SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Creation Date 10-Sep-2009 **Revision Date** 19-Oct-2023 **Revision Number** 13

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	**Chlorobenzene**
Cat No. :	**C/4681/17, C/4681/PB17, C/4681/08, C/4681/15**
Synonyms	Monochlorobenzene; Benzene chloride
Index No	602-033-00-1
CAS No	108-90-7
EC No	203-628-5
Molecular Formula	C6 H5 Cl
REACH registration number	01-2119432722-45

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent
Environmental release category	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
e-mail - infoch@thermofisher.com

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

For customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 3 (H226)

Health hazards

Acute Inhalation Toxicity - Vapors	Category 4 (H332)
Skin Corrosion/Irritation	Category 2 (H315)

Environmental hazards

Chronic aquatic toxicity	Category 2 (H411)

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Warning**

Hazard Statements

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

Precautionary Statements

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 - Call a POISON CENTER or doctor if you feel unwell
P280 - Wear protective gloves/protective clothing
P264 - Wash face, hands and any exposed skin thoroughly after handling
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Chlorobenzene	108-90-7	EEC No. 203-628-5	>95	Flam. Liq. 3 (H226) Skin Irrit. 2 (H315) Acute Tox. 4 (H332) Aquatic Chronic 2 (H411)

REACH registration number	01-2119432722-45

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable. Causes central nervous system depression: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

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

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, Hydrogen chloride gas.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)	Class 3
Switzerland - Storage of hazardous substances	Storage class - SC 3 https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
Chlorobenzene	TWA: 5 ppm (8hr) TWA: 23 mg/m³ (8hr) STEL: 15 ppm (15min) STEL: 70 mg/m³ (15min)	STEL: 3 ppm 15 min STEL: 14 mg/m³ 15 min TWA: 1 ppm 8 hr TWA: 4.7 mg/m³ 8 hr Skin	TWA / VME: 5 ppm (8 heures). restrictive limit TWA / VME: 23 mg/m³ (8 heures). restrictive limit STEL / VLCT: 15 ppm. restrictive limit STEL / VLCT: 70 mg/m³. restrictive limit	TWA: 5 ppm 8 uren TWA: 23 mg/m³ 8 uren STEL: 15 ppm 15 minuten STEL: 70 mg/m³ 15 minuten	STEL / VLA-EC: 15 ppm (15 minutos). STEL / VLA-EC: 70 mg/m³ (15 minutos). TWA / VLA-ED: 5 ppm (8 horas) TWA / VLA-ED: 23 mg/m³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Chlorobenzene	TWA: 5 ppm 8 ore. Time Weighted Average TWA: 23 mg/m³ 8 ore. Time Weighted Average STEL: 15 ppm 15 minuti. Short-term STEL: 70 mg/m³ 15 minuti. Short-term	TWA: 5 ppm (8 Stunden). AGW - exposure factor 2 TWA: 23 mg/m³ (8 Stunden). AGW - exposure factor 2 TWA: 5 ppm (8 Stunden). MAK TWA: 23 mg/m³ (8 Stunden). MAK Höhepunkt: 10 ppm Höhepunkt: 46 mg/m³	STEL: 15 ppm 15 minutos STEL: 70 mg/m³ 15 minutos TWA: 5 ppm 8 horas TWA: 23 mg/m³ 8 horas	STEL: 70 mg/m³ 15 minuten TWA: 23 mg/m³ 8 uren	TWA: 5 ppm 8 tunteina TWA: 23 mg/m³ 8 tunteina STEL: 15 ppm 15 minuutteina STEL: 70 mg/m³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
Chlorobenzene	MAK-KZGW: 15 ppm 15 Minuten MAK-KZGW: 70 mg/m³ 15 Minuten MAK-TMW: 5 ppm 8 Stunden MAK-TMW: 23 mg/m³ 8 Stunden	TWA: 5 ppm 8 timer TWA: 23 mg/m³ 8 timer STEL: 70 mg/m³ 15 minutter STEL: 15 ppm 15 minutter	STEL: 20 ppm 15 Minuten STEL: 92 mg/m³ 15 Minuten TWA: 10 ppm 8 Stunden TWA: 46 mg/m³ 8 Stunden	STEL: 70 mg/m³ 15 minutach TWA: 23 mg/m³ 8 godzinach	TWA: 5 ppm 8 timer TWA: 23 mg/m³ 8 timer STEL: 10 ppm 15 minutter. value calculated STEL: 34.5 mg/m³ 15 minutter. value calculated

