BENZYL CHLORIDE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
BENZYL CHLORIDE

OTHER NAMES

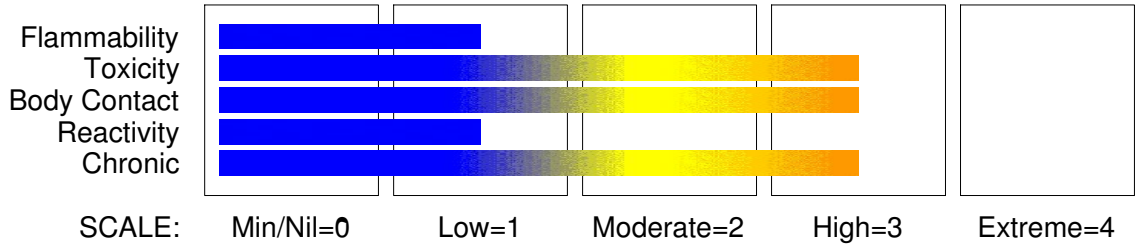
C7-H7-Cl, C6H5CH2Cl, "benzene, (chloromethyl)-", chloromethylbenzene, chlorophenylmethane, "chlorotoluene alpha", "chlorotoluene omega", "toluene alpha-chloro "benzyl chloride, , "benzyl chloride, GPR", "tolyl chloride", alpha -chlorotoluene

PROPER SHIPPING NAME
BENZYL CHLORIDE

PRODUCT USE
Used as a chemical intermediate in the manufacture of benzyl compounds. Used in the manufacture of quaternary ammonium chlorides, perfumes, dyes, pharmaceuticals, synthetic tannins, artificial resins, photographic developer, gasoline gum inhibitors and penicillin precursors.

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



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Inhalation) Category 2
Acute Toxicity (Oral) Category 4
Carcinogen Category 1B
Flammable Liquid Category 4
Organ Damage Category 2
Respiratory Irritation Category 3
Serious Eye Damage Category 1
Skin Corrosion/Irritation Category 2

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H335 H227 H330 H302 H315 H350 H373 H318
May cause respiratory irritation
Combustible Liquid
Fatal if inhaled
Harmful if swallowed
Causes skin irritation
May cause CANCER
May cause damage to organs through prolonged or repeated exposure if swallowed.
Causes serious eye damage

PRECAUTIONARY STATEMENTS

Prevention

Wash thoroughly after handling.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear respiratory protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well ventilated area.
Use explosion-proof electrical/ventilating/lighting/equipment
Keep away from flames and hot surfaces.
Use personal protective equipment as required.
Do not handle until all safety precautions have been read and understood.
Obtain special instructions before use.

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Response

If eye irritation persists, get medical advice/attention.
If exposed or concerned: Get medical attention advice.
Wear eye/face protection.
If skin irritation occurs, seek medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Keep container tightly closed.
Specific treatment: refer to Label or MSDS.
Get medical advice/attention if you feel unwell.
Absorb spillage to prevent material damage.
Remove/Take off immediately all contaminated clothing
IF ON SKIN: Gently wash with plenty of soap and water.
Immediately call a POISON CENTER or doctor/physician.
Wash/Decontaminate removed clothing before reuse.

Storage

Store away from other materials
Store locked up.
Store in a corrosive resistant container with a resistant inliner.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
benzyl chloride	100-44-7	> 98.5
stabiliser		Not spec.
hydrolyses slowly in water to form hydrogen chloride		

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.

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

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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, without delay.

NOTES TO PHYSICIAN

For acute or short term repeated exposures to strong acids:
· Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
· Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
· Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
· Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

INGESTION:
· Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
· DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury.
· Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
· Charcoal has no place in acid management.
· Some authors suggest the use of lavage within 1 hour of ingestion.
SKIN:
· Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
· Deep second-degree burns may benefit from topical silver sulfadiazine.
EYE:
· Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjuctival cul-de-sacs. Irrigation should last at least 20-30 minutes. DO NOT use neutralising agents or any other additives. Several litres of saline are required.
· Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated

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dependent on the severity of the injury.
· Steroid eye drops should only be administered with the approval of a consulting ophthalmologist).
[Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
Water spray or fog.
Foam.
Bromochlorodifluoromethane (BCF) (where regulations permit).
Dry chemical powder.
Carbon dioxide.

