

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/15/2024

Reviewed on 08/15/2024

1 Identification

- **Product identifier**
- **Trade name:** Chlorobenzene, Reagent ACS
- **Article number:** C3602
- **CAS Number:**
108-90-7
- **EC number:**
203-628-5
- **Index number:**
602-033-00-1
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
- **Emergency telephone number:**
Chemtec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 3

H226

Flammable liquid and vapor.



GHS07

Acute Toxicity - Oral 4

H302

Harmful if swallowed.

Acute Toxicity - Inhalation 4

H332

Harmful if inhaled.

Skin Irritation 2

H315

Causes skin irritation.

Eye Irritation 2A

H319

Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

- **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

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· **Hazard statements**

- Flammable liquid and vapor.*
- Harmful if swallowed or if inhaled.*
- Causes skin irritation.*
- Causes serious eye irritation.*
- May cause respiratory irritation. May cause drowsiness or dizziness.*

· **Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
- 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 in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
- Take off contaminated clothing and wash it before reuse.*
- If skin irritation occurs: Get medical advice/attention.*
- If eye irritation persists: Get medical advice/attention.*
- In case of fire: Use CO₂, powder or water spray to extinguish.*
- Store in a well-ventilated place. Keep container tightly closed.*
- Store in a well-ventilated place. Keep cool.*
- Store locked up.*
- Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
CAS: 108-90-7 Chlorobenzene
- **Identification number(s)**
- **EC number:** 203-628-5
- **Index number:** 602-033-00-1

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.
- **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. If symptoms persist, consult a doctor.
- **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).
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

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- PAC-2: 150 ppm
- PAC-3: 400 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **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 section 7.
- **Control parameters**

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

CAS: 108-90-7 Chlorobenzene

PEL Long-term value: 350 mg/m³, 75 ppmTLV Long-term value: 10 ppm
BEI, A3

- **Ingredients with biological limit values:**

CAS: 108-90-7 Chlorobenzene

BEI 100 mg/g creatinine
LD50 Intraperitoneal: urine
Time: end of shift at end of workweek
LD50: 4-Chlorocatechol (with hydrolysis, nonspecific)20 mg/g creatinine
LD50 Intraperitoneal: urine
Time: end of shift at end of workweek
LD50: 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.
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.

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· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

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 °C (-49 °F)
Boiling point/Boiling range:	132 °C (269.6 °F)

· **Flash point:** 23 °C (73.4 °F)

· **Flammability (solid, gaseous):** Flammable.

· **Auto igniting:** 590 °C (1,094 °F)

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Not determined.

· **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):** 12 hPa (9 mm Hg)

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· Vapor pressure at 50 °C (122 °F):	53 hPa (39.8 mm Hg)
· Density at 20 °C (68 °F):	1.107 g/cm ³ (9.23792 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.
· 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:

Oral	LD50	500 mg/kg (ATE)
Inhalative	LC50/4h	11 mg/l (ATE)

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

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- **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** UNI134
- **UN proper shipping name**
- **DOT** Chlorobenzene
- **IMDG, IATA** CHLOROBENZENE
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** 3 Flammable liquids
- **Label** 3
- **IMDG**
- 
- **Class** 3 Flammable liquids
- **Label** 3

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· IATA



· Class 3 Flammable liquids
 · Label 3

· Packing group III
 · DOT, IMDG, IATA

· Environmental hazards: Environmentally hazardous substance, liquid
 · Marine pollutant: No
 Symbol (fish and tree)

· Special precautions for user Warning: Flammable liquids
 · Hazard identification number (Kemler code): 30
 · EMS Number: F-E,S-D
 · Segregation groups (SGG10) Liquid halogenated hydrocarbons
 · Stowage Category A

· Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

· Transport/Additional information:

· DOT
 · Quantity limitations On passenger aircraft/rail: 60 L
 On cargo aircraft only: 220 L
 · Hazardous substance: 100 lbs, 45.4 kg

· 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 1134 CHLOROBENZENE, 3, III

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
 No further relevant information available.

· 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

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- **TLV (Threshold Limit Value) A3**
- **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**



GHS02 GHS07

- **Signal word** Warning
- **Hazard statements**
 - Flammable liquid and vapor.
 - Harmful if swallowed or if inhaled.
 - Causes skin irritation.
 - Causes serious eye irritation.
 - May cause respiratory irritation. May cause drowsiness or dizziness.
- **Precautionary statements**
 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 - 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 in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - Take off contaminated clothing and wash it before reuse.
 - If skin irritation occurs: Get medical advice/attention.
 - If eye irritation persists: Get medical advice/attention.
 - In case of fire: Use CO₂, powder or water spray to extinguish.
 - Store in a well-ventilated place. Keep container tightly closed.
 - Store in a well-ventilated place. Keep cool.
 - Store locked up.
 - Dispose of contents/container in accordance with local/regional/national/international regulations.
- **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:** Environment protection department.
- **Contact:**
Date of Preparation / Last Revision:

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· **Date of preparation / last revision**

Revision 1.2, 08-15-2024: Reviewed SDS for accuracy. STN/GW
08/15/2024 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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

BEI: Biological Exposure Limit

Flammable Liquids 3: Flammable liquids – Category 3

Acute Toxicity - Oral 4: Acute toxicity – Category 4

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· *** Data compared to the previous version altered.**

US