

1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1
Page 1 of 8

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

1,3-DICHLOROBENZENE

OTHER NAMES

C6-H4-Cl2, Cl2C6H4, "benzene, 1, 3-dichloro-", meta-dichlorobenzene, m-dichlorobenzol, m-phenylenedichloride, "RCRA Waste Number U071", "benzene, m-dichloro-", meta-dichlorobenzene, meta-dichlorobenzol, "aromatic chlorohydrocarbon", m-dichlorobenzene

PROPER SHIPPING NAME

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains 1,3-dichlorobenzene)

PRODUCT USE

Used as a fumigant and insecticide.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V.Ind.Estate,

248, Worli Road,

Mumbai- 400030, India

www.sdfine.com

Telephone: 91- 22 24959898/99

Fax: 91- 22 2493 7232

Email: technical@sdfine.com

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity Category 4

Chronic Aquatic Hazard Category 2

Flammable Liquid Category 4



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria

H227

Combustible Liquid

H302

Harmful if swallowed.

H411

Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention

Code

P210

Phrase

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P264

Wash ... thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P273

Avoid release to the environment.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

Response

continued...

1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1

Page 2 of 8

Section 2 - HAZARDS IDENTIFICATION

Code P301+P312 P330 P391	Phrase IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Collect spillage.
Storage Code P403+P235	Phrase Store in a well- ventilated place. Keep cool.
Disposal Code P501	Phrase Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
1, 3- dichlorobenzene	541-73-1	>95

Section 4 - FIRST AID MEASURES

SWALLOWED

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.
- Urgent hospital treatment is likely to be needed.
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
- 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.
- Seek medical attention without delay; 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 contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

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

NOTES TO PHYSICIAN

- for poisons (where specific treatment regime is absent):

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
 - Watch for signs of respiratory insufficiency and assist ventilation as necessary.
 - Administer oxygen by non-rebreather mask at 10 to 15 L/min.
 - Monitor and treat, where necessary, for pulmonary oedema.
- Treat symptomatically.

Chlorobenzenes are readily adsorbed from the gastrointestinal tract; they are distributed into highly perfused tissues and accumulate in lipid tissues. Lipid accumulation is greatest for the more highly chlorinated chlorobenzene compounds.

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Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- 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 course.
- Use water delivered as a fine spray to control fire and cool adjacent area.

FIRE/EXPLOSION HAZARD

- Combustible.
 - Slight fire hazard when exposed to heat or flame.
 - Heating may cause expansion or decomposition leading to violent rupture of containers.
 - On combustion, may emit toxic fumes of carbon monoxide (CO).
- Combustion products include: carbon dioxide (CO₂), hydrogen chloride, phosgene, other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

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

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Environmental hazard - contain spillage.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS

- Environmental hazard - contain spillage.
- Moderate hazard.
- Clear area of personnel and move upwind.
 - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear breathing apparatus plus protective gloves.
 - Prevent, by any means available, spillage from entering drains or water course.
- Personal Protective Equipment advice is contained in Section 8 of the MSDS.**

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin.
- DO NOT use aluminium, galvanised or tin-plated containers.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

PACKAGING MATERIAL INCOMPATIBILITIES

Chemical Name	Container Type
	" ABS plastic" , " Acetal (Delrin)" , " Buna N (Nitrile)" , " Cast iron" , CPVC, EPDM, Hypalonr, " Natural rubber" , Neoprene, Nylon, Polycarbonate, Polyurethane, PVC, Silicone

SUITABLE CONTAINER

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

1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1

Page 4 of 8

Section 7 - HANDLING AND STORAGE

STORAGE INCOMPATIBILITY

- Haloaryl compounds, though normally not very reactive, may be sufficiently activated by other substituents or by a few specific reaction conditions, to undergo violent reactions.

BREThERICK L.: Handbook of Reactive Chemical Hazards.

- Avoid contact with aluminium and its alloys (including storage containers). Formation of aluminium chloride may catalyse further self-accelerating attack on the metal (Friedel-Crafts reaction) leading to violent explosion.
- Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

- Outside or detached storage is preferred.
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³
India Permissible Levels of Certain Chemical Substances in Work Environment	1, 3- dichlorobenzene (Chlorobenzene (Monochlorobenzene))	75	350

MATERIAL DATA

1,3-DICHLOROBENZENE:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.

PERSONAL PROTECTION



RESPIRATOR

- Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields.
- 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], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:.

- Neoprene rubber gloves.

OTHER

- Overalls.
- P.V.C. apron.

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1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1

Page 5 of 8

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- Barrier cream.
- Skin cleansing cream.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless to tinted liquid, pleasant aromatic odour. Practically insoluble in water. Miscible with alcohol and ether.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

State	Liquid	Molecular Weight	147.00
Melting Range (°C)	- 24	Viscosity	1.045 (23 C) cSt@40°C
Boiling Range (°C)	172- 173	Solubility in water (g/L)	Immiscible
Flash Point (°C)	63	pH (1% solution)	Not applicable.
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°C)	640	Vapour Pressure (kPa)	0.133 @ 12.1 C
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	1.288 @ 20 C
Lower Explosive Limit (%)	Not available.	Relative Vapour Density (air=1)	5.08
Volatile Component (%vol)	100 approx.	Evaporation Rate	Not available
Gas group	IIA		

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

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

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

Health hazard summary table:

Acute toxicity	Acute Tox. (oral) 4
Skin corrosion/irritation	Not applicable
Serious eye damage/irritation	Not applicable
Respiratory or skin sensitization	Not applicable
Germ cell mutagenicity	Not applicable
Carcinogenicity	Not applicable
Reproductive toxicity	Not applicable
STOT- single exposure	Not applicable
STOT- repeated exposure	Not applicable
Aspiration hazard	Not applicable

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.

