

# 1,4-DIBROMOBUTANE

Version No:2.0  
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GHS SAFETY DATA SHEET

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

1,4-DIBROMOBUTANE

### OTHER NAMES

C4-H8-Br2, Br-(CH2)4-Br, "butane, 1, 4-dibromo-", "butane, 1, 4-dibromo-", DBB

### PROPER SHIPPING NAME

TOXIC LIQUID, ORGANIC, N.O.S.

### PRODUCT USE

Intermediate.

### SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

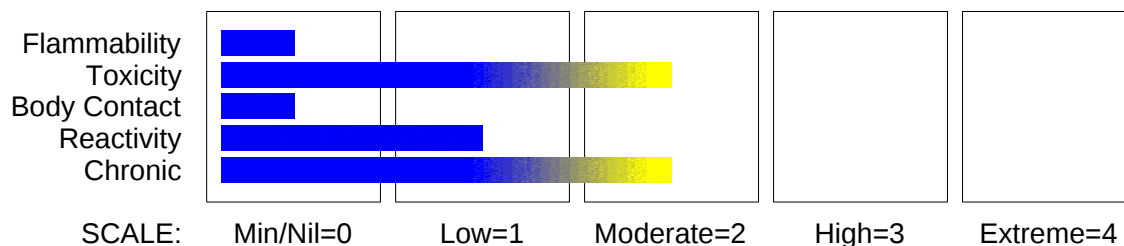
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

### HAZARD RATINGS



## Section 2 - HAZARDS IDENTIFICATION

### GHS Classification

Reproductive Toxicity Category 2

Respiratory Effects Category 3

continued...

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## EMERGENCY OVERVIEW

### HAZARD

#### WARNING

Determined by using GHS criteria:

H336 H361

May cause drowsiness and dizziness

Suspected of damaging fertility

### PRECAUTIONARY STATEMENTS

#### Prevention

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Obtain special instructions before use.

#### Response

If exposed or concerned: Get medical attention advice.

#### Storage

Store locked up.

#### Disposal

Dispose of contents and container in accordance with relevant legislation.

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## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| NAME                | CAS RN   | %   |
|---------------------|----------|-----|
| 1, 4- dibromobutane | 110-52-1 | >98 |

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## Section 4 - FIRST AID MEASURES

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### 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.

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- Seek medical advice.
- Avoid giving milk or oils.
- Avoid giving alcohol.

## EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

## SKIN

If skin or hair contact occurs:

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

## 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.
- Transport to hospital, or doctor.

## NOTES TO PHYSICIAN

Treat symptomatically.

DO NOT administer sympathomimetic drugs as they may cause ventricular arrhythmias.

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

### 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.
- Consider evacuation (or protect in place).
- Fight fire from a safe distance, with adequate cover.

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Cool fire exposed containers with water spray from a protected location.  
DO NOT approach containers suspected to be hot.  
If safe to do so, remove containers from path of fire.  
Equipment should be thoroughly decontaminated after use.

## **FIRE/EXPLOSION HAZARD**

- Non combustible.
- Not considered to be a significant fire risk.
- Expansion or decomposition on heating may lead to violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.

Decomposition may produce toxic fumes of: hydrogen bromide.

## **FIRE INCOMPATIBILITY**

Avoid contact with strong acids, strong alkalis and strong oxidisers.  
May react violently with aluminium and magnesium powdered metals and alkali metals e.g. sodium, potassium, lithium.  
Dissolves most plastics and synthetic fibres.

## **Personal Protective Equipment**

Breathing apparatus.  
Gas tight chemical resistant suit.  
Limit exposure duration to 1 BA set 30 mins.

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## **Section 6 - ACCIDENTAL RELEASE MEASURES**

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## **EMERGENCY PROCEDURES**

### **MINOR SPILLS**

Clean up all spills immediately.  
Avoid breathing vapours and contact with skin and eyes.  
Wear protective clothing, impervious gloves and safety glasses.  
Wipe up and absorb small quantities with vermiculite or other absorbent material.  
Place spilled material in clean, dry, sealable, labelled container.

