1,4-BENZENEDIAMINE DIHYDROCHLORIDE

ICSC: 0386

Date of Peer Review: October 1999

1,4-Phenylenediamine dihydrochloride
1,4-Diaminobenzene dihydrochloride
4-Aminoaniline dihydrochloride
p-Phenylenediamine dihydrochloride

CAS #	**624-18-0**	**$C_6H_8N_2$. 2HCl / $C_6H_4(NH_2)_2$. 2HCl**
RTECS #	**ST0350000**	**Molecular mass: 181.1**
UN #	**1673**	
EC Annex 1 Index #	**612-029-00-1**	
EC/EINECS #	**210-834-9**	

TYPES OF HAZARD / EXPOSURE	ACUTE HAZARDS / SYMPTOMS	PREVENTION	FIRST AID / FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Water spray, foam, powder, carbon dioxide.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		**PREVENT DISPERSION OF DUST! STRICT HYGIENE!**	
Inhalation	Dizziness. Headache. Laboured breathing. Blue lips or finger nails. Blue skin. Confusion. Convulsions. Nausea. Unconsciousness.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
Eyes	Redness.	Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	(See Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention. Induce vomiting (ONLY IN CONSCIOUS PERSONS!).

SPILLAGE DISPOSAL

Sweep spilled substance into containers. Carefully collect remainder, then remove to safe place. Personal protection: chemical protection suit including self-contained breathing apparatus.

PACKAGING & LABELLING

Do not transport with food and feedstuffs.
EU Classification
Symbol: T, N
R: 23/24/25-36-43-50/53
S: (1/2-)28-36/37-45-60-61
UN Classification
UN Hazard Class: 6.1
UN Pack Group: III

EMERGENCY RESPONSE

Transport Emergency Card: TEC (R)-61GT2-III

STORAGE

Separated from food and feedstuffs.

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IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
WHITE TO SLIGHTLY REDDISH CRYSTALS.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
The substance decomposes on heating producing toxic and corrosive fumes(nitrogen oxides, hydrogen chloride).

OCCUPATIONAL EXPOSURE LIMITS:
TLV: (as 1,4-Benzenediamine) 0.1 mg/m³ as TWA; A4 (not classifiable as a human carcinogen); (ACGIH 2005).
MAK: (as p-phenylene diamine) 0.1 mg/m³ (Inhalable fraction). Peak limitation category: II(2); skin absorption (H); sensitization of skin (Sh); Carcinogen category: 3B. Pregnancy risk group: D (DFG 2005).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance irritates the eyes. The substance may cause effects on the blood and kidneys , resulting in formation of methaemoglobin and kidney impairment. Medical observation is indicated. The effects may be delayed.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation exposure may cause asthma.

PHYSICAL PROPERTIES

Melting point: 275°C
Solubility in water: very good
Relative vapour density (air = 1): 6.2

ENVIRONMENTAL DATA

NOTES

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Anyone who has shown symptoms of asthma due to this substance should never again come into contact with this substance. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Also consult ICSC # 0805: Phenylenediamine. Card has been partly updated in October 2005 and August 2006: see sections Emergency Response, Occupational Exposure Limits.

ADDITIONAL INFORMATION

LEGAL NOTICE Neither the CEC nor the IPCS nor any person acting on behalf of the CEC or the IPCS is responsible for the use which might be made of this information

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See Also:
Toxicological Abbreviations