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Chlorobenzene	TWA: 5 ppm TWA: 23.0 mg/m³ STEL : 15 ppm STEL : 70.0 mg/m³	kože TWA-GVI: 5 ppm 8 satima. TWA-GVI: 23 mg/m³ 8 satima. STEL-KGVI: 15 ppm 15 minutama. STEL-KGVI: 70 mg/m³ 15 minutama.	TWA: 5 ppm 8 hr. TWA: 23 mg/m³ 8 hr. STEL: 15 ppm 15 min STEL: 70 mg/m³ 15 min	STEL: 15 ppm STEL: 70 mg/m³ TWA: 5 ppm TWA: 23 mg/m³	TWA: 25 mg/m³ 8 hodinách. Ceiling: 70 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Chlorobenzene	Nahk TWA: 5 ppm 8 tundides. TWA: 23 mg/m³ 8 tundides. STEL: 15 ppm 15	TWA: 5 ppm 8 hr TWA: 23 mg/m³ 8 hr STEL: 15 ppm 15 min STEL: 70 mg/m³ 15 min	STEL: 15 ppm STEL: 70 mg/m³ TWA: 5 ppm TWA: 23 mg/m³	STEL: 70 mg/m³ 15 percekben. CK TWA: 23 mg/m³ 8 órában. AK	STEL: 15 ppm STEL: 70 mg/m³ TWA: 5 ppm 8 klukkustundum. TWA: 23 mg/m³ 8

	minutites. STEL: 70 mg/m³ 15 minutites.				klukkustundum.

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Chlorobenzene	STEL: 15 ppm STEL: 70 mg/m³ TWA: 5 ppm TWA: 23 mg/m³	TWA: 5 ppm IPRD TWA: 23 mg/m³ IPRD STEL: 15 ppm STEL: 70 mg/m³	TWA: 5 ppm 8 Stunden TWA: 23 mg/m³ 8 Stunden STEL: 15 ppm 15 Minuten STEL: 70 mg/m³ 15 Minuten	TWA: 5 ppm TWA: 23 mg/m³ STEL: 15 ppm 15 minuti STEL: 70 mg/m³ 15 minuti	TWA: 5 ppm 8 ore TWA: 23 mg/m³ 8 ore STEL: 15 ppm 15 minute STEL: 70 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Chlorobenzene	TWA: 50 mg/m³ 2223 Skin notation MAC: 100 mg/m³	Ceiling: 70 mg/m³ TWA: 5 ppm TWA: 23 mg/m³	TWA: 5 ppm 8 urah TWA: 23 mg/m³ 8 urah STEL: 15 ppm 15 minutah STEL: 70 mg/m³ 15 minutah	Binding STEL: 15 ppm 15 minuter Binding STEL: 70 mg/m³ 15 minuter TLV: 5 ppm 8 timmar. NGV TLV: 23 mg/m³ 8 timmar. NGV	TWA: 5 ppm 8 saat TWA: 23 mg/m³ 8 saat STEL: 15 ppm 15 dakika STEL: 70 mg/m³ 15 dakika

Biological limit values

List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Chlorobenzene		4-Chlorocatechol: 5 mmol/mol creatinine urine post-shift	Total p-Chlorophenol: 25 mg/g creatinine urine end of shift Total 4-Chlorophenol: 150 mg/g creatinine urine end of shift		total 4-Chlorocatechol (after hydrolysis): 80 mg/g Creatinine urine (end of shift)

Component	Italy	Finland	Denmark	Bulgaria	Romania
Chlorobenzene					total 4-Chlorocatechol: 150 mg/g Creatinine urine end of shift total p-Chlorophenol: 25 mg/g Creatinine urine end of shift

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
Chlorobenzene			Total 4-Chlorocatechol: 25 mg/g creatinine urine prior to shift Total 4-Chlorocatechol: 150 mg/g creatinine urine end of exposure or work shift		

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local	Acute effects	Chronic effects local	Chronic effects

	(Oral)	systemic (Oral)	(Oral)	systemic (Oral)
Chlorobenzene 108-90-7 (>95)		3 mg/kg bw/day		3 mg/kg bw/day

Predicted No Effect Concentration (PNEC)
See values below.

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	> 480 minutes	0.7 mm	Level 6 EN 374	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals

Skin and body protection Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection No protective equipment is needed under normal use conditions.

