)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Remarks: (National Toxicology Program)
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 478
Species: Mouse - male and female
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation. - Respiratory system

Specific target organ toxicity - repeated exposure
Inhalation - May cause damage to organs through prolonged or repeated exposure.
- Central nervous system, Liver, Kidney

Aspiration hazard
May be fatal if swallowed and enters airways.

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1,2-Dichloroethylene

Acute toxicity
Oral: No data available
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l - vapour
(Expert judgement)
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

cumene

Acute toxicity
Symptoms: gastric pain, Vomiting
Inhalation: Irritating to respiratory system.
Symptoms: mucosal irritations, Cough, Shortness of breath, Headache, Nausea, Vomiting, Possible damages:, damage of respiratory tract
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation - 72 h

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(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Result: negative
Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Red blood cells (erythrocytes)
Result: negative
Method: OECD Test Guideline 474
Species: Rat - male - Bone marrow
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity
Presumed to have carcinogenic potential for humans

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute oral toxicity - gastric pain, Vomiting
Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Headache, Nausea, Vomiting, Possible damages:, damage of respiratory tract

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
Aspiration may cause pulmonary oedema and pneumonitis.

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

dimethyl sulphoxide:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 25,000 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 24,600 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 17,000 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): 10 - 100 mg/l Exposure time: 30 min Method: ISO 8192

Methanol:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill)): 15,400.0 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: US-EPA
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 18,260 mg/l End point: Immobilization Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): ca. 22,000.0 mg/l Exposure time: 96 h

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		Test Type: static test Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOEC (Oryzias latipes (Orange-red killifish)): 7,900 mg/l Exposure time: 200 h Remarks: (External MSDS)
Toxicity to microorganisms	:	IC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 209

Cyclohexane:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 4.53 mg/l Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.9 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 4.425 mg/l Exposure time: 72 h Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
M-Factor (Acute aquatic toxicity)	:	1
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to microorganisms	:	IC50 (Bacteria): 29 mg/l Exposure time: 15 h Remarks: (ECHA)

Ecotoxicology Assessment

Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

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Tetrahydrofuran:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 2,160 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 3,485 mg/l End point: mortality Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 216 mg/l End point: Growth inhibition Exposure time: 33 d Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)

Dichloromethane:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 193.00 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 27 mg/l End point: mortality Exposure time: 48 h Test Type: static test Method: US-EPA
Toxicity to fish (Chronic toxicity)	:	LC50 (Pimephales promelas (fathead minnow)): 471 mg/l End point: mortality Exposure time: 8 d Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to microorganisms	:	EC50 (activated sludge): 2,590 mg/l Exposure time: 40 min Test Type: static test Analytical monitoring: yes

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Method: OECD Test Guideline 209

Toluene:

Toxicity to fish	:	LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l End point: mortality Exposure time: 48 h Analytical monitoring: yes Method: US-EPA
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus kisutch (coho salmon)): 1.39 mg/l End point: Growth inhibition Exposure time: 40 d Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Ceriodaphnia dubia (water flea)): 0.74 mg/l End point: reproduction rate Exposure time: 7 d Analytical monitoring: yes Method: US-EPA
Toxicity to microorganisms	:	EC50 (Bacteria): 84 mg/l Exposure time: 24 h Test Type: static test Remarks: (ECHA)

Acetonitrile:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 1,640 mg/l Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to algae/aquatic plants	:	NOEC (Phaeodactylum tricornutum): 400 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: ISO 10253 GLP: yes

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ErC50 (Phaeodactylum tricornutum): 9,696 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: ISO 10253
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes): 102 mg/l
End point: mortality
Exposure time: 21 d
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD Test Guideline 204
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 30 min
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

p-xylene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.60 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 35.50 - 63.10 mg/l
Exposure time: 48 h
Remarks: (ECOTOX Database)

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata): 4.36 mg/l
Exposure time: 73 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Danio rerio (zebra fish)): 0.71 mg/l
Exposure time: 35 d
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD Test Guideline 210
GLP: yes

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC50 (Daphnia magna (Water flea)): 2.9 mg/l End point: reproduction rate Exposure time: 21 d Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes NOEC (Daphnia magna (Water flea)): 1.57 mg/l End point: reproduction rate Exposure time: 21 d Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	:	NOEC (activated sludge): 16.2 mg/l Exposure time: 28 h Test Type: static test GLP: yes Remarks: (ECHA)

m-xylene:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 2.60 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata): 4.36 mg/l Exposure time: 73 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): 0.71 mg/l Exposure time: 35 d Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.57 mg/l End point: reproduction rate Exposure time: 21 d Analytical monitoring: yes Method: OECD Test Guideline 211