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1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1

Page 6 of 8

Section 11 - TOXICOLOGICAL INFORMATION

■ Inhalation and oral exposure to dichlorobenzene causes increase in liver weight at low levels and severe liver degeneration, tremors, central nervous system depression and death at higher levels.
It is readily absorbed through the gut and airways.

EYE

■ Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
■ Undiluted 1,2-dichlorobenzene (DCB) applied to the eye may cause pain and slight eye irritation which may clear within 5 days without residual injury.
Vapours from heated 1,4-DCB may cause mild corneal damage.

SKIN

■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
■ There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.
■ 1,2-dichlorobenzene (DCB) can be irritating when applied to the skin.
Skin inflammation has been noted after a follow-up patch test.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
■ There is some evidence to suggest that the material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Intoxication, depression of the central nervous system and death can occur at high concentrations.
Individuals exposed to higher concentrations may show anaemia, weakness, dizziness, weight loss, vomiting, liver and kidney damage.

CHRONIC HEALTH EFFECTS

■ There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.
Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
Long term inhalation of dichlorobenzenes may cause cancerous changes to liver, kidney, thyroid gland and blood. Some evidence suggests a link between exposure and blood cancer (leukaemia). Workers exposed to the vapour experienced nose and eye irritation. The liver, nervous system and blood are systemic targets. Reduced lung function, liver disease and death may occur. Other effects include weakness, headache, inflammation of the nose, loss of appetite and weight, facial muscle twitching, unsteady gait, tremors and mental sluggishness. It also causes foetal toxicity and kidney damage.

TOXICITY AND IRRITATION

■ Chlorobenzenes produce several clinical symptoms including eye and airway irritation, blood disorders, abnormal skin changes and foetal defects at levels toxic to the mother. They are well absorbed in the stomach, gut and airways, and well metabolised and excreted in the urine. Lethal doses may produce breathing failure and damage to the liver, kidneys, adrenal glands, mucous membranes, and brain.
1,2-DCB is quickly and extensively absorbed through both the gastrointestinal tract and the respiratory tract. Dermal absorption is believed to be very low.
Following absorption, it is distributed throughout the body. Greatest levels have been found in the fat, kidney, and liver. It is metabolized by liver enzymes and extensively conjugated in the liver, and less readily in the kidney and lung. Elimination from the body is rapid and occurs primarily in the urine as metabolites.
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.

CARCINOGEN

1, 3-dichlorobenzene	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3	Not classifiable as to its carcinogenicity to humans
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SKIN

1, 3- dichlorobenzene	GESAMP/EHS Composite List - GESAMP Hazard Profiles	D1: skin irritation/corrosion	(2)
1, 3- dichlorobenzene	GESAMP/EHS Composite List - GESAMP Hazard Profiles	D1: skin irritation/corrosion	2

continued...

1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1
Page 7 of 8

Section 12 - ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
1, 3- dichlorobenzene	HIGH	HIGH	LOW	MED

GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / Cas No / RTECS No	EHS	TRN	A1a	A1b	A1	A2	B1	B2	C1	C2	C3	D1	D2	D3	E1	E2	E3
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/	333	232	3	—	4	NR	3	1	1	0	1	—	2	CMR	T	S	3
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CAS:541-73- 1 /

Legend:

EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships) NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation, B1=Acuteaquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg), C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion, D2=Eye irritation& corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference with coastal amenities,
For column A2: R=Readily biodegradable, NR=Not readily biodegradable.
For column D3: C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lung injury, N=Neurotoxic, I=Immunotoxic.
For column E1: NT=Not tainting (tested), T=Tainting test positive.
For column E2: Fp=Persistent floater, F=Floater, S=Sinking substances.
The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard.
(GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
 - Return to supplier for reuse/ recycling if possible.
- Otherwise:
- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
 - Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.
- A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction.
 - DO NOT allow wash water from cleaning or process equipment to enter drains.
 - It may be necessary to collect all wash water for treatment before disposal.
 - In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
 - Where in doubt contact the responsible authority.
 - Recycle wherever possible or consult manufacturer for recycling options.
 - Consult State Land Waste Authority for disposal.
 - Bury or incinerate residue at an approved site.
 - Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



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1,3-DICHLOROBENZENE

GHS Safety Data Sheet

Version No:4.1.1.1

Page 8 of 8

Section 14 - TRANSPORTATION INFORMATION

Labels Required: MISCELLANEOUS

HAZCHEM:

•3Z

Land Transport UNDG:

Class or division:	9	Subsidiary risk:	None
UN No.:	3082	UN packing group:	III
Shipping Name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 1,3-dichlorobenzene)			

Air Transport IATA:

ICAO/IATA Class:	9	ICAO/IATA Subrisk:	None
UN/ID Number:	3082	Packing Group:	III
Special provisions:	A97		

Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains 1,3-dichlorobenzene)

Maritime Transport IMDG:

IMDG Class:	9	IMDG Subrisk:	None
UN Number:	3082	Packing Group:	III
EMS Number:	F- A, S- F	Special provisions:	274 335
Limited Quantities:	5 L	Marine Pollutant:	Yes
Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains 1,3-dichlorobenzene)			

GESAMP hazard profiles for this material can be found in section 12 of the MSDS.

Section 15 - REGULATORY INFORMATION

REGULATIONS

1,3-dichlorobenzene (CAS: 541-73-1) is found on the following regulatory lists;

"FisherTransport Information", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits", "India Permissible Levels of Certain Chemical Substances in Work Environment", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Marine Pollutants", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information", "WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established"

Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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