

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 1 of 12

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

1.1. Product identifier

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

REACH Registration Number: 01-2119432722-45-0000
CAS No: 108-90-7
Index No: 602-033-00-1
EC No: 203-628-5

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

Use of the substance/mixture

Laboratory chemicals
Industrial uses: Uses of substances as such or in preparations at industrial sites
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: Fa. Bernd Kraft GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
Telefax: 0203/5194-290
e-mail: info@berndkraft.de
Contact person: Abteilung Produktsicherheit
Telephone: 0203/5194-107/117
e-mail: produktsicherheit@berndkraft.de
Internet: www.berndkraft.de
Responsible Department: Abteilung Produktsicherheit

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Flam. Liq. 3; H226
Acute Tox. 4; H332
Skin Irrit. 2; H315
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Warning

Pictograms:



Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 2 of 12

Hazard statements

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P391 Collect spillage.
P403+P235 Store in a well-ventilated place. Keep cool.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: C₆H₅Cl
Molecular weight: 112,56 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
108-90-7	chlorobenzene			100 %
	203-628-5	602-033-00-1	01-2119432722-45-0000	
	Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2, Aquatic Chronic 2; H226 H332 H315 H411			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
108-90-7	203-628-5	chlorobenzene	100 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); oral: LD50 = > 2000 mg/kg		

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

Provide fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Call a physician immediately.

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 3 of 12

After contact with skin

Wash immediately with: Water
Take off immediately all contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.
In case of eye irritation consult an ophthalmologist.

After ingestion

Observe risk of aspiration if vomiting occurs.
Call a physician immediately.

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

Abdominal pain
Headache
Anaesthetic state
Agitation
Spasms
Gastrointestinal complaints
Vomiting
Has degreasing effect on the skin.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible liquids
Hazardous combustion products
In case of fire may be liberated:
Carbon dioxide (CO₂) Carbon monoxide
Hydrogen chloride (HCl) Phosgene
Vapours are heavier than air, spread along floors and form explosive mixtures with air.
Heating causes rise in pressure with risk of bursting.
Beware of reignition.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
In case of fire and/or explosion do not breathe fumes.
Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.
Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Keep away from sources of ignition - No smoking.
This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators,

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 4 of 12

and pagers which have not been certified as intrinsically safe).
Take action to prevent static discharges.

For non-emergency personnel

Provide adequate ventilation.
Use personal protection equipment.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Emergency procedures
Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.
The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.
Danger of explosion

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Collect in closed and suitable containers for disposal.
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Read label before use. Handle and open container with care.
When using do not eat, drink, smoke, sniff. Keep container tightly closed.
Use personal protection equipment. Use extractor hood (laboratory).
Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

Advice on protection against fire and explosion

Take action to prevent static discharges. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.
Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary.
If handled uncovered, arrangements with local exhaust ventilation have to be used.

7.2. Conditions for safe storage, including any incompatibilities

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 5 of 12

Requirements for storage rooms and vessels

Keep in a cool, well-ventilated place.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
storage temperature < +30°C

Further information on storage conditions

Keep cool. Protect from sunlight.
Keep container dry.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
108-90-7	Chlorobenzene (as monochlorobenzene)	5	23		TWA (8 h)	
		15	70		STEL (15 min)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
108-90-7	Chlorobenzene	4-Chlorocatechol	100 mg/g	Creatinine	End of shift at end of workweek

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
108-90-7	chlorobenzene			
	Worker DNEL, long-term	inhalation	systemic	23 mg/m ³
	Worker DNEL, acute	inhalation	systemic	70 mg/m ³
	Worker DNEL, long-term	inhalation	local	42,3 mg/m ³
	Worker DNEL, acute	inhalation	local	94 mg/m ³
	Worker DNEL, long-term	dermal	systemic	12 mg/kg bw/day
	Worker DNEL, acute	dermal	systemic	15 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	systemic	1 mg/m ³
	Consumer DNEL, acute	inhalation	systemic	1 mg/m ³
	Consumer DNEL, long-term	dermal	systemic	3 mg/kg bw/day
	Consumer DNEL, acute	dermal	systemic	3 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	3 mg/kg bw/day
	Consumer DNEL, acute	oral	systemic	3 mg/kg bw/day

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 6 of 12

PNEC values

CAS No	Substance	
Environmental compartment		Value
108-90-7	chlorobenzene	
Freshwater		0,032 mg/l
Freshwater (intermittent releases)		0,066 mg/l
Marine water		0,003 mg/l
Freshwater sediment		0,922 mg/kg
Marine sediment		0,092 mg/kg
Secondary poisoning		10 mg/kg
Micro-organisms in sewage treatment plants (STP)		1,4 mg/l
Soil		0,166 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles

Face protection umbrella

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation KCL 890 Vitoject®

Suitable material: FKM (fluoro rubber) 0,7 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation KCL 890 Vitoject®

Suitable material: FKM (fluoro rubber) 0,7 mm

Wearing time with occasional contact (splashes): > 480 min

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).

Skin protection

Take off immediately all contaminated clothing and wash it before reuse.

Wear fire resistant or flame retardant clothing.

Wash hands and face before breaks and after work and take a shower if necessary.

Draw up and observe skin protection programme.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Filtering device with filter or ventilator filtering device of type: A

Environmental exposure controls

Do not allow to enter into surface water or drains.