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GLP: yes

Toxicity to microorganisms	:	NOEC (activated sludge): 16 mg/l Exposure time: 28 h Test Type: static test GLP: yes Remarks: (ECHA)

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.

o-xylene:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 2.60 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata): 4.36 mg/l Exposure time: 73 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): 0.71 mg/l Exposure time: 35 d Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.57 mg/l End point: reproduction rate Exposure time: 21 d Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes EC50 (Daphnia magna (Water flea)): 2.9 mg/l End point: reproduction rate Exposure time: 21 d Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to	:	NOEC (activated sludge): 16.2 mg/l

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microorganisms		Exposure time: 28 h Test Type: static test GLP: yes Remarks: (ECHA)

ethylbenzene:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1.8 - 2.4 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: US-EPA
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 3.6 mg/l Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: US-EPA GLP: yes
Toxicity to microorganisms	:	EC50 (Photobacterium phosphoreum): 9.68 mg/l Exposure time: 30 min Remarks: (IUCLID)

Ecotoxicology Assessment

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

trans-Dichloroethylene:

Toxicity to fish	:	LC50 : 19 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 220.00 mg/l Exposure time: 48 h

chlorobenzene:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 4.5 mg/l

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Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 26 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC10 (Desmodesmus subspicatus (green algae)): 5.8 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

ErC50 (Desmodesmus subspicatus (green algae)): 11.4 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Danio rerio (zebra fish)): 4.8 mg/l
Exposure time: 28 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.72 mg/l
Exposure time: 21 d
Test Type: flow-through test
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50 (activated sludge): 140 mg/l
Exposure time: 30 min
Test Type: static test
Method: OECD Test Guideline 209

Ecotoxicology Assessment

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

cis-Dichloroethylene:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 140 mg/l

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Exposure time: 96 h
Remarks: (ECOTOX Database)

Ecotoxicology Assessment

Acute aquatic toxicity : Harmful to aquatic life.

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

methylcyclohexane:

Toxicity to fish : LC50 (Oryzias latipes): 2.07 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
GLP: yes
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.326 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (algae)): 0.134 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (algae)): 0.022 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to : NOEC (activated sludge): 2.725 mg/l

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microorganisms		Exposure time: 14 d Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 301D GLP: yes

1,4-Dioxane:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l End point: Immobilization Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): > 103 mg/l End point: mortality Exposure time: 32 d Test Type: flow-through test Analytical monitoring: yes GLP: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1,000 mg/l End point: reproduction rate Exposure time: 21 d Method: OECD Test Guideline 211

Xylene:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 2.60 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata): 4.36 mg/l Exposure time: 73 h Test Type: static test

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Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 1.3 mg/l
End point: mortality
Exposure time: 56 d
Test Type: flow-through test
Analytical monitoring: yes
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 0.96 mg/l
End point: reproduction rate
Exposure time: 7 d
Analytical monitoring: yes
Method: US-EPA

Toxicity to microorganisms : NOEC (activated sludge): 16.2 mg/l
Exposure time: 28 h
Test Type: static test
GLP: yes
Remarks: (ECHA)

1,2-Dichloroethylene:

Toxicity to fish : Remarks: No data available

Ecotoxicology Assessment

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

cumene:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 4.7 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes
Method: US-EPA
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.14 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

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Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 2.01 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.35 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 2,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

Ecotoxicology Assessment

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

Persistence and degradability

Components:

dimethyl sulphoxide:

Biodegradability	:	aerobic Concentration: 2 mg/l Result: Not readily biodegradable. Biodegradation: 31 % Exposure time: 28 d Method: OECD Test Guideline 301D GLP: yes
Stability in water	:	Degradation half life: 0.12 - 1.2 h (30 °C) pH: 7 Remarks: Hydrolyses readily.