### **MAJOR SPILLS**

- 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.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

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## SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ X + X 0 +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

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

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## Section 7 - HANDLING AND STORAGE

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### PROCEDURE FOR HANDLING

Use good occupational work practice. Observe manufacturer's storing and handling recommendations.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Avoid all personal contact, including inhalation.

Avoid generating and breathing mist.

Wear protective clothing when risk of exposure occurs.

Avoid smoking, naked lights or ignition sources.

Use in a well-ventilated area.

until atmosphere has been checked., Avoid contact with incompatible materials.

DO NOT spray directly on humans, exposed food or food utensils.

When handling, DO NOT eat, drink or smoke.

Keep containers securely sealed when not in use.

Avoid physical damage to containers.

Always wash hands with soap and water after handling. Work clothes should be laundered separately.

### SUITABLE CONTAINER

Packaging as recommended by manufacturer.

· Check that containers are clearly labelled.

Metal can.

Metal drum.

### STORAGE INCOMPATIBILITY

Segregate from strong oxidisers, strong alkalis, aluminium and magnesium powdered metals and alkali metals e.g. sodium, potassium, lithium.

Avoid strong bases.

Segregate from alcohol, water.

In the presence of moisture and at higher temperatures material breaks down generating hydrobromic acid, which may corrode and perforate containers.

Slowly decomposes in the presence of light.

Haloalkanes are highly reactive. Some of the more lightly substituted lower members are highly flammable. Reaction with the lighter divalent metals may produce more reactive compounds analogous to Grignard reagents. Prolonged contact with metallic or other azides may produce explosive compounds.

BREITHERICK L.: Handbook of Reactive Chemical Hazards.

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## STORAGE REQUIREMENTS

Store in a cool area and away from sunlight.  
Store in a well-ventilated area.  
Keep containers securely sealed.  
Check regularly for spills and leaks.  
Store away from incompatible materials.  
No smoking, naked lights, heat or ignition sources.  
Protect containers against physical damage.  
Keep storage area free of debris, waste and combustibles.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- 1, 4- dibromobutane:

CAS:110- 52- 1 CAS:625084- 39- 1

### MATERIAL DATA

No exposure limits set by NOHSC or ACGIH.

### PERSONAL PROTECTION



#### EYE

- Chemical goggles.
- Safety glasses with side shields.
- Full face shield.
- 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].

#### HANDS/FEET

- Barrier cream and Butyl rubber gloves or Neoprene gloves.

Safety footwear.  
DO NOT use this product to clean the skin.

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## OTHER

Overalls and Plastic apron.

- Impervious protective clothing.
- Eyewash unit.

Ensure there is ready access to a safety shower.

## RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

| Breathing Zone Level<br>ppm (volume) | Maximum Protection<br>Factor | Half- face Respirator | Full- Face Respirator |
|--------------------------------------|------------------------------|-----------------------|-----------------------|
| 1000                                 | 10                           | A- AUS                | -                     |
| 1000                                 | 50                           | -                     | A- AUS                |
| 5000                                 | 50                           | Airline *             | -                     |
| 5000                                 | 100                          | -                     | A- 2                  |
| 10000                                | 100                          | -                     | A- 3                  |
|                                      | 100+                         |                       | Airline**             |

\* - Continuous Flow

\*\* - Continuous-flow or positive pressure demand.

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.

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:  
solvent, vapours, degreasing etc., evaporating  
from tank (in still air)  
aerosols, fumes from pouring operations,  
intermittent container filling, low speed  
conveyer transfers, welding, spray drift,  
plating acid fumes, pickling (released at low  
velocity into zone of active generation)  
direct spray, spray painting in shallow booths,  
drum filling, conveyer loading, crusher dusts,  
gas discharge (active generation into zone of  
rapid air motion)  
grinding, abrasive blasting, tumbling, high  
speed wheel generated dusts (released at high  
initial velocity into zone of very high rapid  
air motion).

Air Speed:  
0.25- 0.5 m/s (50- 100 f/min)

0.5- 1 m/s (100- 200 f/min.)

