

27 Kinds of Halogenated hydrocarbons in

Methanol

Version : V2.0.0.1

Report No. : BWQ9641-2016-MSDS-US

Creation Date : 2025/11/19

Revision Date : -

***Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)****1 Identification****| Product identifier**

Product Name	27 Kinds of Halogenated hydrocarbons in Methanol
Cat No.	BWQ9641-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

| Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

| Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

| Emergency phone number

Emergency phone number	010-58103678
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2 Hazard(s) identification**| Hazard classification according to 29 CFR 1910.1200**

Flammable liquids	Category 2
Acute Toxicity - Oral	Category 3
Acute Toxicity - Dermal	Category 3
Acute Toxicity - Inhalation	Category 3
Specific target organ toxicity - single exposure	Category 1

| Label elements

Hazard pictograms	  
Signal word	Danger

Hazard statements

H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin
H331	Toxic if inhaled
H370	Causes damage to organs

Precautionary statements

◆ Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe gas/mist/vapour/spray.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or with adequate ventilation.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

◆ Response

P321	Specific treatment (see information on this label and safety data sheet).
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P370+P378	Use extinguishing media suitable for surrounding area.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

◆ Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.

◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Other hazards

Not applicable.

Hazard description

◆ Physical and chemical hazards

Highly flammable liquids, its vapor and air mixture can form explosive mixture.

◆ Health hazards

Inhaled	Cough. Dizziness. Headache. Nausea. Weakness. Visual disturbance.
Ingestion	Abdominal pain. Shortness of breath. Vomiting. Convulsions. Unconsciousness. (Further see Inhalation).
Skin Contact	MAY BE ABSORBED! Dry skin. Redness.
Eye	Redness. Pain.

◆ Environmental hazards

Please refer to 12th chapter of SDS.

3 Composition/information on ingredients**Substance/mixture**

Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
1,1-dichloroethylene	75-35-4	200-864-0	0.013
Dichloromethane	75-09-2	200-838-9	0.045
trans-dichloroethylene	156-60-5	205-860-2	0.078
cis-dichloroethylene	156-59-2	205-859-7	0.117
Chloroform	67-66-3	200-663-8	0.0013
1,1,1-trichloroethane	71-55-6	200-756-3	0.0006
Carbon tetrachloride	56-23-5	200-262-8	0.0002
1,2-dichloroethane	107-06-2	203-458-1	0.091
Trichloroethylene	79-01-6	201-167-4	0.0013
bromodichloromethane	75-27-4	200-856-7	0.0019
1,2-dibromoethylene	540-49-8	208-747-6	0.0026
1,2-dibromoethylene	540-49-8	208-747-6	0.0026
Tetrachloroethylene	127-18-4	204-825-9	0.0002
1,1,2-trichloroethane	79-00-5	201-166-9	0.026
Dibromochloromethane	124-48-1	204-704-0	0.0039
Bromoform	75-25-2	200-854-6	0.0045
1,3-dichlorobenzene	541-73-1	208-792-1	0.019
1,4-dichlorobenzene	106-46-7	203-400-5	0.045
1,2-dichlorobenzene	95-50-1	202-425-9	0.026
1,3,5-trichlorobenzene	108-70-3	203-608-6	0.0026
1,2,4-trichlorobenzene	120-82-1	204-428-0	0.0045

Hexachlorobuta-1,3-diene	87-68-3	201-765-5	0.0019
1,2,3-trichlorobenzene	87-61-6	201-757-1	0.0026
1,2,4,5-tetrachlorobenzene	95-94-3	202-466-2	0.0013
1,2,3,4-tetrachlorobenzene	634-66-2	211-214-0	0.0013
Pentachlorobenzene	608-93-5	210-172-0	0.0019
Hexachlorobenzene	118-74-1	204-273-9	0.0013
Methanol	67-56-1	200-659-6	99.5035

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Skin contact	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
Ingestion	Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.
Inhalation	Fresh air, rest. Refer for medical attention.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	May expansion or decompose explosively when heated or involved in fire.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
2	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
3	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
4	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
5	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.

