

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 16.11.2015

Version 14.1

## SECTION 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Catalogue No.	803238
Product name	1,2-Dichlorobenzene for synthesis
REACH Registration Number	01-2119451167-40-XXXX
CAS-No.	95-50-1

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

Identified uses	Chemical for synthesis In compliance with the conditions described in the annex to this safety data sheet.
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### 1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

**1.4 Emergency telephone number**      **Please contact the regional company representation in your country.**

## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 4, Oral, H302  
 Skin irritation, Category 2, H315  
 Eye irritation, Category 2, H319  
 Skin sensitisation, Category 1, H317  
 Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335  
 Acute aquatic toxicity, Category 1, H400  
 Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification (67/548/EEC or 1999/45/EC)**

Xn	Harmful	R22
Xi	Irritant	R36/37/38
N	Dangerous for the environment	R50/53
	Sensitising	R43

For the full text of the R-phrases mentioned in this Section, see Section 16.

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

*Hazard pictograms*



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*Signal word*  
Warning

*Hazard statements*

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H410 Very toxic to aquatic life with long lasting effects.

*Precautionary statements*

Prevention

P273 Avoid release to the environment.  
P280 Wear protective gloves.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*  
Warning

*Hazard statements*

H317 May cause an allergic skin reaction.

*Precautionary statements*

P280 Wear protective gloves.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

Contains: 1,2-Dichlorobenzene

*Index-No.* 602-034-00-7

**2.3 Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

**3.1 Substance**

Formula	1,2-(Cl) <sub>2</sub> C <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub> (Hill)
Index-No.	602-034-00-7	
EC-No.	202-425-9	
Molar mass	147 g/mol	

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**Hazardous components (REGULATION (EC) No 1272/2008)**

*Chemical Name (Concentration)*

CAS-No.	Registration number	Classification
1,2-Dichlorobenzene (<= 100 % )		

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

95-50-1	01-2119451167-40-XXXX	Acute toxicity, Category 4, H302 Skin irritation, Category 2, H315 Eye irritation, Category 2, H319 Skin sensitisation, Category 1, H317 Specific target organ toxicity - single exposure, Category 3, H335 Acute aquatic toxicity, Category 1, H400 Chronic aquatic toxicity, Category 1, H410
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For the full text of the H-Statements mentioned in this Section, see Section 16.

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

CAS-No.	Classification
1,2-Dichlorobenzene (<= 100 % )	
95-50-1	Xn, Harmful; R22 Xi, Irritant; R36/37/38 N, Dangerous for the environment; R50-53 Xi, Irritant; R43

For the full text of the R-phrases mentioned in this Section, see Section 16.

**3.2 Mixture**

Not applicable

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**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Call a physician immediately.

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

irritant effects, Cough, Shortness of breath, Dizziness, narcosis, Headache, Allergic reactions, CNS disorders

**4.3 Indication of any immediate medical attention and special treatment needed**

Sodium sulfate (1 tablespoon/1/4 l water).

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**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

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*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

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

Fire may cause evolution of:

Hydrogen chloride gas

**5.3 Advice for firefighters**

*Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*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.

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**SECTION 6. Accidental release measures**

**6.1 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:

Protective equipment see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 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 with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

**6.4 Reference to other sections**

Indications about waste treatment see section 13.

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**SECTION 7. Handling and storage**

**7.1 Precautions for safe handling**

*Advice on safe handling*

Observe label precautions.

*Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

*Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**7.2 Conditions for safe storage, including any incompatibilities**

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*Requirements for storage areas and containers*

Do not use light-weight-metal containers.

*Storage conditions*

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

**7.3 Specific end use(s)**

See exposure scenario in the Annex to this MSDS.