1- 2.5 m/s (200- 500 f/min)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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### Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

### Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood - local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used. In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

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## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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### APPEARANCE

Colourless to light yellow liquid; does not mix with water.

### PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

Molecular Weight: 215.93

Melting Range (°C): - 20

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable

Volatile Component (%vol): Not available

Relative Vapour Density (air=1): Not available

Lower Explosive Limit (%): Not available

Autoignition Temp (°C): Not available

State: Liquid

Boiling Range (°C): 63- 65 (6 mm Hg)

Specific Gravity (water=1): 1.808

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not available

Evaporation Rate: Not available

Flash Point (°C): >110

Upper Explosive Limit (%): Not available

Decomposition Temp (°C): Not available

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## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

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### CONDITIONS CONTRIBUTING TO INSTABILITY

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

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## Section 11 - TOXICOLOGICAL INFORMATION

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### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual. Ingestion may result in nausea, abdominal irritation, pain and vomiting. Considered an unlikely route of entry in commercial/industrial environments.

##### EYE

Although the material 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).

##### SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Toxic effects may result from skin absorption.

##### INHALED

Inhalation may produce health damage\*.

The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation, of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

Inhalation hazard is increased at higher temperatures.

Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.e. cardiac arrhythmia. Exposures must be terminated.

Depression of the central nervous system is the most outstanding effect of most halogenated aliphatic hydrocarbons. Inebriation and excitation, passing into narcosis, is a typical reaction. In severe acute exposures there is always a danger of death from respiratory failure or cardiac arrest due to a tendency to make the heart more susceptible to catecholamines (adrenalin).

In the case of iodised and brominated compounds, exposure effects cannot be described by simple central nervous system depression produced by other halogenated aliphatic hydrocarbons. Headache, nausea, ataxia (loss of muscle co-ordination), tremors, speech difficulties, visual disturbances, convulsions, paralysis, delirium, mania and apathy are all evidence of additional effects.

#### CHRONIC HEALTH EFFECTS

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

The material may accumulate in the human body and progressively cause tissue damage. Some dibromocompounds (notably 1,2-dibromoethane and 1,2-dibromo-3-chloropropane) produce sterility in rats and in male workers; they may also be mutagenic following direct reaction with important cellular components.

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## Section 11 - TOXICOLOGICAL INFORMATION

### TOXICITY AND IRRITATION

#### TOXICITY

Intraperitoneal (mouse) LD50: 300 mg/kg

#### IRRITATION

Nil Reported

## Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant: Not Determined

No data for 1,4-dibromobutane.

## Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

Reclaim solvent at an approved site.

Evaporate or 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: 2X

### UNDG:

Dangerous Goods Class: 6.1

UN Number: 2810

Subrisk:

None

Packing Group:

III

Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.

### Air Transport IATA:

ICAO/IATA Class: 6.1

UN/ID Number: 2810

ICAO/IATA Subrisk:

None

Packing Group:

III

ERG Code: 6L

Shipping name: TOXIC LIQUID, ORGANIC, N.O.S.

### Maritime Transport IMDG:

IMDG Class: 6.1

UN Number: 2810

EMS Number: F- A, S- A

IMDG Subrisk:

None

Packing Group:

III

Marine Pollutant:

Not Determined

Shipping name: TOXIC LIQUID, ORGANIC, N.O.S.

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## Section 15 - REGULATORY INFORMATION

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### REGULATIONS

No regulations applicable

No data available for 1,4-dibromobutane as CAS: 110-52-1, CAS: 625084-39-1.

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## Section 16 - OTHER INFORMATION

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### Denmark Advisory list for selfclassification of dangerous substances

| Substance           | CAS        | Suggested codes |
|---------------------|------------|-----------------|
| 1, 4- dibromobutane | 110- 52- 1 | Xn; R22         |

### INGREDIENTS WITH MULTIPLE CAS NUMBERS

| Ingredient Name     | CAS                       |
|---------------------|---------------------------|
| 1, 4- dibromobutane | 110- 52- 1, 625084- 39- 1 |

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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