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 7 of 12

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.
Danger of explosion

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	colourless
Odour:	like: Benzene
Odour threshold:	No data available

Changes in the physical state

Melting point/freezing point:	-45 °C
Boiling point or initial boiling point and boiling range:	ca. 132 °C
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
:	No data available
Flash point:	ca. 28 °C

Flammability

Solid/liquid:	No data available
Gas:	No data available

Explosive properties

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Lower explosion limits:	1,3 vol. %
Upper explosion limits:	11 vol. %
Auto-ignition temperature:	ca. 590 °C

Self-ignition temperature

Solid:	No data available
Gas:	No data available

Decomposition temperature:	No data available
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pH-Value (at 20 °C):	neutral
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Viscosity / dynamic: (at 20 °C)	0,8 mPa·s
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Viscosity / kinematic:	No data available
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Flow time:	No data available
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Water solubility: (at 20 °C)	0,207 g/L
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Solubility in other solvents

No data available

Dissolution rate:	No data available
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Partition coefficient n-octanol/water:	No data available
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Dispersion stability:	No data available
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Vapour pressure: (at 20 °C)	12,05 hPa
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Vapour pressure:	No data available
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Density (at 20 °C):	1,11 g/cm ³
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Relative density:	No data available
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Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 8 of 12

Bulk density: No data available
Relative vapour density: No data available
Particle characteristics: No data available

9.2. Other information

Information with regard to physical hazard classes

Sustaining combustion: No data available
Oxidizing properties
No data available

Other safety characteristics

Solvent separation test: No data available
Solvent content: 100%
Solid content: No data available
Evaporation rate: No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

In case of warming: Vapours may form explosive mixtures with air.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Oxidising agent
Alkali metals
Alkaline earth metal
Dimethylsulfoxide (DMSO)
Nitric acid

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

Rubber articles

10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

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

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Harmful if inhaled.

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 9 of 12

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
108-90-7	chlorobenzene				
	oral	LD50 > 2000 mg/kg	Rat	Journal of toxicology and environmental	OECD Guideline 401
	inhalation vapour	ATE 11 mg/l			
	inhalation dust/mist	ATE 1,5 mg/l			

Irritation and corrosivity

Causes skin irritation.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

Sensitising effects

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

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

Causes damage to organs.

Organs affected:

liver

kidneys

Further information

Abdominal pain

Headache

Anaesthetic state

Agitation

Spasms

Gastrointestinal complaints

Vomiting

Has degreasing effect on the skin.

SECTION 12: Ecological information

12.1. Toxicity

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 10 of 12

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
108-90-7	chlorobenzene					
	Acute fish toxicity	LC50 4,5 mg/l	96 h	Lepomis macrochirus	ASTM Spec. Tech. Publ., 891 (Aquat.Toxic)	other: EPA-660//3-75-009
	Acute algae toxicity	ErC50 mg/l 12,5	96 h	Pseudokirchneriella subcapitata	Chemosphere 10, 1123-1126 (1981)	Modified Algal Assay Procedure Bottle te
	Acute crustacea toxicity	EC50 mg/l 0,59	48 h	Daphnia magna	Environ. Toxicol.Chem. 4, 297-305 (1985)	other: Test procedure described in the p
	Fish toxicity	NOEC 4,8 mg/l	28 d	Danio rerio	Aquatic Toxicology, 16, 321-334 (1990)	OECD Guideline 210
	Crustacea toxicity	NOEC mg/l 0,32	16 d	Daphnia magna	Aquatic toxicology 6, 209-217 (1985)	other: NEN report 6501, 6502
	Acute bacteria toxicity	(EC50 mg/l) 140	0,5 h	Activated sludge	J. Water Pollut. Control Fed. 60, 1850-1	OECD Guideline 209

12.2. Persistence and degradability

15 %; 28 d OECD / 301C

Not readily biodegradable (according to OECD criteria)

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
108-90-7	chlorobenzene	ca. 2,855

BCF

CAS No	Chemical name	BCF	Species	Source
108-90-7	chlorobenzene	3,9 - 23	Cyprinus carpio	Japan. Chemicals Ins

12.4. Mobility in soil

log Koc: 2,35

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

No data available

12.7. Other adverse effects

Do not allow to enter into surface water or drains.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 11 of 12

Do not empty into drains.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1134
14.2. UN proper shipping name:	CHLOROBENZENE
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Classification code:	F1
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	30
Tunnel restriction code:	D/E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 1134
14.2. UN proper shipping name:	CHLOROBENZENE
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Classification code:	F1
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 1134
14.2. UN proper shipping name:	CHLOROBENZENE
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Special Provisions:	-
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 1134
14.2. UN proper shipping name:	CHLOROBENZENE
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Limited quantity Passenger:	10 L
Passenger LQ:	Y344
Excepted quantity:	E1
IATA-packing instructions - Passenger:	355
IATA-max. quantity - Passenger:	60 L
IATA-packing instructions - Cargo:	366
IATA-max. quantity - Cargo:	220 L

14.5. Environmental hazards

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Chlorobenzene > 99 % (Monochlorobenzene) for synthesis

Revision date: 16.08.2021

Product code: 10793

Page 12 of 12

ENVIRONMENTALLY HAZARDOUS: Yes
Danger releasing substance: chlorobenzene

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40

Information according to 2012/18/EU (SEVESO III): E2 Hazardous to the Aquatic Environment

Additional information: P5c

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 2 - obviously hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1,4,8,9,11,12,13.

Relevant H and EUH statements (number and full text)

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.