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**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

**Derived No Effect Level (DNEL)**

Worker DNEL, longterm	Systemic effects	inhalation	20 mg/m <sup>3</sup>
Worker DNEL, acute	Systemic effects	inhalation	100 mg/m <sup>3</sup>
Worker DNEL, longterm	Local effects	inhalation	10 mg/m <sup>3</sup>
Worker DNEL, acute	Local effects	inhalation	10 mg/m <sup>3</sup>
Worker DNEL, longterm	Systemic effects	dermal	3 mg/kg Body weight
Worker DNEL, acute	Systemic effects	dermal	15 mg/kg Body weight

**Predicted No Effect Concentration (PNEC)**

PNEC Fresh water	0,0037 mg/l
PNEC Marine water	0,00037 mg/l
PNEC Sewage treatment plant	4,7 mg/l
PNEC Fresh water sediment	0,177 mg/kg
PNEC Marine sediment	0,0177 mg/kg
PNEC Soil	0,0333 mg/kg
PNEC oral	5,56 mg/kg

**8.2 Exposure controls**

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

**Individual protection measures**

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

*Eye/face protection*

Safety glasses

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*Hand protection*

full contact:

Glove material: Viton (R)  
Glove thickness: 0,70 mm  
Break through time: > 480 min

splash contact:

Glove material: Nitrile rubber  
Glove thickness: 0,40 mm  
Break through time: > 30 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 890 Vitoject® (full contact), KCL 730 Camatril® -Velours (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment*

Flame retardant antistatic protective clothing.

*Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur 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.

**Environmental exposure controls**

Do not let product enter drains.

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**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

Form	liquid
Colour	colourless light yellow
Odour	characteristic
Odour Threshold	No information available.
pH	No information available.
Melting point	-17 °C
Boiling point/boiling range	180 °C at 1.013 hPa
Flash point	66 °C Method: DIN 51758

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Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	2,2 %(V)
Upper explosion limit	12 %(V)
Vapour pressure	1,33 hPa at 20 °C
Relative vapour density	5,1
Density	1,31 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	0,13 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: 3,43 (25 °C) OECD Test Guideline 123 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	1,32 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

Ignition temperature	640 °C
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## SECTION 10. Stability and reactivity

### 10.1 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.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
Strong oxidizing agents, Alkali metals, Alkaline earth metals  
Aluminium, Light metals, in the presence of:  
Water, Acids

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**10.4 Conditions to avoid**

Strong heating.

**10.5 Incompatible materials**

Aluminium, rubber, various plastics

**10.6 Hazardous decomposition products**

in the event of fire: See section 5.

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**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LD50 Rat: 500 mg/kg

(RTECS)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract., Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.  
absorption

*Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract

*Acute dermal toxicity*

LD50 Rabbit: > 10.000 mg/kg

(RTECS)

absorption

*Skin irritation*

Rabbit

Result: Irritations

OECD Test Guideline 404

Causes skin irritation.

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

*Eye irritation*

Causes serious eye irritation.

*Sensitisation*

Sensitisation test: Mouse

Result: positive

Method: OECD Test Guideline 429

May cause an allergic skin reaction.

*Germ cell mutagenicity*



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*Genotoxicity in vivo*

In vivo micronucleus test  
Mouse  
male  
Intraperitoneal injection  
Bone marrow  
Result: negative  
Method: OECD Test Guideline 474

*Genotoxicity in vitro*

Ames test  
Escherichia coli/Salmonella typhimurium  
Result: negative  
Method: OECD Test Guideline 471

*Carcinogenicity*

This information is not available.

*Reproductive toxicity*

This information is not available.

*Teratogenicity*

This information is not available.

*Specific target organ toxicity - single exposure*

Target Organs: Respiratory system  
May cause respiratory irritation.

*Specific target organ toxicity - repeated exposure*

This information is not available.

*Repeated dose toxicity*

Rat  
male and female  
Oral  
90 d  
daily  
NOAEL: 25 mg/kg  
LOAEL: 100 mg/kg  
OECD Test Guideline 408  
Subchronic toxicity

*Aspiration hazard*

This information is not available.

**11.2 Further information**

After absorption of large quantities:  
CNS disorders, psychoses, Headache, Dizziness, narcosis  
After long-term exposure to the chemical:  
Toxic effect on:  
Liver, Kidney  
Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12. Ecological information**

**12.1 Toxicity**

*Toxicity to fish*

flow-through test LC50 Oncorhynchus mykiss (rainbow trout): 1,52 mg/l; 96 h  
Analytical monitoring: yes  
US-EPA

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*Toxicity to daphnia and other aquatic invertebrates*

static test EC50 Ceriodaphnia dubia (water flea): 0,66 mg/l; 48 h

Analytical monitoring: yes

US-EPA

*Toxicity to algae*

Growth rate EC50 Pseudokirchneriella subcapitata (green algae): 2,2 mg/l; 96 h

Analytical monitoring: yes

US-EPA

*Toxicity to bacteria*

EC5 Pseudomonas putida: 15 mg/l; 16 h

(IUCLID) (maximum permissible toxic concentration)

*Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

semi-static test NOEC Daphnia magna (Water flea): 0,37 mg/l; 14 d

OECD Test Guideline 211

## 12.2 Persistence and degradability

*Biodegradability*

0 %; 28 d; aerobic Biochemical oxygen demand

OECD Test Guideline 301C

Not readily biodegradable.

