

1-CHLOROHEXANE

GHS SAFETY DATA SHEET

Version No:2.0

Page 1 of 11

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

1-CHLOROHEXANE

OTHER NAMES

C6-H13-Cl, CH₃(CH₂)₅Cl, "hexane, 1-chloro", chlorohexane, "hexyl chloride"

PROPER SHIPPING NAME

FLAMMABLE LIQUID, N.O.S.

PRODUCT USE

Solvent, laboratory reagent.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

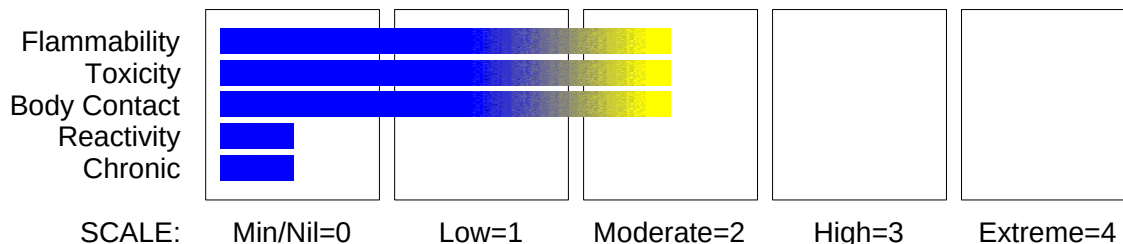
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Eye Irritation Category 2B

Flammable Liquid Category 3

continued...

1-CHLOROHEXANE

Respiratory Effects Category 3



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H336 H226 H320

May cause drowsiness and dizziness

Flammable liquid and vapour

Causes eye irritation

PRECAUTIONARY STATEMENTS

Prevention

Use only non-sparking tools.

Take precautionary measures against static discharge

Wash hands thoroughly after handling.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment

Keep away from heat/sparks/open flame - No smoking.

Keep container tightly closed.

Wear protective gloves and eye/face protection.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists, get medical advice/attention.

If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.

In case of fire, use foam for extinction.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
1- chlorohexane	544-10-5	>95

1-CHLOROHEXANE

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 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 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.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Treat symptomatically.

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

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.

1-CHLOROHEXANE

- 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.

- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

DO NOT approach containers suspected to be hot.

FIRE/EXPLOSION HAZARD

- Liquid and vapour are flammable.
- Moderate fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Moderate explosion hazard when exposed to heat or flame.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Other combustion products include: acid chlorides.

FIRE INCOMPATIBILITY

Avoid contamination with strong oxidising agents as ignition may result.

Personal Protective Equipment

Gloves, boots (chemical resistant).

Breathing apparatus.

Section 6 - ACCIDENTAL RELEASE MEASURES

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.

Remove all ignition sources.

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.

- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.

No smoking, naked lights or ignition sources.

absorb vapour.

Contain spill with sand, earth or vermiculite.

Use only spark-free shovels and explosion proof equipment.

continued...

1-CHLOROHEXANE

Collect recoverable product into labelled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect residues and place in flammable waste container.
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.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: 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.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid generating and breathing mist.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid generation of static electricity.
- DO NOT use plastic buckets.
- Earth all lines and equipment.
- Use spark-free tools when handling.
- Avoid contact with incompatible materials.
- 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.
- 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.

SUITABLE CONTAINER

- Packaging as recommended by manufacturer.
- Check that containers are clearly labelled.
- Store in metal drums or safety cans.
- Metal can.
- Plastic container may be used only if approved for use with flammable solvents.

1-CHLOROHEXANE

STORAGE INCOMPATIBILITY

Avoid storage with oxidisers.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.

Keep containers securely sealed.

No smoking, naked lights, heat or ignition sources.

Store in original containers in approved flammable liquid storage area.

Store in a cool, dry and well-ventilated area.

Store below 38 deg. C.

Store away from incompatible materials.

DO NOT store in pits, depressions, basements or areas where vapours may be trapped.

Protect containers against physical damage.

Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- 1- chlorohexane:

CAS:544- 10- 5

MATERIAL DATA

No exposure limits set by NOHSC or ACGIH.

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].

1-CHLOROHEXANE

HANDS/FEET

- Barrier cream with polyethylene gloves.

Wear chemical protective gloves, eg. PVC.
Wear safety footwear.
DO NOT use this product to clean the skin.

OTHER

Overalls.

- 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 ppm (volume)	Maximum Protection 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 or Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required. 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

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)

continued...

1-CHLOROHEXANE

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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).

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

Within each range the appropriate value depends on:

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.

Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless combustible liquid; floats on water. Chloroform-like odour.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Floats on water.

Molecular Weight: 120.62

Melting Range (°C): - 94

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable

Volatile Component (%vol): 100

Relative Vapour Density (air=1): >1

Lower Explosive Limit (%): Not available

Autoignition Temp (°C): Not available

State: Liquid

Boiling Range (°C): 133- 134

Specific Gravity (water=1): 0.879

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not available

Evaporation Rate: V.Slow @ 25 C

Flash Point (°C): 26.67

Upper Explosive Limit (%): Not available

Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

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

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

Considered an unlikely route of entry in commercial/industrial environments. Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

EYE

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to 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 liquid may produce eye discomfort and is capable of causing temporary impairment of vision and/or transient eye inflammation, ulceration.

The vapour when concentrated has pronounced eye irritation effects and this gives some warning of high vapour concentrations. If eye irritation occurs seek to reduce exposure with available control measures, or evacuate area.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

1-CHLOROHEXANE

INHALED

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.

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).

Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and by inhalation of vapours especially at higher temperatures.

No human exposure data available. For this reason health effects described are based on experience with chemically related materials.

As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

TOXICITY AND IRRITATION

No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant:Not Determined

No data for 1-chlorohexane.

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

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: FLAMMABLE LIQUID

continued...

1-CHLOROHEXANE

Page 11 of 11

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: 3[Y]

UNDG:

Dangerous Goods Class:	3	Subrisk:	None
UN Number:	1993	Packing Group:	III
Shipping Name: FLAMMABLE LIQUID, N.O.S.			

Air Transport IATA:

ICAO/IATA Class:	3	ICAO/IATA Subrisk:	None
UN/ID Number:	1993	Packing Group:	III
ERG Code:	3H		
Shipping name: FLAMMABLE LIQUID, N.O.S.			

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	None
UN Number:	1993	Packing Group:	III
EMS Number:	F- E, S- E	Marine Pollutant:	Not Determined
Shipping name: FLAMMABLE LIQUID, N.O.S.			

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable
No data available for 1-chlorohexane as CAS: 544-10-5.

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
1- chlorohexane	544- 10- 5	R43 N; R51/53

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.

Issue Date: 12-May-2018