

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

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

Perihal Produk: **1,2,4-Trichlorobenzene**
 Product Description: **1,2,4-Trichlorobenzene**
 Cat No. : A10130
 Synonyms unsym-Trichlorobenzene; Unsymmetrical trichlorobenzene.; 1,2,4-TCB
 CAS No 120-82-1
 Molecular Formula C6 H3 Cl3

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

Recommended Use Laboratory chemicals.
 Uses advised against No Information available

Company

Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd
 Hap Seng Business Park, Lot 01-03, 01-04 Aras 1 Unity Square,
 No 12, Persiaran Perusahaan, Seksyen 23, 40300 Shah Alam,
 Selangor Darul Ehsan, Malaysia.
 Main line: +60 3-5525 7888

Supplier

E-mail address Enquiry.my@thermofisher.com

Emergency Telephone Number

Tel: +03-5525 7888
 CHEMTREC Malaysia **1-800-815-308** (Malay)
 CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

SECTION 2: HAZARDS IDENTIFICATION
Classification of the substance or mixture

Acute oral toxicity	Category 4 (H302)
Skin Corrosion/Irritation	Category 2 (H315)
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

Label Elements


Signal Word

Warning

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Hazard Statements

H315 - Causes skin irritation
H410 - Very toxic to aquatic life with long lasting effects
H302 - Harmful if swallowed

Precautionary Statements

Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P337 + P313 - If eye irritation persists: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

P403 - Store in a well-ventilated place

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Other Hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
1,2,4-Trichlorobenzene	120-82-1	>95

SECTION 4: FIRST AID MEASURES

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

No special precautions required.

Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

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Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

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.

Special hazards arising from the substance or mixture

Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Phosgene, Hydrogen chloride gas.

Advice for fire-fighters

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

Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation. Use personal protective equipment as required.

Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods and Material for Containment and Cleaning Up

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

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

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

Conditions for Safe Storage, Including any Incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

Specific End Uses

Use in laboratories.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
1,2,4-Trichlorobenzene		Ceiling: 5 ppm	(Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 40 mg/m ³

Component	European Union	The United Kingdom	Germany
1,2,4-Trichlorobenzene	TWA: 2 ppm (8h) TWA: 15.1 mg/m ³ (8h) STEL: 5 ppm (15min) STEL: 37.8 mg/m ³ (15min) Skin	STEL: 5 ppm 15 min TWA: 1 ppm 8 hr Skin	TWA: 0.5 ppm (8 Stunden). AGW - exposure factor 4 TWA: 3.8 mg/m ³ (8 Stunden). AGW - exposure factor 4 TWA: 3.8 mg/m ³ (8 Stunden). MAK TWA: 0.5 ppm (8 Stunden). MAK Höhepunkt: 7.6 mg/m ³ Höhepunkt: 1 ppm Haut

Exposure Controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

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)

Hand Protection

Protective gloves

Skin and body protection

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, 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.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

No protective equipment is needed under normal use conditions

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

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

Information on basic physical and chemical properties

Appearance

Clear

Physical State

Liquid

ALFAAA10130

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Odor	aromatic	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	16 °C / 60.8 °F	
Softening Point	No data available	
Boiling Point/Range	214 °C / 417.2 °F	@ 760 mmHg
Flash Point	110 °C / 230 °F	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 2.5 Upper 6.6	
Vapor Pressure	2 hPa @ 50 °C	
Vapor Density	6.26 (Air = 1.0)	(Air = 1.0)
Specific Gravity / Density	1.450	
Bulk Density	Not applicable	Liquid
Water Solubility	Slightly soluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
1,2,4-Trichlorobenzene	4.05	
Autoignition Temperature	571 °C / 1059.8 °F	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	
Molecular Formula	C6 H3 Cl3	
Molecular Weight	181.45	

SECTION 10: STABILITY AND REACTIVITY

Reactivity

None known, based on information available.

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

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

Conditions to Avoid

Incompatible products.

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Incompatible Materials

Strong oxidizing agents. Metals.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Phosgene. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Product Information

(a) acute toxicity;

Oral

Category 4

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,2,4-Trichlorobenzene	LD50 = 756 mg/kg (Rat)	LD50 = 6139 mg/kg (Rat)	-

(b) skin corrosion/irritation;

Category 2

(c) serious eye damage/irritation;

No data available

(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

The table below indicates whether each agency has listed any ingredient as a carcinogen

(g) reproductive toxicity;

No data available

(h) STOT-single exposure;

No data available

(i) STOT-repeated exposure;

No data available

Target Organs

No information available.

(j) aspiration hazard;

No data available

Symptoms / effects, both acute and delayed

Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

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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

Ecotoxicity effects The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
1,2,4-Trichlorobenzene	LC50: 2.7 - 4.1 mg/L, 96h static (Lepomis macrochirus) LC50: = 6.57 mg/L, 96h static (Brachydanio rerio) LC50: = 4.8 mg/L, 96h (Oryzias latipes) LC50: 1.24 - 1.4 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 1.67 - 4.34 mg/L, 96h flow-through (Pimephales promelas) LC50: 2.68 - 3.4 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 3.02 mg/L, 96h (Lepomis macrochirus) LC50: = 2.76 mg/L, 96h (Pimephales promelas) LC50: 3.4 - 4.77 mg/L, 96h static (Oncorhynchus mykiss)	EC50: = 2.7 mg/L, 48h (Daphnia magna)	EC50: = 1.4 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: 11.1 - 36.2 mg/L, 72h (Pseudokirchneriella subcapitata) EC50: = 8.4 mg/L, 96h (Desmodesmus subspicatus) EC50: = 1.4 mg/L, 96h static (Pseudokirchneriella subcapitata)	EC50 = 0.91 mg/L 24 h EC50 = 4.0 mg/L 30 min

Persistence and degradability
Persistence May persist, based on information available.
Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative potential May have some potential to bioaccumulate; Product has a high potential to bioconcentrate

Component	log Pow	Bioconcentration factor (BCF)
1,2,4-Trichlorobenzene	4.05	120 - 1320 dimensionless

Mobility in soil . . Is not likely mobile in the environment due its low water solubility. Is not likely mobile in the environment due its low water solubility and propensity to bind to soil particles.

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

Other adverse effects No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Waste from Residues/Unused Should not be released into the environment Waste is classified as hazardous Dispose of in

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Products	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.
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 Do not empty into drains Do not let this chemical enter the environment

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

UN-No	UN2321
Hazard Class	6.1
Packing Group	III
Proper Shipping Name	TRICHLOROBENZENES, LIQUID

Road and Rail Transport

UN-No	UN2321
Hazard Class	6.1
Packing Group	III
Proper Shipping Name	TRICHLOROBENZENES, LIQUID

IATA

UN-No	UN2321
Hazard Class	6.1
Packing Group	III
Proper Shipping Name	TRICHLOROBENZENES, LIQUID

Special Precautions for User No special precautions required

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
1,2,4-Trichlorobenzene	204-428-0	X	X	X	X	X	X	X	KE-34063

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
1,2,4-Trichlorobenzene				Annex I - Y45

National Regulations

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

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SECTION 16: OTHER INFORMATION

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/NDL - 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

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

POW - Partition coefficient Octanol:Water

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

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

Prepared By

Revision Date

Revision Summary

Health, Safety and Environmental Department

24-Mar-2025

Not applicable.

In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet