# 1,2-DICHLOROBENZENE



## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME**
1,2-DICHLOROBENZENE

**OTHER NAMES**

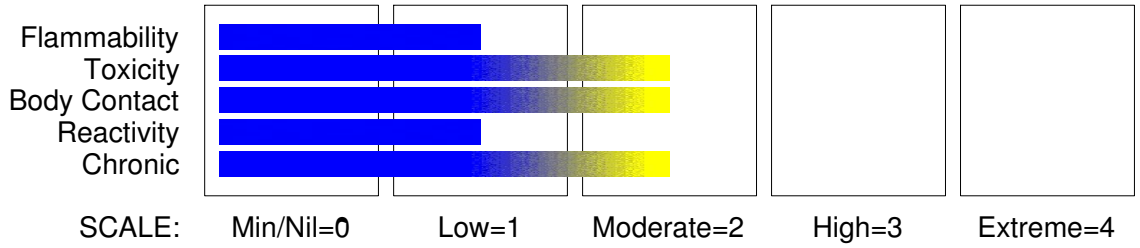
C6-H4-Cl2, Cl2C6H4, "benzene, 1, 2-dichloro-", "benzene, 1, 2-dichloro-", ODB, DCB, ODCB, o-dichlorobenzene, o-dichlorobenzene, Chloroden, orthodichlorobenzol, "o-dichlor benzol", "o-dichlor benzol", "benzene, o-dichloro-", "benzene, o-dichloro-", ortho -dichlorobenzene, orthodichlorobenzene, "dichlorobenzene

**PROPER SHIPPING NAME**
o-DICHLOROBENZENE

**PRODUCT USE**
Solvent for oils, resins, waxes, gums, tars, rubbers, asphalts,
oxides of nonferrous metals. Has been used as heat transfer media.
Component of dyes, metal polishes, degreasers for leather, metals and wool.
Used as an insecticide and fumigant; industrial odour control.
Solvent carrier in production of toluene diisocyanate.

**SUPPLIER**
Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

**HAZARD RATINGS**




**continued...**

## Section 2 - HAZARDS IDENTIFICATION

### GHS Classification

Acute Toxicity (Oral) Category 4
Carcinogen Category 2
Chronic Aquatic Hazard Category 1
Eye Irritation Category 2A
Flammable Liquid Category 4
Respiratory Irritation Category 3
Skin Corrosion/Irritation Category 2

### EMERGENCY OVERVIEW

#### HAZARD

WARNING
Determined by using GHS criteria:
H335 H227 H302 H315 H319 H351 H410
May cause respiratory irritation
Combustible Liquid
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer
Very toxic to aquatic life with long lasting effects

#### PRECAUTIONARY STATEMENTS

**Prevention**

Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Obtain special instructions before use.
Use explosion-proof electrical/ventilating/lighting/equipment
Use personal protective equipment as required.
Do not handle until all safety precautions have been read and understood.
Keep away from flames and hot surfaces.

**Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If exposed or concerned: Get medical attention advice.
If skin irritation occurs, seek medical advice/attention.
If eye irritation persists, get medical advice/attention.
Wear eye/face protection.

**continued...**

Remove/Take off immediately all contaminated clothing
Specific treatment: refer to Label or MSDS.
IF ON SKIN: Gently wash with plenty of soap and water.
Wash/Decontaminate removed clothing before reuse.

**Storage**

Store away from other materials
Store locked up.

**Disposal**

Dispose of contents and container in accordance with relevant legislation.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| NAME | CAS RN | % |
|---|---|---|
| 1, 2- dichlorobenzene | 95-50-1 | >95 |
| commercial materials may contain | | |
| 1, 4- dichlorobenzene | 106-46-7 | <5 |

## Section 4 - FIRST AID MEASURES

**SWALLOWED**

For advice, contact a Poisons Information Centre or a doctor.
· If swallowed do NOT induce vomiting.
· If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
· Observe the patient carefully.
· Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
· Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
· Seek medical advice.
Avoid giving alcohol.

**EYE**

· If in eyes, hold eyelids apart and flush the eye continuously with running water.
· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· If pain persists or recurs seek medical attention.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

**SKIN**

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

**INHALED**

· If fumes or combustion products are inhaled remove from contaminated area.
· Lay patient down. Keep warm and rested.

**continued...**

· Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
· Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
· Transport to hospital, or doctor, without delay.

**NOTES TO PHYSICIAN**

Treat symptomatically.
for intoxication due to Freons/ Halons;
A: Emergency and Supportive Measures
· Maintain an open airway and assist ventilation if necessary
· Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
· Monitor the ECG for 4-6 hours
B: Specific drugs and antidotes:
There is no specific antidote
C: Decontamination
· Inhalation; remove victim from exposure, and give supplemental oxygen if available.
· Ingestion;
(a) Prehospital: Administer activated charcoal, if available. DO NOT induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression.
(b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)
D: Enhanced elimination:
There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat -dose charcoal.
POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition.
o-DCB is absorbed through the lungs, gastrointestinal tract and intact skin. High lipid solubility and low water solubility causes diffusion through most membranes. Metabolites include 3,4-dichlorophenol, 2,3-dichlorophenol and 3,4- and 4,5-dichlorocatechols. THe conjugates excreted in the urine are mainly glucuronides.

## Section 5 - FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA**

· Water spray or fog.
· Foam.
· Dry chemical powder.
· BCF (where regulations permit).
· Carbon dioxide.

**FIRE FIGHTING**

Alert Fire Brigade and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water courses.
If safe to do so, switch off electrical equipment until vapour fire hazard is removed.
DO NOT approach containers suspected to be hot.

**continued...**

Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

**FIRE/EXPLOSION HAZARD**
Combustible liquid.
Moderate fire hazard when exposed to heat or flame.
May form an explosive mixture with air.
Decomposes on heating and produces toxic fumes of:.
hydrogen chloride.
carbon monoxide (CO).
carbon dioxide ($CO_2$).
and minor amounts of.
chlorine.

**FIRE INCOMPATIBILITY**
Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

**Personal Protective Equipment**
Breathing apparatus.
Chemical splash suit.

## Section 6 - ACCIDENTAL RELEASE MEASURES

**EMERGENCY PROCEDURES**

**MINOR SPILLS**
POLLUTANT -contain spillage.
Environmental hazard - contain spillage.
Clean up all spills immediately.
Wear protective clothing, impervious gloves and safety glasses.
Contain and absorb spill with sand, earth, inert material or vermiculite.
Place spilled material in clean, dry, sealable, labelled container.

**MAJOR SPILLS**
POLLUTANT -contain spillage.
Environmental hazard - contain spillage.
Alert Fire Brigade and tell them location and nature of hazard.
Clear area of personnel and move upwind.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water courses.

Shut off all possible sources of ignition and increase ventilation.
No smoking or naked lights within area.
Stop leak if safe to do so.
Absorb or cover spill with sand, earth, inert material or vermiculite.
Recover liquid and place in labelled, sealable container for recycling.
Collect residues and seal in labelled drums for disposal.
Wash spill area with detergent and water.
If contamination of drains or waterways occurs, advise emergency services.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

**continued...**

**EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)**

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
1,2-dichlorobenzene 200 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
1,2-dichlorobenzene 50 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:
1,2-dichlorobenzene 50 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:
1,2-dichlorobenzene 25 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

| | | | |
|---|---|---|---|
| Very Toxic (T+) | >= 0.1% | Toxic (T) | >= 3.0% |
| R50 | >= 0.25% | Corrosive (C) | >= 5.0% |
| R51 | >= 2.5% | | |

else >= 10%

where percentage is percentage of ingredient found in the mixture

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**SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS**

| | | | | | |
|---|---|---|---|---|---|
| + | X | + | X | 0 | + |

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*+: May be stored together*
*O: May be stored together with specific preventions*
*X: Must not be stored together*