7 Handling and storage**Precautions for safe handling**

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection**Control parameters**

◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
1,1-dichloroethylene	Australia	5	20	20	79
	Canada - Ontario	1	4	20	80
	European Union	2	8	5	20
	New Zealand	5	20	20	79
	USA - ACGIH	5	-	-	-
	Austria	2	8	5	20

Dichloromethane	Japan - JSOH(2024–2025)	50	173	-	-
	Permissible exposure standards for workers in the workplace	50	174	75	217.5
	Australia	50	174	-	-
	Canada - Ontario	50	-	-	-
	European Union	100	353	200	706
	New Zealand	50	174	-	-
trans-dichloroethylene	Australia	200	793	-	-
	Canada - Ontario	200	790	-	-
	New Zealand	200	793	-	-
	USA - ACGIH	200	-	-	-
	USA - NIOSH	200	790	-	-
	USA - OSHA	200	790	-	-
cis-dichloroethylene	Australia	200	793	-	-
	Canada - Ontario	200	790	-	-
	New Zealand	200	793	-	-
	USA - ACGIH	200	-	-	-
	USA - NIOSH	200	790	-	-
	USA - OSHA	200	790	-	-
Chloroform	Japan - JSOH(2024–2025)	3	14.7	-	-
	Permissible exposure standards for workers in the workplace	-	-	-	-
	Australia	2	10	-	-
	Canada - Ontario	10	-	-	-
	European Union	2	10	-	-
	New Zealand	2	9.9	-	-
1,1,1-trichloroethane	Japan - JSOH(2024–2025)	200	1090	-	-
	Permissible exposure standards for workers in the workplace	350	1910	437.5	1910
	Australia	100	555	200	1110
	Canada - Ontario	350	-	450	-
	European Union	100	555	200	1110

	New Zealand	100	555	200	1110
Carbon tetrachloride	Japan - JSOH(2024–2025)	5	31	-	-
	Permissible exposure standards for workers in the workplace	2	13	4	19.5
	Australia	0.1	0.63	-	-
	Canada - Ontario	2	-	3	-
	European Union	1	6.4	5	32
	New Zealand	0.1	0.63	-	-
1,2-dichloroethane	Japan - JSOH(2024–2025)	10	40	-	-
	Permissible exposure standards for workers in the workplace	10	40	15	60
	Australia	10	40	-	-
	Canada - Ontario	10	-	-	-
	European Union	2	8.2	-	-
	New Zealand	5	21	-	-
Trichloroethylene	Japan - JSOH(2024–2025)	25	135	-	-
	Permissible exposure standards for workers in the workplace	50	269	75	336.25
	Australia	10	54	40	216
	Canada - Ontario	10	-	25	-
	European Union	10	54.7	30	164.1
	New Zealand	10	55	25	135
Tetrachloroethylene	Permissible exposure standards for workers in the workplace	50	339	75	423.75
	Australia	50	340	150	1020
	Canada - Ontario	25	-	100	-
	European Union	20	138	40	275
	New Zealand	20	136	40	271
	USA - ACGIH	25	-	100	-
1,1,2-trichloroethane	Japan - JSOH(2024–2025)	10	55	-	-

	Permissible exposure standards for workers in the workplace	10	55	15	82.5
	Australia	10	55	-	-
	Canada - Ontario	10	-	-	-
	New Zealand	10	55	-	-
	USA - ACGIH	10	-	-	-
Bromoform	Japan - JSOH(2024–2025)	1	10.3	-	-
	Permissible exposure standards for workers in the workplace	0.5	5.2	1.5	10.4
	Australia	0.5	5.2	-	-
	Canada - Ontario	0.5	-	-	-
	New Zealand	0.5	5.2	-	-
	USA - ACGIH	0.5	-	-	-
1,3-dichlorobenzene	Austria	3	20	12	80
	Germany (AGS)	2	12	4	24
	Germany (DFG)	2	12	4	24
	Hungary	-	12	-	24
	Latvia	-	20	-	-
	Switzerland	2	12	4	24
1,4-dichlorobenzene	Japan - JSOH(2024–2025)	10	60	-	-
	Permissible exposure standards for workers in the workplace	75	450	112.5	562.5
	Australia	25	150	50	300
	Canada - Ontario	10	-	-	-
	European Union	2	12	10	60
	New Zealand	2	12	10	60
1,2-dichlorobenzene	Japan - JSOH(2024–2025)	25	150	-	-
	Permissible exposure standards for workers in the workplace	-	-	-	-
	Australia	25	150	50	301
	Canada - Ontario	25	-	50	-