Methanol:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 99 % Exposure time: 30 d Method: OECD Test Guideline 301D
Biochemical Oxygen Demand (BOD)	:	600 - 1,120 mg/g Incubation time: 5 d Remarks: (IUCLID)

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Chemical Oxygen Demand (COD)	:	1,420 mg/g Remarks: (IUCLID)
ThOD	:	1,500 mg/g Remarks: (Lit.)
BOD/ThOD	:	76 % Remarks: Closed Bottle test (IUCLID)
Stability in water	:	Hydrolysis: 83 - 91 % at 19 °C(72 h) Remarks: Hydrolyses on contact with water. Hydrolyses readily. Degradation half life: 2.2 yr Remarks: reaction with hydroxyl radicals (IUCLID)
Photodegradation	:	Degradation (direct photolysis): 50 % Degradation half life: 17.2 d

Cyclohexane:

Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted Concentration: 34 mg/l Result: Readily biodegradable. Biodegradation: 77 % Exposure time: 28 d Method: OECD Test Guideline 301F GLP: yes

Tetrahydrofuran:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 2 mg/l Biochemical oxygen demand Result: Not readily biodegradable. Biodegradation: 39 % Exposure time: 28 d Method: OECD Test Guideline 301D

Dichloromethane:

Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted Concentration: 5 mg/l Result: Readily biodegradable. Biodegradation: 68 %

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Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

Toluene:

Biodegradability : aerobic
Result: Readily biodegradable.
Biodegradation: 86 %
Exposure time: 20 d
Remarks: (IUCLID)

Acetonitrile:

Biodegradability : Inoculum: activated sludge, non-adapted
Concentration: 684 mg/l
Result: Readily biodegradable.
Biodegradation: 70 %
Exposure time: 21 d
Method: OECD Test Guideline 310
GLP: yes

Stability in water : Degradation half life (DT50): > 9,999 d pH: 7
Hydrolysis: at 25 °C
Remarks: (calculated)
Hydrolyses slowly.

p-xylene:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 16 mg/l
Result: Readily biodegradable.
Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

m-xylene:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 16 mg/l
Result: Readily biodegradable.
Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

Chemical Oxygen Demand (COD) : 2.62 g/g
Remarks: (ECHA)

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ThOD	:	3.17 g/g Remarks: (ECHA)
BOD/ThOD	:	80 % Remarks: (ECHA)

o-xylene:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 16 mg/l Result: Readily biodegradable. Biodegradation: 94 % Exposure time: 28 d Method: OECD Test Guideline 301F GLP: yes
ThOD	:	3,125 mg/g Remarks: (Lit.)

ethylbenzene:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 22 mg/l Result: Readily biodegradable. Biodegradation: ca. 79 % Exposure time: 28 d Method: ISO 14593 GLP: yes

trans-Dichloroethylene:

Biodegradability	:	Remarks: No data available

chlorobenzene:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: Not readily biodegradable. Biodegradation: 15 % Exposure time: 28 d Method: OECD Test Guideline 301F GLP: yes aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: Not readily biodegradable. Biodegradation: 0 % Exposure time: 28 d

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Method: OECD Test Guideline 301C

ThOD : 2,060 mg/g
Remarks: (Lit.)

BOD/ThOD : 1.5 %
Remarks: (Lit.)

methylcyclohexane:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 2.45 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

1,4-Dioxane:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: < 10 %
Exposure time: 29 d
Method: OECD Test Guideline 301F

Xylene:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 16 mg/l
Result: Readily biodegradable.
Biodegradation: 94 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

1,2-Dichloroethylene:

Biodegradability : Remarks: No data available

cumene:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Result: Readily biodegradable.
Biodegradation: 70 %
Exposure time: 20 d
Remarks: (ECHA)

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Bioaccumulative potential

Components:

dimethyl sulphoxide:

Partition coefficient: n-octanol/water	:	log Pow: -1.35 (68 °F / 20 °C) Remarks: Bioaccumulation is not expected.

Methanol:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 1.0 Exposure time: 72 d Temperature: 68 °F / 20 °C Concentration: 5 mg/l
Partition coefficient: n-octanol/water	:	log Pow: -0.77 (77 °F / 25 °C) Method: (experimental) Remarks: (HSDB) Bioaccumulation is not expected.

Cyclohexane:

Partition coefficient: n-octanol/water	:	log Pow: 3.44 (77 °F / 25 °C) pH: 7 Remarks: Bioaccumulation is not expected.

Tetrahydrofuran:

Partition coefficient: n-octanol/water	:	log Pow: 0.45 (77 °F / 25 °C) Method: OECD Test Guideline 107 Remarks: Bioaccumulation is not expected.

Dichloromethane:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 2 - 5.4 Exposure time: 6 Weeks Concentration: 250 µg/l Method: OECD Test Guideline 305 GLP: yes Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 6 - 40 Exposure time: 6 Weeks Concentration: 25 µg/l Method: OECD Test Guideline 305 GLP: yes
Partition coefficient: n-octanol/water	:	log Pow: 1.25 (68 °F / 20 °C) pH: 7

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Method: (experimental)
Remarks: Bioaccumulation is not expected.

