

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-Dichlorobenzene**
 Product Description: **1,2-Dichlorobenzene**
 Cat No. : 222050000; 222050025; 222055000
 Synonyms o-Dichlorobenzene
 CAS No 95-50-1
 Molecular Formula C6 H4 Cl2

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

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)
Acute Inhalation Toxicity - Vapors	Category 4 (H332)
Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 2 (H319)
Skin Sensitization	Category 1 (H317)
Specific target organ toxicity - (single exposure)	Category 3 (H335)
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

Label Elements


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Signal Word

Warning

Hazard Statements

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H410 - Very toxic to aquatic life with long lasting effects
H302 + H332 - Harmful if swallowed or if inhaled

Precautionary Statements

Prevention

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P270 - Do not eat, drink or smoke when using this product
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor if you feel unwell
P330 - Rinse mouth
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

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

Disposal

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

Other Hazards

Combustible liquid

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
o-Dichlorobenzene	95-50-1	>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,

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	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.

Most important symptoms and effects, both acute and delayed

None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Combustible material. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), 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

Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

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

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Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

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. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition.

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.

Specific End Uses

Use in laboratories.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
o-Dichlorobenzene		TWA: 25 ppm STEL: 50 ppm	Ceiling: 50 ppm Ceiling: 300 mg/m ³ (Vacated) Ceiling: 50 ppm (Vacated) Ceiling: 300 mg/m ³

Component	European Union	The United Kingdom	Germany
o-Dichlorobenzene	TWA: 20 ppm (8h) TWA: 122 mg/m ³ (8h) STEL: 50 ppm (15min) STEL: 306 mg/m ³ (15min) Skin	STEL: 50 ppm 15 min STEL: 306 mg/m ³ 15 min TWA: 25 ppm 8 hr TWA: 153 mg/m ³ 8 hr Skin	TWA: 10 ppm (8 Stunden). AGW - exposure factor 2 TWA: 61 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 10 ppm (8 Stunden). MAK TWA: 61 mg/m ³ (8 Stunden). MAK Höhepunkt: 20 ppm Höhepunkt: 122 mg/m ³ Haut

Exposure Controls

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. Use only under a chemical fume hood. 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

Goggles

Hand Protection

Protective gloves

Skin and body protection

Long sleeved clothing

Inspect gloves before use.

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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

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

Recommended Filter type:

Organic gases and vapours filter Type A Brown conforming to EN14387

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
Odor	No information available
Odor Threshold	No data available
pH	No information available

Melting Point/Range	-15 °C / 5 °F
Softening Point	No data available
Boiling Point/Range	179 - 180 °C / 354.2 - 356 °F
Flash Point	67 °C / 152.6 °F

Method - CC (closed cup)

Evaporation Rate	No data available
Flammability (solid,gas)	Not applicable
Explosion Limits	Lower 2.2 Vol% Upper 12 Vol%

Liquid

Vapor Pressure	1.3 mbar @ 20 °C
Vapor Density	No data available
Specific Gravity / Density	1.3 g/cm ³ @20°C
Bulk Density	Not applicable
Water Solubility	0.13 g/l
Solubility in other solvents	No information available

(Air = 1.0)

Liquid

Partition Coefficient (n-octanol/water)

Component	log Pow
o-Dichlorobenzene	3.433

Autoignition Temperature	640 °C / 1184 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

explosive air/vapour mixtures possible

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Molecular Formula C₆ H₄ Cl₂
Molecular Weight 147

SECTION 10: STABILITY AND REACTIVITY

Reactivity

None known, based on information available.

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization No information available.
Hazardous Reactions None under normal processing.

Conditions to Avoid

Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials

Strong oxidizing agents. Metals.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO₂). 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 Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
o-Dichlorobenzene	LD50 = 1516 mg/kg (Rat)	LD50 > 10 g/kg (Rabbit)	14,04 mg/L/4h (Rat)

(b) skin corrosion/irritation;

Test method OECD 404
Test species rabbit
Observational endpoint Erythema/Eschar = = 1.56
Oedema = = 1

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(c) serious eye damage/irritation; Category 2
 Test method OECD 405
 Test species rabbit
 Observation end point Iris lesion = 0.06
 Cornea opacity = 0
 Redness of the conjunctivae = 0.6
 Oedema of the conjunctivae = 0.11

(d) respiratory or skin sensitization;
 Respiratory Based on available data, the classification criteria are not met
 Skin Category 1

Component	Test method	Test species	Study result
o-Dichlorobenzene 95-50-1 (>95)	OECD Test Guideline 429 Local Lymph Node Assay	mouse	Sensitizer

May cause sensitization by skin contact

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
o-Dichlorobenzene 95-50-1 (>95)	OECD Test Guideline 476 Gene cell mutation	in vitro Animal germ cell	Positive
	OECD Test Guideline 471 Bacterial Reverse Mutation Test	in vitro Bacteria	negative
	OECD Test Guideline 473 Chromosomal aberration assay	in vitro Animal germ cell	negative
	OECD Test Guideline 474 Mouse micronucleus assay	in vivo Animal germ cell	negative

(f) carcinogenicity; Based on available data, the classification criteria are not met
 There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Category 3
 Results / Target organs Respiratory system.

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met
 Test method Chronic Toxicity
 Test species / Duration Rat / 90 days
 Study result NOAEL = 125 mg/kg
 Route of exposure Oral
 Target Organs None known.

(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 Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest

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pain, muscle pain or flushing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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

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

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
o-Dichlorobenzene	LC50: 4.8 - 6.6 mg/L, 96h static (Lepomis macrochirus) LC50: = 5.2 mg/L, 96h flow-through (Brachydanio rerio) LC50: 42.6 - 80.4 mg/L, 96h static (Pimephales promelas) LC50: 8.23 - 10.9 mg/L, 96h flow-through (Pimephales promelas) LC50: 1.44 - 1.73 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 5.8 mg/L, 96h static (Pimephales promelas)	EC50: = 0.74 mg/L, 48h Static (Daphnia magna)	EC50: = 91.6 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: 61.2 - 181 mg/L, 72h (Pseudokirchneriella subcapitata) EC50: = 2.2 mg/L, 96h static (Pseudokirchneriella subcapitata)	EC50 = 4.76 mg/L 5 min EC50 = 4.98 mg/L 15 min EC50 = 5.99 mg/L 30 min

Persistence and degradability

Not readily biodegradable

Persistence

May persist, based on information available.

Component	Degradability
o-Dichlorobenzene 95-50-1 (>95)	0 % (28d) OECD 301C

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

Component	log Pow	Bioconcentration factor (BCF)
o-Dichlorobenzene	3.433	90 - 260 dimensionless

Mobility in soil

The product is insoluble and sinks in water. The product evaporates slowly. Spillage unlikely to penetrate soil. . Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil.

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

Other adverse effects

No information available

SECTION 13: DISPOSAL CONSIDERATIONS

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Waste treatment methods

Waste from Residues/Unused Products

Should not be released into the environment 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.

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 UN1591
Hazard Class 6.1
Packing Group III
Proper Shipping Name O-DICHLOROBENZENE

Road and Rail Transport

UN-No UN1591
Hazard Class 6.1
Packing Group III
Proper Shipping Name o-DICHLOROBENZENE

IATA

UN-No UN1591
Hazard Class 6.1
Packing Group III
Proper Shipping Name o-DICHLOROBENZENE

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
o-Dichlorobenzene	202-425-9	X	X	X	X	X	X	X	KE-10066

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)
o-Dichlorobenzene				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

Component	Persistent Organic Pollutant	Ozone Depletion Potential	Pesticides Act 1974
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o-Dichlorobenzene			X
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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

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Revision Summary

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