58 %; 20 d

OECD Test Guideline 301D

Not readily biodegradable.

## 12.3 Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: 3,43 (25 °C)

OECD Test Guideline 123

Bioaccumulation is not expected.

## 12.4 Mobility in soil

*Distribution among environmental compartments*

Adsorption/Soil

log Koc: 2,58

(experimental)

Moderately mobile in soils (Lit.)

## 12.5 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.

## 12.6 Other adverse effects

*Henry constant*

194 Pa\*m<sup>3</sup>/mol

Method: (experimental)

Distribution preferentially in air. (Lit.)

Discharge into the environment must be avoided.

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**SECTION 13. Disposal considerations**

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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**SECTION 14. Transport information**

**Land transport (ADR/RID)**

14.1 UN number UN 1591  
14.2 Proper shipping name O-DICHLOROBENZENE  
14.3 Class 6.1  
14.4 Packing group III  
14.5 Environmentally hazardous yes  
14.6 Special precautions for user yes  
Tunnel restriction code E

**Inland waterway transport (ADN)**

Not relevant

**Air transport (IATA)**

14.1 UN number UN 1591  
14.2 Proper shipping name O-DICHLOROBENZENE  
14.3 Class 6.1  
14.4 Packing group III  
14.5 Environmentally hazardous yes  
14.6 Special precautions for user no

**Sea transport (IMDG)**

14.1 UN number UN 1591  
14.2 Proper shipping name O-DICHLOROBENZENE  
14.3 Class 6.1  
14.4 Packing group III  
14.5 Environmentally hazardous yes  
14.6 Special precautions for user yes  
EmS F-A S-A

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not relevant

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**SECTION 15. Regulatory information**

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

*EU regulations*

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Major Accident Hazard Legislation SEVESO III  
ENVIRONMENTAL HAZARDS  
E1

Quantity 1: 100 t  
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

*National legislation*

Storage class 6.1C

### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

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### SECTION 16. Other information

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

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

#### Full text of R-phrases referred to under sections 2 and 3

R22 Harmful if swallowed.  
R36/37/38 Irritating to eyes, respiratory system and skin.  
R43 May cause sensitisation by skin contact.  
R50 Very toxic to aquatic organisms.  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R53 May cause long-term adverse effects in the aquatic environment.

#### Training advice

Provide adequate information, instruction and training for operators.

#### Labelling

##### *Hazard pictograms*



##### *Signal word*

Warning

##### *Hazard statements*

H227 Combustible liquid.  
H302 Harmful if swallowed.

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H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H410 Very toxic to aquatic life with long lasting effects.

*Precautionary statements*



Prevention

P273 Avoid release to the environment.  
P280 Wear protective gloves.

Response



P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P313 Get medical advice/ attention.

**Labelling (67/548/EEC or 1999/45/EC)**

<i>Symbol(s)</i>	 Xn  N	Harmful Dangerous for the environment
<i>R-phrases(s)</i>	22-36/37/38-43-50/53	Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitisation by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<i>S-phrases(s)</i>	23-24-37-60-61	Do not breathe vapour. Avoid contact with skin. Wear suitable gloves. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/ Safety data sheets.

EC-No. 202-425-9 EC Label

**Reduced labelling (≤125 ml)**

<i>Symbol(s)</i>	 Xn  N	Harmful Dangerous for the environment
<i>R-phrases(s)</i>	22-43	Harmful if swallowed. May cause sensitisation by skin contact.
<i>S-phrases(s)</i>	24-37	Avoid contact with skin. Wear suitable gloves.

Contains: 1,2-Dichlorobenzene

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

**Regional representation**

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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**EXPOSURE SCENARIO 1 (Industrial use)**

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**1. Industrial use (Chemical for synthesis)**

**Sectors of end-use**

*SU 3* Industrial uses: Uses of substances as such or in preparations at industrial sites  
*SU 9* Manufacture of fine chemicals  
*SU 10* Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

**Chemical product category**

*PC19* Intermediate  
*PC21* Laboratory chemicals

**Process categories**

*PROC1* Use in closed process, no likelihood of exposure  
*PROC2* Use in closed, continuous process with occasional controlled exposure  
*PROC3* Use in closed batch process (synthesis or formulation)  
*PROC4* Use in batch and other process (synthesis) where opportunity for exposure arises  
*PROC8b* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
*PROC9* Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
*PROC15* Use as laboratory reagent

**Environmental Release Categories**

*ERC4* Industrial use of processing aids in processes and products, not becoming part of articles  
*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)  
*ERC6b* Industrial use of reactive processing aids

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**2. Contributing scenarios: Operational conditions and risk management measures**

**2.1 Contributing scenario controlling environmental exposure for: ERC4**

**Amount used**

Annual amount per site 1600 t

**Environment factors not influenced by risk management**

Dilution Factor (River) 40

**Other given operational conditions affecting environmental exposure**

Number of emission days per year 96

**Technical conditions and measures / Organizational measures**

Water Product must not be released into water without pre-treatment. Percentage removed from waste water  
Effectiveness (of a measure): 90 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant Default industrial size  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Effectiveness (of a measure) 90 %  
Sludge Treatment Sewage sludge should not be applied to natural soils.

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**2.2 Contributing scenario controlling environmental exposure for: ERC6a**

**Amount used**

Annual amount per site 6000 t

**Environment factors not influenced by risk management**

Dilution Factor (River) 40

**Other given operational conditions affecting environmental exposure**

Number of emission days per year 300

**Technical conditions and measures / Organizational measures**

Water Product must not be released into water without pre-treatment. Percentage removed from waste water Effectiveness (of a measure): 90 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant Default industrial size  
Flow rate of sewage treatment plant effluent 2.000 m3/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

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**2.3 Contributing scenario controlling environmental exposure for: ERC6b**

**Amount used**

Annual amount per site 5420 kg

Daily amount per site (Msafe) 18,068 kg

**Environment factors not influenced by risk management**

Flow rate 18.000 m3/d  
Dilution Factor (River) 10  
Dilution Factor (Coastal Areas) 100

**Other given operational conditions affecting environmental exposure**

Number of emission days per year 300  
Emission or Release Factor: Air 0,1 %  
Emission or Release Factor: Water 5 %  
Emission or Release Factor: Soil 0,025 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant Default industrial size  
Flow rate of sewage treatment plant effluent 2.000 m3/d  
Effectiveness (of a measure) 95 %  
Sludge Treatment Sewage sludge should not be applied to natural soils.

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**2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8b, PROC15**

**Product characteristics**

Concentration of the Substance in Covers the percentage of the substance in the product up to 100 %.

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Mixture/Article

Physical Form (at time of use) Medium volatile liquid  
Process Temperature < 106 °C

**Frequency and duration of use**

Frequency of use 8 hours/day

**Other operational conditions affecting workers exposure**

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

Additional good practice advice Wear suitable gloves (tested to EN374) and eye protection.

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**2.5 Contributing scenario controlling worker exposure for: PROC4**

**Product characteristics**

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 %.  
Physical Form (at time of use) Medium volatile liquid  
Process Temperature < 106 °C

**Frequency and duration of use**

Frequency of use 8 hours/day

**Other operational conditions affecting workers exposure**

Outdoor / Indoor Indoor with LEV and enhanced general ventilation

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

Additional good practice advice Wear suitable gloves (tested to EN374) and eye protection.

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**3. Exposure estimation and reference to its source**

**Environment**

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC4		All compartments	< 1	EUSES
2.2	ERC6a		All compartments	< 1	EUSES
2.3	ERC6b	18,068 kg/day	Fresh water sediment	1	ECETOC TRA 3



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Catalogue No. 803238  
Product name 1,2-Dichlorobenzene for synthesis