Toluene:

Bioaccumulation	:	Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 90 Exposure time: 3 d Concentration: 0.05 mg/l
Partition coefficient: n-octanol/water	:	log Pow: 2.73 (68 °F / 20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

Acetonitrile:

Bioaccumulation	:	Remarks: No bioaccumulation is to be expected (log Pow <= 4).
Partition coefficient: n-octanol/water	:	log Pow: -0.54 (77 °F / 25 °C) Remarks: Bioaccumulation is not expected.

p-xylene:

Bioaccumulation	:	Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 7.4 - 18.5 Exposure time: 56 d Temperature: 50 °F / 10 °C Concentration: 1.3 mg/l
Partition coefficient: n-octanol/water	:	log Pow: 3.15 (68 °F / 20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

m-xylene:

Bioaccumulation	:	Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 7.4 - 18.5 Exposure time: 56 d Temperature: 50 °F / 10 °C Concentration: 1.3 mg/l Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.
Partition coefficient: n-octanol/water	:	log Pow: 3.2 (68 °F / 20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

o-xylene:

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Bioaccumulation	:	Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 7.4 - 18.5 Exposure time: 56 d Temperature: 50 °F / 10 °C Concentration: 1.3 mg/l
Partition coefficient: n-octanol/water	:	log Pow: 3.12 (68 °F / 20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

ethylbenzene:

Bioaccumulation	:	Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.
Partition coefficient: n-octanol/water	:	log Pow: 3.6 (68 °F / 20 °C) pH: 7.84 Method: Regulation (EC) No. 440/2008, Annex, A.8 GLP: yes Remarks: Bioaccumulation is not expected.

trans-Dichloroethylene:

Bioaccumulation	:	Remarks: No data available

chlorobenzene:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 3.9 - 23 Exposure time: 49 d Temperature: 77 °F / 25 °C Method: OECD Test Guideline 305C
Partition coefficient: n-octanol/water	:	log Pow: 2.84 (68 °F / 20 °C) Remarks: Bioaccumulation is not expected. (ECHA)

methylcyclohexane:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 95 - 321 Exposure time: 8 Weeks Temperature: 77 °F / 25 °C Concentration: 0.1 mg/l
Partition coefficient: n-octanol/water	:	log Pow: 3.6 (77 °F / 25 °C) Method: EPI Suite™ Remarks: Bioaccumulation is not expected. (Lit.)

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1,4-Dioxane:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 0.3 - 0.7 Temperature: 77 °F / 25 °C Concentration: 10 mg/l Method: OECD Test Guideline 305C
Partition coefficient: n-octanol/water	:	log Pow: -0.42 Remarks: Bioaccumulation is not expected.

Xylene:

Bioaccumulation	:	Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 7.4 - 18.5 Exposure time: 56 d Temperature: 50 °F / 10 °C Concentration: 1.3 mg/l
Partition coefficient: n-octanol/water	:	log Pow: 3.12 (68 °F / 20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

1,2-Dichloroethylene:

Bioaccumulation	:	Remarks: No data available

cumene:

Partition coefficient: n-octanol/water	:	log Pow: 3.55 (73 °F / 23 °C) Method: OECD Test Guideline 107 Remarks: Bioaccumulation is not expected.

Mobility in soil

Components:

Methanol:

Stability in soil	:	Remarks: Will not adsorb on soil.

Acetonitrile:

Distribution among environmental compartments	:	Adsorption/Soil Koc: 16, log Koc: 1.21 Remarks: Mobile in soils (Lit.)
Stability in soil	:	Dissipation time: > 168 - < 672 h Method: (calculated) Remarks: Not expected to adsorb on soil.

m-xylene:

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Distribution among environmental compartments	:	Adsorption/Soil Koc: 196, log Koc: 2.29 Method: (experimental) Remarks: Moderately mobile in soils US-EPA

o-xylene:

Stability in soil	:	Remarks: No data available

ethylbenzene:

Distribution among environmental compartments	:	Adsorption/Soil Koc: 204, log Koc: 2.31 Method: (experimental) Remarks: Moderately mobile in soils (Lit.)

trans-Dichloroethylene:

Stability in soil	:	Remarks: No data available

chlorobenzene:

Distribution among environmental compartments	:	Adsorption/Soil Koc: 224, log Koc: 2.35 Method: (experimental) Remarks: Moderately mobile in soils

1,2-Dichloroethylene:

Stability in soil	:	Remarks: No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Components:

dimethyl sulphoxide:

Results of PBT and vPvB assessment	:	Not persistent, bioaccumulative, and toxic (PBT).

Methanol:

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Results of PBT and vPvB assessment	:	Not persistent, bioaccumulative, and toxic (PBT).
Additional ecological information	:	Avoid release to the environment.

Cyclohexane:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
Additional ecological information	:	Biological effects: Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Change in the flavour characteristics of fish protein. Discharge into the environment must be avoided.

Tetrahydrofuran:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Dichloromethane:

Results of PBT and vPvB assessment	:	Not persistent, bioaccumulative, and toxic (PBT). Not very persistent and very bioaccumulative (vPvB).
	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Acetonitrile:

Additional ecological information	:	Avoid release to the environment.

chlorobenzene:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
Additional ecological information	:	Discharge into the environment must be avoided.

methylcyclohexane:

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Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

1,4-Dioxane:

Additional ecological information	:	Forms toxic mixtures in water, dilution measures notwithstanding. Discharge into the environment must be avoided.

Xylene:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

1,2-Dichloroethylene:

Additional ecological information	:	No data available

cumene:

Additional ecological information	:	Discharge into the environment must be avoided.

Endocrine disrupting properties

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (Cyclohexane, dimethyl sulphoxide)
Class	:	9
Packing group	:	III
Labels	:	Class 9 - Miscellaneous dangerous substances and

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articles

Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyclohexane, dimethyl sulphoxide)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number	:	NA 1993
Proper shipping name	:	Combustible liquid, n.o.s. (Cyclohexane, dimethyl sulphoxide)
Class	:	Combustible liquid.
Packing group	:	III
Labels	:	None
ERG Code	:	128
Marine pollutant	:	no
Poison Inhalation Hazard	:	No

Special precautions for user

Remarks	:	EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

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

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ethylbenzene	100-41-4	100	100 (F003)

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Xylene	1330-20-7	100	100 (F003)
chlorobenzene	108-90-7	100	100 (D021)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Methanol	67-56-1	>= 1 - < 5 %
Cyclohexane	110-82-7	>= 1 - < 5 %
Dichloromethane	75-09-2	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
Acetonitrile	75-05-8	>= 1 - < 5 %
p-xylene	106-42-3	>= 1 - < 5 %
m-xylene	108-38-3	>= 1 - < 5 %
o-xylene	95-47-6	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %
1,4-Dioxane	123-91-1	>= 1 - < 5 %
Xylene	1330-20-7	>= 1 - < 5 %
1,2-Dichloroethylene	540-59-0	>= 1 - < 5 %
cumene	98-82-8	>= 0.1 - < 1 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Methanol	67-56-1	>= 1 - < 5 %
Dichloromethane	75-09-2	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
Acetonitrile	75-05-8	>= 1 - < 5 %
p-xylene	106-42-3	>= 1 - < 5 %
m-xylene	108-38-3	>= 1 - < 5 %
o-xylene	95-47-6	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %
1,4-Dioxane	123-91-1	>= 1 - < 5 %
Xylene	1330-20-7	>= 1 - < 5 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

dimethyl sulphoxide	67-68-5	>= 90 - <= 100 %
Methanol	67-56-1	>= 1 - < 5 %
Cyclohexane	110-82-7	>= 1 - < 5 %
Dichloromethane	75-09-2	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
Acetonitrile	75-05-8	>= 1 - < 5 %
p-xylene	106-42-3	>= 1 - < 5 %
o-xylene	95-47-6	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %
methylcyclohexane	108-87-2	>= 1 - < 5 %
1,4-Dioxane	123-91-1	>= 1 - < 5 %
Xylene	1330-20-7	>= 1 - < 5 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Cyclohexane	110-82-7	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
p-xylene	106-42-3	>= 1 - < 5 %
m-xylene	108-38-3	>= 1 - < 5 %
o-xylene	95-47-6	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %
Xylene	1330-20-7	>= 1 - < 5 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Cyclohexane	110-82-7	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %
Xylene	1330-20-7	>= 1 - < 5 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

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Dichloromethane	75-09-2	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
trans-Dichloroethylene	156-60-5	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %
cis-Dichloroethylene	156-59-2	>= 1 - < 5 %
1,2-Dichloroethylene	540-59-0	>= 1 - < 5 %

This product contains the following priority pollutants related to the U.S. Clean Water Act:

Dichloromethane	75-09-2	>= 1 - < 5 %
Toluene	108-88-3	>= 1 - < 5 %
ethylbenzene	100-41-4	>= 1 - < 5 %
trans-Dichloroethylene	156-60-5	>= 1 - < 5 %
chlorobenzene	108-90-7	>= 1 - < 5 %

US State Regulations

Massachusetts Right To Know

Methanol	67-56-1
Cyclohexane	110-82-7
Tetrahydrofuran	109-99-9
Dichloromethane	75-09-2
Toluene	108-88-3
Acetonitrile	75-05-8
p-xylene	106-42-3
m-xylene	108-38-3
o-xylene	95-47-6
ethylbenzene	100-41-4
trans-Dichloroethylene	156-60-5
chlorobenzene	108-90-7
cis-Dichloroethylene	156-59-2
methylcyclohexane	108-87-2
1,4-Dioxane	123-91-1
Xylene	1330-20-7
1,2-Dichloroethylene	540-59-0

Pennsylvania Right To Know

Methanol	67-56-1
Cyclohexane	110-82-7
Tetrahydrofuran	109-99-9
Dichloromethane	75-09-2
Toluene	108-88-3
Acetonitrile	75-05-8
p-xylene	106-42-3
m-xylene	108-38-3
o-xylene	95-47-6
ethylbenzene	100-41-4
trans-Dichloroethylene	156-60-5
chlorobenzene	108-90-7
cis-Dichloroethylene	156-59-2
methylcyclohexane	108-87-2

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1,4-Dioxane	123-91-1
Xylene	1330-20-7
1,2-Dichloroethylene	540-59-0
cumene	98-82-8

Maine Chemicals of High Concern

Toluene	108-88-3

Vermont Chemicals of High Concern

Dichloromethane	75-09-2
Toluene	108-88-3
ethylbenzene	100-41-4
1,4-Dioxane	123-91-1

Washington Chemicals of High Concern

Dichloromethane	75-09-2
Toluene	108-88-3
ethylbenzene	100-41-4
1,4-Dioxane	123-91-1

California Prop. 65

WARNING: This product can expose you to chemicals including Tetrahydrofuran, Dichloromethane, ethylbenzene, 1,4-Dioxane, cumene, which is/are known to the State of California to cause cancer, and Methanol, Toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. **The components of this product are reported in the following inventories:**

US TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

After February 3, 2025, this chemical substance (as defined in TSCA section 3(2))/product cannot be distributed in commerce to retailers. After January 28, 2026, this chemical substance (as defined in TSCA section 3(2))/product is and can only be distributed in commerce or processed with a concentration of methylene chloride equal to or greater than 0.1% by weight for the following purposes: (1) Processing as a reactant; (2) Processing for incorporation into a formulation, mixture, or reaction product; (3) Processing for repackaging; (4) Processing for recycling; (5) Industrial or commercial use as a laboratory chemical; (6) Industrial or commercial use as a bonding agent for solvent welding; (7) Industrial and commercial use as a paint and coating remover from safety critical, corrosion-sensitive components of aircraft and spacecraft; (8) Industrial and commercial use as a processing aid; (9) Industrial and commercial use for plastic and rubber products manufacturing; (10) Industrial and commercial use as a solvent that becomes part of a formulation or mixture, where that formulation or mixture will be used inside a manufacturing process, and the solvent (methylene chloride) will be reclaimed; (11) Industrial and commercial use in the refinishing for wooden furniture, decorative pieces, and architectural fixtures of artistic, cultural or historic value until May 8, 2029; (12) Industrial and commercial use in adhesives and sealants in aircraft, space vehicle, and turbine applications for structural and safety critical non-structural applications until May 8, 2029; (13) Disposal; and (14) Export.

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The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Dichloromethane	75-09-2
trans-Dichloroethylene	156-60-5
1,2-Dichloroethylene	540-59-0

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-2	:	USA. Occupational Exposure Limits (OSHA) - Table Z-2
TSCA ECEL	:	TSCA Existing Chemical Exposure Limit
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA CARC / STEL	:	Excursion limit
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-2 / TWA	:	8-hour time weighted average
OSHA Z-2 / CEIL	:	Acceptable ceiling concentration
OSHA Z-2 / Peak	:	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
TSCA ECEL / ECEL-TWA	:	Existing Chemical Exposure List (TWA)
TSCA ECEL / EPA STEL	:	EPA STEL
US WEEL / TWA	:	8-hr TWA
US WEEL / STEL	:	Short-Term TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response;

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EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
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