	European Union	20	122	50	306
	New Zealand	10	61	20	122
1,3,5-trichlorobenzene	Denmark	5	37	10	74
	Finland	5	38	10	75
	Germany (DFG)	0.5	0.38	1	0.76
	Poland	-	15	-	30
1,2,4-trichlorobenzene	Permissible exposure standards for workers in the workplace	-	-	-	-
	Australia	-	-	5	37
	European Union	2	15.1	5	37.8
	New Zealand	-	-	5	37
	USA - NIOSH	-	-	5	40
	Austria	2	15.1	5	37.8
Hexachlorobuta-1,3-diene	Japan - JSOH(2024–2025)	0.01	0.12	-	-
	Permissible exposure standards for workers in the workplace	0.02	0.21	0.06	0.63
	Australia	0.02	0.21	-	-
	Canada - Ontario	0.02	-	-	-
	USA - ACGIH	0.02	-	-	-
	USA - NIOSH	0.02	0.24	-	-
1,2,3-trichlorobenzene	Canada - Ontario	-	-	5	-
	Denmark	5	37	10	76
	Finland	5	38	10	75
	Germany (DFG)	0.5	0.38	1	0.76
	Poland	-	15	-	30
Hexachlorobenzene	Canada - Ontario	-	0.002	-	-
	USA - ACGIH	-	0.002	-	-
	Belgium	-	0.002	-	-
	Canada - Québec	-	0.025	-	-
	Denmark	-	0.025	-	0.05
	Finland	-	0.002	-	-
Methanol	Japan - JSOH(2024–2025)	200	260	-	-
	Permissible exposure standards for	200	262	250	327.5

	workers in the workplace				
	Australia	200	262	250	328
	Canada - Ontario	200	-	250	-
	European Union	200	260	-	-
	New Zealand	200	262	250	328

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	    
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Must wear appropriate personal dust proof gas mask.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Appearance (physical state, color, etc.)	colorless liquid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	-98 (Methanol)
Initial boiling point and boiling range(°C)	65 (Methanol)
Flash point(Closed cup,°C)	9 (Methanol)
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[% (v/v)]	Upper limit : 50 (Methanol); Lower limit : 6 (Methanol)
Vapor pressure	12.9 kPa (20°C,Methanol)
Vapor density(Air = 1)	1.1 (Methanol)
Relative density(Water=1)	0.79 (20°C,Methanol)
Solubility	Miscible with water (Methanol)
n-octanol/water partition coefficient	-0.74 (Methanol)
Auto-ignition temperature(°C)	440 (Methanol)
Decomposition temperature(°C)	No information available

Kinematic viscosity	0.544 mPa (25°C,Methanol)
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10 Stability and reactivity

| Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	Reactions with metals form metal organic compounds. In contact with metals, oxidants, triethyl aluminium, amines, boranes and their derivatives may cause an explosion severely. In contact with oxidants causes severe reactions, and may cause a fire or explosion.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal, oxidantss and alkali. Borane class and its derivatives, amines, metals, oxidants, triethyl aluminium, calcium and ethylene. Oxidants, alkali metals, alkaline earth metals and aluminum.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

| Acute toxicity

Component	LD ₅₀ (oral)	LD ₅₀ (dermal)	LC ₅₀ (inhalation,4h)
Carbon tetrachloride	2350mg/kg(Rat)	> 20000mg/kg(Rabbit)	50.330mg/L(Rat)
1,2,4-trichlorobenzene	756mg/kg(Rat)	6139mg/kg(Rat)	No information available
1,4-dichlorobenzene	500~5000mg/kg(Rat)	> 2000mg/kg(Rabbit)	No information available
1,1-dichloroethylene	200mg/kg(Rat)	No information available	25.177mg/L(Rat)
trans-dichloroethylene	1235mg/kg(Rat)	> 5000mg/kg(Rabbit)	No information available
Pentachlorobenzene	1080mg/kg(Rat)	> 2500mg/kg(Rat)	No information available
Methanol	5628mg/kg(Rat)	15800mg/kg(Rabbit)	83.867mg/L(Rat)
bromodichloromethane	430mg/kg(Rat)	No information available	No information available
1,2-dichloroethane	670mg/kg(Rat)	2800mg/kg(Rabbit)	No information available
1,2,4,5-tetrachlorobenzen e	1500mg/kg(Rat)	No information available	No information available
Tetrachloroethylene	2629mg/kg(Rat)	No information available	35.269mg/L(Mouse)
1,3,5-trichlorobenzene	800mg/kg(Rat)	No information available	No information available
1,1,2-trichloroethane	836mg/kg(Rat)	5350mg/kg(Rabbit)	No information available
Bromoform	933mg/kg(Rat)	No information available	No information available
1,2,3,4-tetrachlorobenzen e	1167mg/kg(Rat)	No information available	No information available
1,1,1-trichloroethane	9600mg/kg(Rat)	No information available	98.209mg/L(Rat)
1,2,3-trichlorobenzene	1830mg/kg(Rat)	No information available	No information available
Hexachlorobuta-1,3-diene	82mg/kg(Rat)	100mg/kg(Rabbit)	No information available
1,2-dichlorobenzene	500mg/kg(Rat)	> 10000mg/kg(Rabbit)	No information available

Trichloroethylene	4920mg/kg(Rat)	> 20000mg/kg(Rabbit)	45.409mg/L(Mouse)
Dichloromethane	1600mg/kg(Rat)	No information available	No information available
Dibromochloromethane	370mg/kg(Rat)	No information available	No information available
Chloroform	695mg/kg(Rat)	> 20000mg/kg(Rabbit)	47.702mg/L(Rat)
Hexachlorobenzene	10000mg/kg(Rat)	10000mg/kg(Rat)	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
1,1-dichloroethylene	Category 2B	Not Listed	Not Listed
Dichloromethane	Category 2A	Category R	Listed
trans-dichloroethylene	Not Listed	Not Listed	Not Listed
cis-dichloroethylene	Not Listed	Not Listed	Not Listed
Chloroform	Category 2B	Category R	Not Listed
1,1,1-trichloroethane	Category 2A	Not Listed	Not Listed
Carbon tetrachloride	Category 2B	Category R	Not Listed
1,2-dichloroethane	Category 2B	Category R	Not Listed
Trichloroethylene	Category 1	Category K	Not Listed
bromodichloromethane	Category 2B	Category R	Not Listed
1,2-dibromoethylene	Not Listed	Not Listed	Not Listed
1,2-dibromoethylene	Not Listed	Not Listed	Not Listed
Tetrachloroethylene	Category 2A	Category R	Not Listed
1,1,2-trichloroethane	Category 3	Not Listed	Not Listed
Dibromochloromethane	Category 3	Not Listed	Not Listed
Bromoform	Category 3	Not Listed	Not Listed
1,3-dichlorobenzene	Category 3	Not Listed	Not Listed
1,4-dichlorobenzene	Category 2B	Category R	Not Listed
1,2-dichlorobenzene	Category 3	Not Listed	Not Listed
1,3,5-trichlorobenzene	Not Listed	Not Listed	Not Listed
1,2,4-trichlorobenzene	Not Listed	Not Listed	Not Listed
Hexachlorobuta-1,3-diene	Category 3	Not Listed	Not Listed
1,2,3-trichlorobenzene	Not Listed	Not Listed	Not Listed
1,2,4,5-tetrachlorobenzen e	Not Listed	Not Listed	Not Listed
1,2,3,4-tetrachlorobenzen e	Not Listed	Not Listed	Not Listed
Pentachlorobenzene	Not Listed	Not Listed	Not Listed
Hexachlorobenzene	Category 2B	Category R	Not Listed
Methanol	Not Listed	Not Listed	Not Listed

Others

27 Kinds of Halogenated hydrocarbons in Methanol	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Causes damage to organs(Category 1)
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
Germ cell mutagenicity	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
1,4-dichlorobenzene	LC ₅₀ : 2.2mg/L (96h)(Fish)	EC ₅₀ : 2.5mg/L (48h)(Crustaceans)	ErC ₅₀ : 5.4mg/L (72h)(Algae)
bromodichloromethane	LC ₅₀ : 28mg/L (96h)(Fish)	EC ₅₀ : 29mg/L (48h)(Crustaceans)	ErC ₅₀ : 12mg/L (72h)(Algae)
1,3,5-trichlorobenzene	LC ₅₀ : 3.2mg/L (96h)(Fish)	EC ₅₀ : 2.9mg/L (48h)(Crustaceans)	ErC ₅₀ : >4.8mg/L (72h)(Algae)
Bromoform	LC ₅₀ : 29mg/L (96h)(Fish)	EC ₅₀ : 46mg/L (48h)(Crustaceans)	ErC ₅₀ : 13mg/L (72h)(Algae)
1,2,3,4-tetrachlorobenzene	LC ₅₀ : 1.1mg/L (96h)(Fish)	EC ₅₀ : 0.13mg/L (48h)(Crustaceans)	No information available
Dichloromethane	LC ₅₀ : 193mg/L (96h)(Fish)	EC ₅₀ : 1470mg/L (48h)(Crustaceans)	No information available
Chloroform	LC ₅₀ : > 110mg/L (96h)(Fish)	No information available	No information available
Carbon tetrachloride	LC ₅₀ : 7.6mg/L (96h)(Fish)	EC ₅₀ : 8.1mg/L (48h)(Crustaceans)	ErC ₅₀ : 0.46mg/L (72h)(Algae)
1,2,4-trichlorobenzene	LC ₅₀ : 2.4mg/L (96h)(Fish)	EC ₅₀ : 2.05mg/L (48h)(Crustaceans)	ErC ₅₀ : 5.7mg/L (72h)(Algae)
1,3-dichlorobenzene	LC ₅₀ : 7.8mg/L (96h)(Fish)	EC ₅₀ : 2.5mg/L (48h)(Crustaceans)	ErC ₅₀ : 126mg/L (96h)(Algae)
trans-dichloroethylene	LC ₅₀ : 135mg/L (96h)(Fish)	No information available	No information available
1,1-dichloroethylene	LC ₅₀ : 45mg/L (96h)(Fish)	EC ₅₀ : 16mg/L (48h)(Crustaceans)	ErC ₅₀ : 410mg/L (96h)(Algae)
Pentachlorobenzene	LC ₅₀ : 0.248mg/L (96h)(Fish)	EC ₅₀ : 0.01mg/L (48h)(Crustaceans)	ErC ₅₀ : 6.7mg/L (96h)(Algae)
Methanol	LC ₅₀ : 24000mg/L (96h)(Fish)	EC ₅₀ : 24500mg/L (48h)(Crustaceans)	No information available
1,2-dichloroethane	LC ₅₀ : 136mg/L (96h)(Fish)	EC ₅₀ : 99mg/L (48h)(Crustaceans)	ErC ₅₀ : 230mg/L (72h)(Algae)
Tetrachloroethylene	LC ₅₀ : 14mg/L (96h)(Fish)	EC ₅₀ : 1.3mg/L (48h)(Crustaceans)	ErC ₅₀ : 27mg/L (72h)(Algae)

1,2,4,5-tetrachlorobenzene	LC ₅₀ : 2.12mg/L (96h)(Fish)	No information available	ErC ₅₀ : 49.8mg/L (96h)(Algae)
1,1,2-trichloroethane	LC ₅₀ : 40mg/L (96h)(Fish)	EC ₅₀ : 79.5mg/L (48h)(Crustaceans)	ErC ₅₀ : 200mg/L (96h)(Algae)
1,1,1-trichloroethane	LC ₅₀ : 42.3mg/L (96h)(Fish)	EC ₅₀ : 11.2mg/L (48h)(Crustaceans)	No information available
1,2,3-trichlorobenzene	LC ₅₀ : 3.2mg/L (96h)(Fish)	EC ₅₀ : 0.46mg/L (48h)(Crustaceans)	ErC ₅₀ : 0.9mg/L (96h)(Algae)
Hexachlorobuta-1,3-diene	LC ₅₀ : 0.32mg/L (96h)(Fish)	No information available	No information available
Trichloroethylene	LC ₅₀ : 42.4mg/L (96h)(Fish)	EC ₅₀ : 11mg/L (48h)(Crustaceans)	ErC ₅₀ : 77mg/L (72h)(Algae)
1,2-dichlorobenzene	LC ₅₀ : 6.66mg/L (96h)(Fish)	EC ₅₀ : 0.7mg/L (48h)(Crustaceans)	ErC ₅₀ : 71.1mg/L (96h)(Algae)
Dibromochloromethane	LC ₅₀ : 79mg/L (96h)(Fish)	EC ₅₀ : 27mg/L (48h)(Crustaceans)	ErC ₅₀ : 9.6mg/L (72h)(Algae)
cis-dichloroethylene	LC ₅₀ : 67mg/L (96h)(Fish)	EC ₅₀ : 40mg/L (48h)(Crustaceans)	ErC ₅₀ : >74mg/L (72h)(Algae)
Hexachlorobenzene	LC ₅₀ : 7.6mg/L (96h)(Fish)	No information available	No information available

Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
Carbon tetrachloride	No information available	NOEC : 0.49mg/L(Crustaceans)	NOEC : 0.12mg/L(Algae)
1,2,4-trichlorobenzene	NOEC : 0.04mg/L(Fish)	NOEC : 0.10mg/L(Crustaceans)	NOEC : 2.2mg/L(Algae)
1,4-dichlorobenzene	NOEC : 0.9mg/L(Fish)	NOEC : 0.10mg/L(Crustaceans)	NOEC : 0.83mg/L(Algae)
1,2,3-trichlorobenzene	NOEC : 0.32mg/L(Fish)	NOEC : 0.17mg/L(Crustaceans)	NOEC : 0.23mg/L(Algae)
1,3-dichlorobenzene	NOEC : 0.7mg/L(Fish)	NOEC : <0.10mg/L(Crustaceans)	NOEC : 2.2mg/L(Algae)
bromodichloromethane	NOEC : 0.78mg/L(Fish)	NOEC : 2.2mg/L(Crustaceans)	NOEC : 0.80mg/L(Algae)
1,2-dichlorobenzene	NOEC : 0.8mg/L(Fish)	NOEC : <0.10mg/L(Crustaceans)	NOEC : 2.6mg/L(Algae)
Trichloroethylene	NOEC : 5.76mg/L(Fish)	NOEC : 2.1mg/L(Crustaceans)	NOEC : 45mg/L(Algae)
Dibromochloromethane	NOEC : 3.2mg/L(Fish)	NOEC : 0.063mg/L(Crustaceans)	NOEC : 4.5mg/L(Algae)
1,2-dichloroethane	NOEC : 41mg/L(Fish)	NOEC : 1.0mg/L(Crustaceans)	NOEC : 55mg/L(Algae)
1,3,5-trichlorobenzene	No information available	NOEC : 0.32mg/L(Crustaceans)	NOEC : 0.59mg/L(Algae)
Tetrachloroethylene	NOEC : 1.9mg/L(Fish)	NOEC : 0.023mg/L(Crustaceans)	NOEC : 9.1mg/L(Algae)
cis-dichloroethylene	No information available	NOEC : 4.5mg/L(Crustaceans)	NOEC : 74mg/L(Algae)

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
trans-dichloroethylene	High	High
cis-dichloroethylene	High	High
1,1,1-trichloroethane	High(Half-life = 546 days)	High(Half-life = 2247.04 days)
Tetrachloroethylene	High(Half-life = 720 days)	Medium(Half-life = 160.13 days)
1,1,2-trichloroethane	High(Half-life = 730 days)	Medium(Half-life = 81.5 days)
Bromoform	High(Half-life = 360 days)	High(Half-life = 541.21 days)
1,3-dichlorobenzene	High(Half-life = 360 days)	Low(Half-life = 37.13 days)
1,2-dichlorobenzene	High(Half-life = 360 days)	Medium(Half-life = 63.67 days)
1,3,5-trichlorobenzene	High	High
1,2,4-trichlorobenzene	High(Half-life = 360 days)	Low(Half-life = 53.5 days)
1,2,3-trichlorobenzene	High	High
1,2,4,5-tetrachlorobenzen e	High(Half-life = 360 days)	High(Half-life = 317.96 days)
1,2,3,4-tetrachlorobenzen e	High	High
Pentachlorobenzene	High(Half-life = 690 days)	High(Half-life = 453.21 days)
Hexachlorobenzene	High(Half-life = 4178 days)	High(Half-life = 1563.75 days)
Methanol	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
trans-dichloroethylene	Low	Log Kow=2.09
cis-dichloroethylene	Low	Log Kow=1.9808
1,1,1-trichloroethane	Low	BCF=9
Tetrachloroethylene	Low	BCF=77.1
1,1,2-trichloroethane	Low	BCF=17
Bromoform	Low	BCF=21
1,3-dichlorobenzene	High	BCF=6918
1,2-dichlorobenzene	Low	BCF=260
1,3,5-trichlorobenzene	Medium	Log Kow=4.19
1,2,4-trichlorobenzene	High	BCF=4420
1,2,3-trichlorobenzene	Medium	Log Kow=4.05
1,2,4,5-tetrachlorobenzen e	High	BCF=4830
1,2,3,4-tetrachlorobenzen e	Medium	BCF=1710
Pentachlorobenzene	High	BCF=6840
Hexachlorobenzene	High	BCF=575440
Methanol	Low	BCF=10