**Personal Protective Equipment advice is contained in Section 8 of the MSDS.**

## Section 7 - HANDLING AND STORAGE

**PROCEDURE FOR HANDLING**

Avoid generating and breathing mist.
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
until atmosphere has been checked.
Avoid contact with incompatible materials.
Avoid smoking, naked lights or ignition sources.
Avoid physical damage to containers.
Keep containers securely sealed when not in use.
Use in a well-ventilated area.
Wear personal protective equipment when handling.

**continued...**

When handling, DO NOT eat, drink or smoke.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.

**SUITABLE CONTAINER**

· Metal can or drum
· Packaging as recommended by manufacturer.
· Check all containers are clearly labelled and free from leaks.

**STORAGE INCOMPATIBILITY**

Avoid storage with oxidisers.
DO NOT use aluminium, galvanised or tin-plated containers.

**STORAGE REQUIREMENTS**

Store in a cool, dry place.
Store in a well-ventilated area.
Store away from sources of heat or ignition / naked lights.
Outside or detached storage is preferred.
Protect containers against physical damage.
Keep containers securely sealed.
Check regularly for spills and leaks.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

**EXPOSURE CONTROLS**

The following materials had no OELs on our records

| | |
|---|---|
| • 1, 2- dichlorobenzene: | CAS:95- 50- 1 |
| • 1, 4- dichlorobenzene: | CAS:106- 46- 7 |

**EMERGENCY EXPOSURE LIMITS**

| Material | Revised IDLH Value (mg/m3) | Revised IDLH Value (ppm) |
|---|---|---|
| 1, 2- dichlorobenzene | | 200 |
| 1, 4- dichlorobenzene | | 150 |

**ODOUR SAFETY FACTOR (OSF)**

OSF=56 (1,2-dichlorobenzene)
Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.
Odour Safety Factor (OSF) is determined to fall into either Class A or B.
The Odour Safety Factor (OSF) is defined as:
OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm
Classification into classes follows:

| Class | OSF | Description |
|---|---|---|
| A | 550 | Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities |
| B | 26- 550 | As " A" for 50- 90% of persons |

**continued...**

| | | |
|---|---|---|
| | | being distracted |
| C | 1- 26 | As " A" for less than 50% of persons being distracted |
| D | 0.18- 1 | 10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached |
| E | <0.18 | As " D" for less than 10% of persons aware of being tested |

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**MATERIAL DATA**

Odour Threshold Value: 0.699 ppm (detection)
Liver damage occurs in animals exposed to 50 to 800 ppm after a few hours.
The TLV-C is thought to minimise the potential for such damage and to minimise eye and nasal irritation.

**INGREDIENT DATA**

1,4-DICHLOROBENZENE:
Odour Threshold Value: 0.121 ppm (detection)
NOTE: Detector tubes for p-dichlorobenzene, measuring in excess of 2 ppm, are commercially available.
Exposure at or below the limit is thought to protect workers from the significant risk of eye damage and irritation, vertigo and neuropathic effects

**PERSONAL PROTECTION**




**EYE**

· Safety glasses with side shields; or as required,
· Chemical goggles.
· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

**OTHER**

· Impervious protective clothing or Rubber apron.
· Eyewash unit.
Ensure there is ready access to a safety shower.

**continued...**

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult
your
Occupational Health and Safety Advisor.

**ENGINEERING CONTROLS**

Use in a well-ventilated area.
If inhalation risk of overexposure exists, wear SAA approved organic-vapour respirator.
If mist is present, use air supplied breathing apparatus.
Provide adequate ventilation in warehouse or closed storage areas.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE**

Colourless to pale yellow liquid, pleasant aromatic odour.
Practically insoluble in water. Soluble in alcohol, aromatics, acetone.

**PHYSICAL PROPERTIES**

Liquid.
Does not mix with water.
Sinks in water.

| | |
|---|---|
| Molecular Weight: 147.00 | Boiling Range (°C): 180.5 |
| Melting Range (°C): - 17 | Specific Gravity (water=1): 1.305 @ 20 C |
| Solubility in water (g/L): Immiscible | pH (as supplied): Not applicable |
| pH (1% solution): Not applicable | Vapour Pressure (kPa): 0.133 @ 20 C |
| Volatile Component (%vol): 100 approx. | Evaporation Rate: < 1 |
| Relative Vapour Density (air=1): 5.07 | Flash Point (°C): 66 (TCC) |
| Lower Explosive Limit (%): 2.2 | Upper Explosive Limit (%): 9.2 |
| Autoignition Temp (°C): 647 | Decomposition Temp (°C): Not available |
| State: Liquid | Viscosity: Not available |

| | |
|---|---|
| log Kow (Prager 1995): | 3.38 |
| log Kow (Sangster 1997): | 3.38 |
| log Kow (Prager 1995): | 3.37 |
| log Kow (Sangster 1997): | 3.45 |

## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

**CONDITIONS CONTRIBUTING TO INSTABILITY**

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

**continued...**

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

**SWALLOWED**
Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Considered an unlikely route of entry in commercial/industrial environments.

**EYE**
Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.
Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
The material may be irritating to the eye, with prolonged contact causing inflammation.
Repeated or prolonged exposure to irritants may produce conjunctivitis.

**SKIN**
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.
if exposure is prolonged.
Toxic effects may result from skin absorption.
The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

**INHALED**
Inhalation may produce health damage*.
Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.
Inhalation of vapour may result in nausea, headache.

**continued...**

**CHRONIC HEALTH EFFECTS**

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Principal routes of exposure are usually by inhalation of vapour and skin contact/absorption of the material.

Chronic inhalation exposure may cause changes to liver and kidney and haematological (blood) disorders.

There is some evidence to suggest a link between leukaemia and exposure to dichlorobenzenes. [NIOSHTIC]

A 2 year study with rats and mice treated with oral doses of either 60 or 120 mg 5 days/ week produced a lower survival time of male rats receiving the higher dose. An increase in the incidence of tubular regeneration in th male mouse kidney was the only compound-related, non-neoplastic, histologic lesion observed and no evidence of carcinogenicity was seen during the study.

Four cases involving cancer and exposure to o-DCB have been reported. These involved the development of peripheral leukoblastosis, chronic lymphoid leukaemia and myeloblastic leukaemia.

**TOXICITY AND IRRITATION**

| TOXICITY | IRRITATION |
|---|---|
| Oral (rat) LD50: 500 mg/kg | Eye(rabbit):100mg/30s rinse- Mild |
| Intraperitoneal (rat) LD50: 840 mg/kg | |
| Subcutaneous (rat) LD50: 5000 mg/kg | |
| Inhalation (rat) LDLo: 821 ppm/7 hr | |
| Oral (mouse) LD50: 4386 mg/kg | |
| Intraperitoneal (mouse) LD50: 1228 mg/kg | |
| Oral (rabbit) LD50: 500 mg/kg | |

The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.
Diffuse and zonal hepatocellular necrosis, lachrymation, general anaesthesia, paternal effects, specific developmental anormalities (musculoskeletal sysytem) recorded.

1,4-DICHLOROBENZENE:

| TOXICITY | IRRITATION |
|---|---|
| Oral (human) LDLo: 857 mg/kg | Eye (human): 80 ppm |
| Oral (human) TDLo: 300 mg/kg | |
| Oral (rat) LD50: 500 mg/kg | |
| Dermal (rabbit) LD50: >2000 mg/kg | |
| Intraperitoneal (rat) LD50: 2562 mg/kg | |
| Oral (mouse) LD50: 2950 mg/kg | |
| Intraperitoneal (mouse) LD50: 2000 mg/kg | |
| Oral (rabbit) LD50: 2830 mg/kg | |
| Dermal (rabbit) LD50: >2000 mg/kg | |

Eye effects, respiratory tract changes, diarrhoea, specific developmental effects (cardiovascular system) recorded.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002].

**continued...**

## Section 12 - ECOLOGICAL INFORMATION

| | |
|---|---|
| Fish LC50 (96hr.) (mg/l): | 9.4- 100 |
| Algae IC50 (72hr.) (mg/l): | 53- 100 |
| BCF<100: | 36, 128 |
| Water solubility (g/l): | 156 |
| log Kow (Prager 1995): | 3.38 |
| log Kow (Sangster 1997): | 3.38 |
| log Pow (Verschueren 1983): | 3.38 |
| Half- life Soil - High (hours): | 4320 |
| Half- life Soil - Low (hours): | 672 |
| Half- life Air - High (hours): | 1528 |
| Half- life Air - Low (hours): | 152.8 |
| Half- life Surface water - High (hours): | 4320 |
| Half- life Surface water - Low (hours): | 672 |
| Half- life Ground water - High (hours): | 8640 |
| Half- life Ground water - Low (hours): | 1344 |
| Aqueous biodegradation - Aerobic - High (hours): | 4320 |
| Aqueous biodegradation - Aerobic - Low (hours): | 672 |
| Aqueous biodegradation - Anaerobic - High (hours): | 17280 |
| Aqueous biodegradation - Anaerobic - Low (hours): | 2880 |
| Aqueous biodegradation - Removal secondary treatment - High (hours): | 76% |
| Photolysis maximum light absorption - High (nano- m): | 269 |
| Photolysis maximum light absorption - Low (nano- m): | 219.5 |
| Photooxidation half- life air - High (hours): | 1528 |
| Photooxidation half- life air - Low (hours): | 152.8 |
| First order hydrolysis half- life (hours): | >879 YRS |
| Base rate constant [MOH)- HR]- 1: | <0.9 |

0etox4# log Kow : 3.38-3.65
log Koc: 2.26-4.5
Koc: 280-320
log Kom: 2.26-2.54
Kom: 162-186
Half-life (hr) air: 152.8-1528
Half-life (hr) H2O surface water: 4.4-4320
Half-life (hr) H2O ground: 1344-8640
Henry's Pa $m^3$ /mol: 122-248
Henry's atm $m^3$ /mol: 0.0012
BOD 5 if unstated: nil
BCF: 66-560
Log BCF: 1.6-2.75
Refer to data for ingredients, which follows:

1,4-DICHLOROBENZENE:

| | |
|---|---|
| Hazardous Air Pollutant: | Yes |
| Fish LC50 (96hr.) (mg/l): | 33.7- 69 |
| log Kow (Prager 1995): | 3.37 |
| log Kow (Sangster 1997): | 3.45 |
| log Pow (Verschueren 1983): | 3.39 |
| Half- life Soil - High (hours): | 4320 |
| Half- life Soil - Low (hours): | 672 |
| Half- life Air - High (hours): | 2006 |
| Half- life Air - Low (hours): | 200.6 |

**continued...**

| | |
|---|---|
| Half- life Surface water - High (hours): | 4320 |
| Half- life Surface water - Low (hours): | 672 |
| Half- life Ground water - High (hours): | 8640 |
| Half- life Ground water - Low (hours): | 1344 |
| Aqueous biodegradation - Aerobic - High (hours): | 4320 |
| Aqueous biodegradation - Aerobic - Low (hours): | 672 |
| Aqueous biodegradation - Anaerobic - High (hours): | 17280 |
| Aqueous biodegradation - Anaerobic - Low (hours): | 2688 |
| Photolysis maximum light absorption - High (nano- m): | 280 |
| Photolysis maximum light absorption - Low (nano- m): | 223.5 |
| Photooxidation half- life air - High (hours): | 2006 |
| Photooxidation half- life air - Low (hours): | 200.6 |
| First order hydrolysis half- life (hours): | >879 YRS |
| Base rate constant [MOH)- HR]- 1: | <0.9 |

The material is classified as an ecotoxin* because it is NOT readily biodegradable and the Fish LC50 (96 hours) is less than or equal to 1 mg/l.

Substances are considered to be readily biodegradable if the following levels of degradation are achieved in 28 days:
· In tests based on dissolved organic carbon: 70%
· In tests based on oxygen depletion or carbon dioxide generation: 60% of the theoretical maxima
These levels of biodegradation must be achieved within 10 days of the start of biodegradation, which point is taken as the time when 10% of the substance has been degraded.

* Classification of Substances as Ecotoxic (Dangerous to the Environment)

Appendix 8,Table 1
Compiler's Guide for the Preparation of International Chemical Safety Cards: 1993
Commission of the European Communities.
Kow: 35
log Koc: 2.59-5
Koc: 36000-100000
log Kom: 2.2-2.53
Half-life (hr) air: 200.6-2006
Half-life (hr) H2O surface water: 0.25-4320
Half-life (hr) H2O ground: 1344-8760
Half-life (hr) soil: 672-4320
Henry's Pa $m^3$ /mol: 152-262.5
Henry's atm $m^3$ /mol: 0.0015
BOD 5 if unstated: 65%
BCF: 55-1800
Log BCF: 1.78-3.91
Toxicity Fish: LC50(96)5.02-12.7mg/L
Toxicity invertebrate: LC50(48)5.6-28.1mg/L
Bioacculmulation: little if any
Anaerobic effects: unlikely or slow
Effects on algae and plankton: EC50(96) 149-179mg/L
Degradation Biological: some aerobic
processes Abiotic: photol&hydrol not sig, little oxid

**continued...**

## Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION


Labels Required: TOXIC
HAZCHEM: 2Z

**UNDG:**

| | | | |
|---|---|---|---|
| Dangerous Goods Class: | 6.1 | Subrisk: | None |
| UN Number: | 1591 | Packing Group: | III |

Shipping Name:o-DICHLOROBENZENE

**Air Transport IATA:**

| | | | |
|---|---|---|---|
| ICAO/IATA Class: | 6.1 | ICAO/IATA Subrisk: | None |
| UN/ID Number: | 1591 | Packing Group: | III |
| ERG Code: | 6L | | |

Shipping name:o-DICHLOROBENZENE

**Maritime Transport IMDG:**

| | | | |
|---|---|---|---|
| IMDG Class: | 6.1 | IMDG Subrisk: | None |
| UN Number: | 1591 | Packing Group: | III |
| EMS Number: | F- A, S- A | | |

Shipping name:o-DICHLOROBENZENE

## Section 15 - REGULATORY INFORMATION

**REGULATIONS**

1,2-dichlorobenzene (CAS: 95-50-1) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
OECD Representative List of High Production Volume (HPV) Chemicals
WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water

**continued...**

## Section 16 - OTHER INFORMATION

**REPRODUCTIVE HEALTH GUIDELINES**

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for the reproductive no -observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

| Ingredient | ORG | UF | Endpoint | CR | Adeq TLV |
|---|---|---|---|---|---|
| 1, 4- dichlorobenzene | 60 mg/m3 | NA | NA | NA | Yes |

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time -weighted average unless specified otherwise.
CR = Cancer Risk/10000; UF = Uncertainty factor:
TLV believed to be adequate to protect reproductive health:
LOD: Limit of detection
Toxic endpoints have also been identified as:
D = Developmental; R = Reproductive; TC = Transplacental carcinogen
Jankovic J., Drake F.: A Screening Method for Occupational Reproductive American Industrial Hygiene Association Journal 57: 641-649 (1996).

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