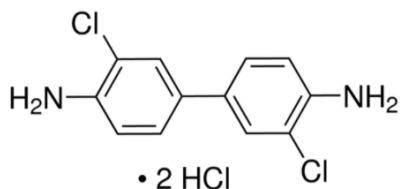


1. General Statement

3,3'-Dichlorobenzidine Dihydrochloride is an organic compound. 3,3'-Dichlorobenzidine Dihydrochloride white to gray white crystalline powder with a mild odor but commercial samples are often colored. It is barely soluble in water and is often supplied as a wet paste.

2. Chemical identity

Name : 3,3'-dichlorobenzidine, dihydrochloride
 CAS number(s) : 612-83-9
 EC number : 210-323-0
 Molecular formula : C₁₂H₁₀Cl₂N₂·2HCl
 Structure :



3. Uses and Benefits

3,3'-Dichlorobenzidine Dihydrochloride (and some of its derivatives) is used primarily as an intermediate in the manufacture of pigments for printing inks, textiles, paints, and plastics. It is also used in the analytical determination of gold and as a curing agent in the synthesis of polyurethane elastomers.

4. Physical / chemical properties

Property	Value
Physical state :	Solid
Colour :	White to light grey.
Odour :	Mild odour. Irritating/pungent odour.
pH :	3 – 5 (30 °C)
Melting point	132~137°C
Boiling point :	No data available
Flash point :	> 200 °C
Density :	No data available
Soluble in Water:	Water: < 0.1 g/100ml

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5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal)	Harmful in contact with skin.
Irritation / corrosion Skin / eye/ respiratory tract	Causes serious eye damage.pH: 3 – 5 (30 °C)
Respiratory or skin sensitisation	May cause an allergic skin reaction.
Toxicity after repeated exposure Oral / inhalation / dermal	NA
Genotoxicity / Mutagenicity	No
Carcinogenicity	May cause cancer.
Toxicity for reproduction	No.

6. Environmental Effects

Effect Assessment	Result
Aquatic toxicity	Yes.
Fate and behavior	Result
Persistence and degradability	Inherently biodegradable. Not readily biodegradable in water.
Bioaccumulative potential	Potential for bioaccumulation ($500 \leq BCF \leq 5000$).

7. Exposure

Human health

The substance May cause cancer , cause serious eye damage and also it may cause an allergic skin reaction.

The most likely route of human exposure (workers) is through skin. In industrial settings, ingestion is not an anticipated route of exposure.The probability of exposure to workers is expected to be low because this product is manufactured in an enclosed controlled environment and is transported in well sealed containers. Workers may be exposed during (un)loading, mixing, sampling, analysis or maintenance operations and particularly in case of batch processes.The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

Careless handling or accidental spillage of the chemical could result in exposure to potentially hazardous levels of chemicals.

Industrial workers should ensure that they follow the advice found in the extended safety data sheet (SDS).

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Environment

Substance is very toxic to aquatic life with long lasting effects. Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. Spillage shall be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

8. Risk Management Recommendations

Human health measures

Organizational	A basic standard of occupational hygiene is recommended. Ensure operatives are well informed of the hazards and trained to minimise exposures. Ensure regular inspection and maintenance of equipment and machines. Handle and store according to the indications of the Safety Data Sheet.	
Protection	Eye protection:	Safety glasses
	Skin and body protection:	Wear suitable protective clothing
	Respiratory protection:	Wear an appropriate mask. Self-contained breathing apparatus
Engineering controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure good ventilation of the work station.	
Environment protective measures		
Product must not be released into water without pre-treatment. Neutralize wastewater before release.		

9. First-aid measures

First-aid measures after inhalation : Move the affected person away from the contaminated area and into the fresh air. If you feel unwell, seek medical advice.

First-aid measures after skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Wash skin with plenty of water. Get medical advice/attention.

First-aid measures after eye contact : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

First-aid measures after ingestion : Rinse mouth out with water. Drink plenty of water. Get immediate medical advice/attention.

10. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Water spray.

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Unsuitable extinguishing media : Carbon dioxide (CO₂).

Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, hydrogen chloride, carbon monoxide - carbon dioxide).

Advice for firefighters

Precautionary measures fire : Evacuate area. Eliminate all ignition sources if safe to do so. Keep the container closed when not in use.

Firefighting instructions : Do not enter a fire area without proper protective equipment, including respiratory protection. Prevent fire fighting water from entering the environment. Fight fire from a safe distance and protected location.

11. Accidental release measures

Protective equipment : Wear recommended personal protective equipment. Use self-contained breathing apparatus and chemically protective clothing.

Environmental precautions: Prevent liquid from entering sewers, watercourses, underground or low areas.

For containment : Stop leak without risks if possible. Collect spillage.

12. Disposal consideration

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Do not discharge into drains or the environment. Dispose of at authorized waste collection point. Hazardous waste shall not be mixed together with other waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals.

13. Handling and storage

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Avoid contact with skin, eyes and clothing. Eliminate all ignition sources if safe to do so. Handle and open the container with care. Handle carefully. Wear personal protective equipment.

Hygiene measures : Always wash hands after handling the product. Remove contaminated clothes. Wear personal protective equipment.

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14. Classification and Labeling

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

Hazard statements (CLP)

Precautionary statements (CLP)

- : Danger
- : H312 - Harmful in contact with skin.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H350 - May cause cancer.
H410 - Very toxic to aquatic life with long lasting effects.
- : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

15. Conclusion

3,3'-Dichlorobenzidine Dihydrochloride white to gray white crystalline powder with a mild odor but commercial samples are often colored. 3,3'-Dichlorobenzidine is considered a carcinogen. This compound has been shown to increase the incidence of tumors in animals. Because it is structurally similar to benzidine, a known carcinogen, it is believed that it may share a similar mechanism in causing bladder cancer in humans. Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

16. Contact Information within company

Manufacturer

Aarti Industries Limited
Udyog Kshetra, 2nd Floor, Mulund Goregaon Link Road, Mulund (West)
400080 Mumbai - India
T +91-22-6797-6666 - F +91-22-2565 3234
info@aarti-industries.com - www.aarti-industries.com

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This GPS safety summary is intended to give general information about the health, safety and environment and not intended to provide in-depth details. To obtain the most accurate and current information, consult the appropriate Safety Data Sheet (SDS) prior to use of the material named herein.