Mobility in soil

Component	log Koc	Remark
1,1-dichloroethylene	1.72	20 °C
Dichloromethane	1.67	20 °C
trans-dichloroethylene	1.641	
cis-dichloroethylene	1.641	
Chloroform	2.27	20 °C
1,1,1-trichloroethane	0.34	20 °C
Carbon tetrachloride	2.06	20 °C
Trichloroethylene	2.15	
Tetrachloroethylene	2.15	20 °C
1,1,2-trichloroethane	1.831	
Bromoform	2.08	
1,3-dichlorobenzene	2.5	
1,2-dichlorobenzene	2.65	20 °C
1,3,5-trichlorobenzene	2.847	
1,2,4-trichlorobenzene	2.856	
1,2,3-trichlorobenzene	2.87	
1,2,4,5-tetrachlorobenzen e	3.074	
1,2,3,4-tetrachlorobenzen e	3.083	
Pentachlorobenzene	3.301	
Hexachlorobenzene	3.529	
Methanol	0.000	

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	Not applicable
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IMDG-CODE

IMDG-CODE	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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IATA-DGR

IATA-DGR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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UN-ADR

UN-ADR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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Transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
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- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
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- ◆ Transport in bulk in accordance with the IGC Code

	Not Available
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Others

Precautions for transport	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.
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15 Regulatory information**International chemical inventory**

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
1,1-dichloroethylene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dichloromethane	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
trans-dichloroethylene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
cis-dichloroethylene	✓	✓	✓	✗	✓	✗	✓	✓	✓	✗	✗	✓	✓
Chloroform	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1,1,1-trichloroethane	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carbon tetrachloride	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1,2-dichloroethane	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trichloroethylene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
bromodichloromethane	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗	✓	✓	✓
1,2-dibromoethylene	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
1,2-dibromoethylene	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
Tetrachloroethylene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1,1,2-trichloroethane	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dibromochloromethane	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓
Bromoform	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1,3-dichlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
1,4-dichlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

1,2-dichlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1,3,5-trichlorobenzene	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓
1,2,4-trichlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hexachlorobuta-1,3-diene	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓
1,2,3-trichlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓
1,2,4,5-tetrachlorobenzene	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✓	✓	✓
1,2,3,4-tetrachlorobenzene	✓	✓	✓	✓	✗	✓	✗	✓	✓	✗	✗	✓	✓
Pentachlorobenzene	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✓	✓	✓
Hexachlorobenzene	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓
Methanol	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

- [A]** China Inventory of Existing Chemical Substances(IECSC)
[B] European Inventory of Existing Commercial Chemical Substances(EC inventory)
[C] United States Toxic Substances Control Act Inventory(TSCA)
[D] Canadian Domestic Substances List(DSL)
[E] New Zealand Inventory of Chemicals(NZIoC)
[F] Philippines Inventory of Chemicals and Chemical Substances(PICCS)
[G] Korea Existing Chemicals Inventory(KECL)
[H] Australian Inventory of Industrial Chemical (AIICS)
[I] Japan Inventory of Existing & New Chemical Substances(ENCS)
[J] Thailand Existing Chemicals Inventory(TECI)
[K] Mexico National Inventory of Chemical Substances (INSQ)
[L] Russia Inventory of Existing Substances(DRAFT)
[M] Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