**Workers**

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC1	longterm, inhalative, local	< 0,01	ECETOC TRA 3
		longterm, inhalative, systemic	< 0,01	ECETOC TRA 3
		longterm, dermal, systemic	0,01	ECETOC TRA 3
		longterm, combined, systemic	0,01	
2.4	PROC2	longterm, inhalative, local	0,31	ECETOC TRA 3
		longterm, inhalative, systemic	0,15	ECETOC TRA 3
		longterm, dermal, systemic	0,05	ECETOC TRA 3
		longterm, combined, systemic	0,20	
2.4	PROC3	longterm, inhalative, local	0,61	ECETOC TRA 3
		longterm, inhalative, systemic	0,31	ECETOC TRA 3
		longterm, dermal, systemic	0,02	ECETOC TRA 3
		longterm, combined, systemic	0,33	
2.4	PROC8b	longterm, inhalative, local	0,77	ECETOC TRA 3
		longterm, inhalative, systemic	0,38	ECETOC TRA 3
		longterm, dermal, systemic	0,23	ECETOC TRA 3
		longterm, combined, systemic	0,61	
2.4	PROC15	longterm, inhalative, local	0,61	ECETOC TRA 3
		longterm, inhalative, systemic	0,31	ECETOC TRA 3
		longterm, dermal, systemic	0,01	ECETOC TRA 3
		longterm, combined, systemic	0,32	
2.5	PROC4	longterm, inhalative, local	0,37	ECETOC TRA 3
		longterm, inhalative, systemic	0,18	ECETOC TRA 3
		longterm, dermal, systemic	0,23	ECETOC TRA 3
		longterm, combined, systemic	0,41	

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool SciDeEx® at [www.merckmillipore.com/scideex](http://www.merckmillipore.com/scideex).

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**EXPOSURE SCENARIO 2 (Professional use)**

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**1. Professional use (Chemical for synthesis)**

**Sectors of end-use**

*SU 22* Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

**Chemical product category**

*PC21* Laboratory chemicals

**Process categories**

*PROC15* Use as laboratory reagent

**Environmental Release Categories**

*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)

*ERC6b* Industrial use of reactive processing aids

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**2. Contributing scenarios: Operational conditions and risk management measures**

**2.1 Contributing scenario controlling environmental exposure for: ERC6a**

**Amount used**

Annual amount per site 6000 t

**Environment factors not influenced by risk management**

Dilution Factor (River) 40

**Other given operational conditions affecting environmental exposure**

Number of emission days per year 300

**Technical conditions and measures / Organizational measures**

Water Product must not be released into water without pre-treatment. Percentage removed from waste water Effectiveness (of a measure): 90 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant Default industrial size

Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d

Sludge Treatment Sewage sludge should not be applied to natural soils.

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**2.2 Contributing scenario controlling environmental exposure for: ERC6b**

**Amount used**

Annual amount per site 5420 kg

Daily amount per site (Msafe) 18,068 kg

**Environment factors not influenced by risk management**

Flow rate 18.000 m<sup>3</sup>/d

Dilution Factor (River) 10

Dilution Factor (Coastal Areas) 100

**Other given operational conditions affecting environmental exposure**

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Catalogue No. 803238  
Product name 1,2-Dichlorobenzene for synthesis

Number of emission days per year 300  
Emission or Release Factor: Air 0,1 %  
Emission or Release Factor: Water 5 %  
Emission or Release Factor: Soil 0,025 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant Default industrial size  
Flow rate of sewage treatment 2.000 m3/d  
plant effluent  
Effectiveness (of a measure) 95 %  
Sludge Treatment Sewage sludge should not be applied to natural soils.

**2.3 Contributing scenario controlling worker exposure for: PROC15**

**Product characteristics**

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 %.  
Physical Form (at time of use) Medium volatile liquid  
Process Temperature < 106 °C

**Frequency and duration of use**

Frequency of use 8 hours/day

**Other operational conditions affecting workers exposure**

Outdoor / Indoor Indoor with LEV and good general ventilation

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

Additional good practice advice Use suitable eye protection.

**3. Exposure estimation and reference to its source**

**Environment**

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC6a		All compartments	< 1	EUSES
2.2	ERC6b	18,068 kg/day	Fresh water sediment	1	ECETOC TRA 3

**Workers**

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.3	PROC15	longterm, inhalative, local	0,86	ECETOC TRA 3
		longterm, inhalative, systemic	0,43	ECETOC TRA 3
		longterm, dermal, systemic	0,02	ECETOC TRA 3
		longterm, combined, systemic	0,45	

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

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