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Maintain adequate ventilation Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Clear	
Odor	bitter almonds	
Odor Threshold	No data available	
Melting Point/Range	-45 °C / -49 °F	
Softening Point	No data available	
Boiling Point/Range	131 °C / 267.8 °F	
Flammability (liquid)	Flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 1.3 Vol%	
	Upper 11 Vol%	
Flash Point	23 °C / 73.4 °F	**Method -** No information available
Autoignition Temperature	590 °C / 1094 °F	
Decomposition Temperature	> 132°C	
pH	No information available	
Viscosity	0.8 mPa.s @ 20°C	
Water Solubility	0.4 g/l (20°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
Chlorobenzene	3.79	
Vapor Pressure	12 mbar @ 20°C	
Density / Specific Gravity	1.108	
Bulk Density	Not applicable	Liquid
Vapor Density	3.9	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C6 H5 Cl
Molecular Weight	112.56
Explosive Properties	explosive air/vapour mixtures possible
Evaporation Rate	1 (Butyl Acetate = 1.0)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Bases. Strong reducing agents. Metals.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chlorobenzene	LD50 2000 - 4000 mg/kg (Rat)	LD50 > 7940 mg/kg (Rabbit)	LC50 = 13.5 mg/L (Rat) 7 h

(b) skin corrosion/irritation;

Test method	OECD 404
Test species	rabbit
Observational endpoint	Erythema/Eschar = 2.7 Oedema = 1

(c) serious eye damage/irritation;

Test method	OECD 405
Test species	rabbit
Observation end point	Redness of the conjunctivae = 0.9 Iris lesion = 0 Oedema of the conjunctivae = 0.4 Cornea opacity = 0.1

(d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Test method	Chronic Toxicity	
Test species / Duration	Rat / 90 days	Rat / 90 days
Study result	NOAEL = 125 mg/kg	NOAEC = 234 mg/m^3
Route of exposure	Oral	Inhalation
Target Organs	No information available.	

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

Symptoms / effects,both acute and delayed Causes central nervous system depression. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects The product contains following substances which are hazardous for the environment. Contains a substance which is:. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Chlorobenzene	LC50: = 91 mg/L, 96h static (Brachydanio rerio) LC50: 4.1 - 5.3 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 4.1 - 4.9 mg/L, 96h static (Lepomis macrochirus) LC50: 6.9 - 7.9 mg/L, 96h flow-through (Lepomis macrochirus) LC50: 36.35 - 58.19 mg/L, 96h static (Poecilia reticulata) LC50: = 4.5 mg/L, 96h static (Pimephales promelas) LC50: 7 - 8.5 mg/L, 96h flow-through (Pimephales promelas)	EC50: = 0.59 mg/L, 48h (Daphnia magna)	EC50: = 12.5 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: 2.55 - 420 mg/L, 96h (Pseudokirchneriella subcapitata)

Component	Microtox	M-Factor
Chlorobenzene	EC50 = 11.26 mg/L 30 min EC50 = 11.3 mg/L 30 min EC50 = 11.5 mg/L 15 min EC50 = 20 mg/L 10 min EC50 = 9.36 mg/L 5 min	

12.2. Persistence and degradability

Not readily biodegradable

Persistence Persistence is unlikely.

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Chlorobenzene	3.79	4.3 - 39.6 dimensionless

12.4. Mobility in soil

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains.

Switzerland - Waste Ordinance Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600
https://www.fedlex.admin.ch/eli/cc/2015/891/en

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1134
14.2. UN proper shipping name CHLOROBENZENE
14.3. Transport hazard class(es) 3
14.4. Packing group III

ADR

14.1. UN number UN1134
14.2. UN proper shipping name CHLOROBENZENE
14.3. Transport hazard class(es) 3
14.4. Packing group III

IATA

14.1. UN number UN1134
14.2. UN proper shipping name CHLOROBENZENE
14.3. Transport hazard class(es) 3

14.4. Packing group III

14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories
Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Chlorobenzene	108-90-7	203-628-5	-	-	X	X	KE-25489	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Chlorobenzene	108-90-7	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Chlorobenzene	108-90-7	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Chlorobenzene	108-90-7	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Chlorobenzene	WGK2	

Component	France - INRS (Tables of occupational diseases)
Chlorobenzene	Tableaux des maladies professionnelles (TMP) - RG 9

Swiss Regulations
Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).
Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Chlorobenzene 108-90-7 (>95)	Prohibited and Restricted Substances		

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H332 - Harmful if inhaled
H315 - Causes skin irritation
H411 - Toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (volatile organic compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical incident response training.
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

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This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

Disclaimer

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End of Safety Data Sheet