List of Chemical Substances under International Conventions

Component	A	B	C
1,1-dichloroethylene	✗	✗	✗
Dichloromethane	✗	✗	✗
trans-dichloroethylene	✗	✗	✗
cis-dichloroethylene	✗	✗	✗
Chloroform	✗	✗	✗
1,1,1-trichloroethane	✓	✗	✗
Carbon tetrachloride	✓	✗	✗
1,2-dichloroethane	✗	✗	✓
Trichloroethylene	✗	✗	✗
bromodichloromethane	✗	✗	✗
1,2-dibromoethylene	✗	✗	✗
1,2-dibromoethylene	✗	✗	✗
Tetrachloroethylene	✗	✗	✗
1,1,2-trichloroethane	✗	✗	✗
Dibromochloromethane	✗	✗	✗
Bromoform	✗	✗	✗

1,3-dichlorobenzene	×	×	×
1,4-dichlorobenzene	×	×	×
1,2-dichlorobenzene	×	×	×
1,3,5-trichlorobenzene	×	×	×
1,2,4-trichlorobenzene	×	×	×
Hexachlorobuta-1,3-diene	×	✓	×
1,2,3-trichlorobenzene	×	×	×
1,2,4,5-tetrachlorobenzen e	×	×	×
1,2,3,4-tetrachlorobenzen e	×	×	×
Pentachlorobenzene	×	✓	×
Hexachlorobenzene	×	✓	✓
Methanol	×	×	×

【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer

【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)

【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

US chemical inventory

Component	A	B	C	D	E	F	G	H
1,1-dichloroethylene	✓	×	✓	✓	✓	✓	✓	✓
Dichloromethane	✓	×	✓	✓	✓	✓	✓	✓
trans-dichloroethylene	×	×	✓	✓	×	✓	✓	×
cis-dichloroethylene	×	×	×	✓	×	✓	×	×
Chloroform	✓	✓	✓	✓	✓	✓	✓	✓
1,1,1-trichloroethane	✓	×	✓	✓	✓	✓	✓	✓
Carbon tetrachloride	✓	×	✓	✓	✓	✓	✓	✓
1,2-dichloroethane	✓	×	✓	✓	✓	✓	✓	✓
Trichloroethylene	✓	×	✓	✓	✓	✓	✓	✓
bromodichloromethane	×	×	✓	✓	✓	✓	✓	✓
1,2-dibromoethylene	×	×	×	×	×	×	×	×
1,2-dibromoethylene	×	×	×	×	×	×	×	×
Tetrachloroethylene	✓	×	✓	✓	✓	✓	✓	✓
1,1,2-trichloroethane	✓	×	✓	✓	✓	✓	✓	✓
Dibromochloromethane	×	×	✓	✓	✓	✓	✓	×
Bromoform	✓	×	✓	✓	✓	✓	✓	✓
1,3-dichlorobenzene	×	×	✓	✓	✓	✓	✓	×
1,4-dichlorobenzene	✓	×	✓	✓	✓	✓	✓	✓
1,2-dichlorobenzene	×	×	✓	✓	✓	✓	✓	×
1,3,5-trichlorobenzene	×	×	×	×	×	×	×	×

1,2,4-trichlorobenzene	✓	×	✓	✓	✓	✓	✓	×
Hexachlorobutene-1,3-diene	✓	×	✓	✓	✓	✓	✓	✓
1,2,3-trichlorobenzene	×	×	×	✓	×	×	✓	×
1,2,4,5-tetrachlorobenzene	×	×	✓	✓	✓	✓	✓	×
1,2,3,4-tetrachlorobenzene	×	×	×	×	×	×	×	×
Pentachlorobenzene	×	×	✓	✓	✓	✓	✓	×
Hexachlorobenzene	✓	×	✓	✓	✓	✓	✓	✓
Methanol	✓	×	✓	✓	✓	✓	✓	✓

- [A] US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants
 [B] US SARA 302- Extremely Hazardous Substance List
 [C] US CERCLA- Hazardous Substances List
 [D] US Massachusetts Right-to-Know Substance List
 [E] US New Jersey Right to Know Hazardous Substance List
 [F] US Pennsylvania Right to Know Hazardous Substance List
 [G] US New York City Right-to-Know Hazardous Substance List
 [H] US California Proposition 65 List

Note:

- “✓” Indicates that the substance included in the regulations.
 “×” No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2025/11/19
Revision Date	-
Reason for revision	-

Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative

P _{ow}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.