

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

1 Identification

- **Product identifier**
- **Trade name:** Chlorobenzene
- **Part number:** FRCK-014A
- **CAS Number:**
108-90-7
- **EC number:**
203-628-5
- **Index number:**
602-033-00-1
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA
- **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTRAC®: 1-800-424-9300

*

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

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**



GHS02



GHS07

- **Signal word** Warning

- **Hazard-determining components of labeling:**

chlorobenzene

- **Hazard statements**

Flammable liquid and vapor.

(Contd. on page 2)

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 1)

Harmful if swallowed or if inhaled.

Causes skin irritation.

Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

Specific treatment (see on this label).

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Health = 1
Fire = 3
Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH	1
FIRE	3
REACTIVITY	0

Health = 1

Fire = 3

Reactivity = 0

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

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****CAS No. Description**

108-90-7 chlorobenzene

Identification number(s)

EC number: 203-628-5

Index number: 602-033-00-1

US

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 2)

* 4 First-aid measures

- **Description of first aid measures**
- **General information:**

Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Immediately call a doctor.
- **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:**

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** 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.
- **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:	10 ppm
· PAC-2:	150 ppm

(Contd. on page 4)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 3)

· PAC-3:

400 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:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- Conditions for safe storage, including any incompatibilities**
- Storage:**
- Requirements to be met by storerooms and receptacles:** No special requirements.
- Information about storage in one common storage facility:** Not required.
- Further information about storage conditions:** Keep receptacle tightly sealed.
- 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.

- Control parameters**

- Components with limit values that require monitoring at the workplace:**

108-90-7 chlorobenzene

PEL	Long-term value: 350 mg/m ³ , 75 ppm
TLV	Long-term value: 46 mg/m ³ , 10 ppm
BEI	

- Ingredients with biological limit values:**

108-90-7 chlorobenzene

BEI	100 mg/g creatinine Medium: urine Time: end of shift at end of workweek Parameter: 4-Chlorocatechol with hydrolysis (nonspecific)
	20 mg/g creatinine Medium: urine Time: end of shift at end of workweek Parameter: p-Chlorophenol with hydrolysis (nonspecific)

- 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.

(Contd. on page 5)

US

Safety Data Sheet acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 4)

Avoid contact with the skin.

Avoid contact with the eyes and skin.

· Breathing equipment:

When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

· Protection of hands:

Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· Material of gloves

For normal use: nitrile rubber, 11-13 mil thickness

For direct contact with the chemical: butyl rubber, 12-15 mil thickness

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

For normal use: nitrile rubber: 1 hour

For direct contact with the chemical: butyl rubber: >4 hours

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Liquid

Color: Colorless

· Odor:

Aromatic

· Odor threshold:

Not determined.

· pH-value:

Not determined.

· Change in condition

Melting point/Melting range: -45.1 °C (-49.2 °F)

Boiling point/Boiling range: 132 °C (269.6 °F)

· Flash point:

27 °C (80.6 °F)

· Flammability (solid, gaseous):

Not applicable.

· Ignition temperature:

590 °C (1,094 °F)

· Decomposition temperature:

Not determined.

· Auto igniting:

Not determined.

(Contd. on page 6)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 5)

· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.3 Vol %
Upper:	11 Vol %
· Vapor pressure at 20 °C (68 °F):	11.8 hPa (8.9 mm Hg)
· Density at 20 °C (68 °F):	1.11 g/cm ³ (9.26295 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water at 20 °C (68 °F):	0.49 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic at 20 °C (68 °F):	0.8 mPas
Kinematic:	Not determined.
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **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 further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)		
Oral	LD50	1,110 mg/kg (rat)
Inhalative	LC50/4 h	11 mg/L

108-90-7 chlorobenzene

Oral	LD50	1,110 mg/kg (rat)
------	------	-------------------

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

(Contd. on page 7)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 6)

- Additional toxicological information:

- Carcinogenic categories

- IARC (International Agency for Research on Cancer)

Substance is not listed.

- 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.

- Additional ecological information:

- General notes:

Water hazard class 2 (Assessment by list): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

- Results of PBT and vPvB assessment

- PBT: Not applicable.

- vPvB: Not applicable.

- Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods

- Recommendation:

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.

14 Transport information

- UN-Number

- DOT, IMDG, IATA

UN1134

- UN proper shipping name

- DOT

- IMDG, IATA

Chlorobenzene

CHLOROBENZENE

(Contd. on page 8)

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 7)

· Transport hazard class(es)**· DOT****· Class**

3 Flammable liquids

· Label

3

· IMDG, IATA**· Class**

3 Flammable liquids

· Label

3

· Packing group**· DOT, IMDG, IATA**

III

· Environmental hazards:

Not applicable.

· Special precautions for user

Warning: Flammable liquids

· Danger code (Kemler):

30

· EMS Number:

3-07

· 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****· Quantity limitations**

On passenger aircraft/rail: 60 L

On cargo aircraft only: 220 L

100 lbs, 45.4 kg

· Hazardous substance:**· IMDG**

5L

· Limited quantities (LQ)

Code: E1

· Excepted quantities (EQ)

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":UN 1134 CHLOROBENZENE, 3, III, ENVIRONMENTALLY
HAZARDOUS

US

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 8)

* 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):**

ACTIVE

- **Hazardous Air Pollutants**

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.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

D

- **TLV (Threshold Limit Value established by ACGIH)**

A3

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

- **Date of preparation / last revision** 04/30/2019 / -

- **Abbreviations and acronyms:**

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)

(Contd. on page 10)

US

**Safety Data Sheet
acc. to OSHA HCS**

Printing date 04/30/2019

Version Number 1

Reviewed on 04/26/2019

Trade name: Chlorobenzene

(Contd. of page 9)

VOC: Volatile Organic Compounds (USA, EU)

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

BEI: Biological Exposure Limit

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

* Data compared to the previous version altered.

US