Safety Data Sheet
acc. to OSHA HCS

Printing date 06/14/2017
Reviewed on 06/14/2017
Version number: 3

1 Identification

· **Product identifier**

· **Trade name: 1,2,4-trichlorobenzene**

· **Article number:** 363541
· **CAS Number:**
120-82-1
· **EC number:**
204-428-0
· **Index number:**
602-087-00-6
· **Application of the substance / the mixture**
Chemical analytics
Pharmaceutical analysis
Laboratory chemical

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
AppliChem GmbH
Ottoweg 4
D-64291 Darmstadt
Tel.: +49 (0)6151 93570
Fax.: +49 (0)6151 935711
msds@applichem.com

· **Information department:** Dept. Compliance
· **Emergency telephone number:** +49(0)6151 93570 (Inside normal buisness hours)

2 Hazard(s) identification

· **Classification of the substance or mixture**
Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard statements**
H302 Harmful if swallowed.
H315 Causes skin irritation.
· **Precautionary statements**
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of water.

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· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 1
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 1
Fire = 1
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**

· **PBT:**	
120-82-1	1,2,4-trichlorobenzene

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
120-82-1 1,2,4-trichlorobenzene
· **Identification number(s)**
· **EC number:** 204-428-0
· **Index number:** 602-087-00-6

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Involve doctor immediately.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Call a doctor immediately.
Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Immediately call a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
Use fire fighting measures that suit the environment.
In adaption to materials stored in the immediate neighbourhood.

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· **Special hazards arising from the substance or mixture**
Hydrogen chloride (HCl)
Phosgene gas
CO, CO2
Non-combustible.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.
· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Contain escaping vapours with water.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Avoid substance contact.
Ensure adequate ventilation
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Clean up affected area.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**
· **PAC-1:** 0.45 ppm
· **PAC-2:** 5 ppm
· **PAC-3:** 20 ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:** The product is not flammable.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Open receptacle only under localized extractor facilities.
Store under lock and key and with access restricted to technical experts or their assistants only.
Keep container sealed.
· **Recommended storage temperature:** +15 - +25 °C
· **Storage class:** 10 - 13
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
120-82-1 1,2,4-trichlorobenzene	
REL	Ceiling limit value: 40 mg/m³, 5 ppm
TLV	Ceiling limit value: 37 mg/m³, 5 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
Filter ABEK
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **For the permanent contact gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
Value for the permeation: Level ≥ 480 min
· **As protection from splashes gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
Value for the permeation: Level ≥ 480 min
· **Eye protection:** Safety glasses
· **Body protection:**
Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazourdous substances handled.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Liquid
Color:	Colorless
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.

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· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	17-18 °C (63-64 °F)
Boiling point/Boiling range:	212-213 °C (414-415 °F)
· **Flash point:**	110 °C (230 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	0.27 hPa
· **Density at 20 °C (68 °F):**	1.446 g/cm³ (12.067 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No dangerous reactions known.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No dangerous reactions known.
· **Hazardous decomposition products:** In the event of fire: See chapter 5

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **LD/LC50 values that are relevant for classification:**

· **Components**	**Type**	**Value**	**Species**
Oral	LD50	550 mg/kg (rat)	
Dermal	LD50	6139 mg/kg (rat)	

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **Additional toxicological information:**

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** Substance is not listed.

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· **NTP (National Toxicology Program)** Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
Water hazard class 3 (Assessment by list): extremely hazardous for water
Danger to drinking water if even extremely small quantities leak into the ground.
· **Results of PBT and vPvB assessment**

· **PBT:**	
120-82-1	1,2,4-trichlorobenzene

· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Chemicals must be disposed of in compliance with the respective national regulations.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:**
Disposal must be made according to official regulations.
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN2321
· **UN proper shipping name**	
· **DOT**	Trichlorobenzenes, liquid
· **ADR**	Trichlorobenzenes, liquid, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	TRICHLOROBENZENES, LIQUID, MARINE POLLUTANT
· **IATA**	TRICHLOROBENZENES, LIQUID

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· **Transport hazard class(es)**

· **DOT**

· **Class**	6.1 Toxic substances
· **Label**	6.1

· **ADR**

· **Class**	6.1 (T1) Toxic substances
· **Label**	6.1

· **IMDG**

· **Class**	6.1 Toxic substances
· **Label**	6.1

· **IATA**

· **Class**	6.1 Toxic substances
· **Label**	6.1

· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	Environmentally hazardous substance, liquid; Marine Pollutant
· **Marine pollutant:**	No Yes (DOT) Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Toxic substances
· **Danger code (Kemler):**	60
· **EMS Number:**	6.1-02
· **Segregation groups**	Liquid halogenated hydrocarbons
· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Remarks:**	Special marking with the symbol (fish and tree).

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· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 2321 TRICHLOROBENZENES, LIQUID, 6.1, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**
· **Section 355 (extremely hazardous substances):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is listed.
· **TSCA (Toxic Substances Control Act):** Substance is listed.
· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
· **Chemicals known to cause developmental toxicity:** Substance is not listed.

· **Cancerogenity categories**
· **EPA (Environmental Protection Agency)** D
· **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard statements**
H302 Harmful if swallowed.
H315 Causes skin irritation.
· **Precautionary statements**
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Dept. Compliance
· **Contact:** Mr. Th. Stöckle

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· **Date of preparation / last revision** 06/14/2017 / 2

· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2