FIRE FIGHTING
Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water courses.
Use water delivered as a fine spray to control the fire and cool adjacent area.
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.
If safe to do so, switch off electrical equipment until vapour fire hazard is removed.

FIRE/EXPLOSION HAZARD
Combustible liquid.
Moderate fire hazard when exposed to heat, flame or oxidisers.
On combustion, emits toxic fumes of.
hydrogen chloride.
Other combustion products include:.
carbon monoxide (CO).
chlorine.
phosgene.
Contact with water can cause heating and decomposition.
Heating may cause expansion or decomposition leading to violent rupture of containers.

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

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

EMERGENCY PROCEDURES

MINOR SPILLS
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS
Alert Fire Brigade and tell them location and nature of hazard.
Clear area of personnel and move upwind.
· May be violently or explosively reactive.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water and water courses.
Stop leak if safe to do so.
Shut off all possible sources of ignition and increase ventilation.
Absorb or cover spill with sand, earth, inert material or vermiculite.
Recover liquid and place in labelled, sealable container for recycling.
Use soda ash or slaked lime to neutralise.
Collect residues and seal in labelled drums for disposal.
Wash spill area with large quantities of water.
If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
benzyl chloride 25 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
benzyl chloride 10 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:
benzyl chloride 1 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:
benzyl chloride 1 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		

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else >= 10%
where percentage is percentage of ingredient found in the mixture

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SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

X X + X X +

+: May be stored together
O: May be stored together with specific preventions
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

Use good occupational work practice.
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
When handling, DO NOT eat, drink or smoke.
Avoid inhalation.
Avoid contact with skin and eyes.
Avoid sources of heat.
Avoid smoking, naked lights or ignition sources.
Avoid contact with moisture.
Use in a well-ventilated area.
Decant in a well-ventilated area or under an exhaust hood.
Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.

SUITABLE CONTAINER

· Check that containers are clearly labelled.
Packaging as recommended by manufacturer.
Glass container.
Plastic carboy.
Plastic drum.
Steel drum with plastic liner.

STORAGE INCOMPATIBILITY

Contact with water can cause heating and decomposition.
Avoid storage with oxidisers.
Avoid contact with.
common metals and their alloys.
Polymerises with evolution of heat and hydrogen chloride when in contact with all metals except nickel and lead.
Polymerisation inhibited by triethylamine, propylene oxide and sodium carbonate.

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Section 7 - HANDLING AND STORAGE

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.
Store in original containers.
Store away from sources of heat or ignition / naked lights.
Store away from incompatible materials.
Store in a cool, dry place.
Outside or detached storage is preferred.
No smoking, naked lights, heat or ignition sources.
WARNING: Gradual decomposition in strong, sealed containers may lead to a large pressure build-up and subsequent explosion.
Keep containers securely sealed.
Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• benzyl chloride: CAS:100- 44- 7

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
benzyl chloride		10 [Unch]

ODOUR SAFETY FACTOR (OSF)

OSF=23 (BENZYL CHLORIDE)
Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.
Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.
The Odour Safety Factor (OSF) is defined as:
OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm
Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

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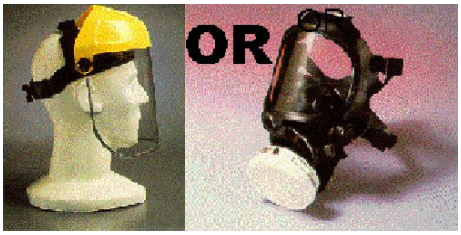
MATERIAL DATA

Odour Threshold Value: 0.041 ppm (detection)
Exposure at or below the TLV is thought to minimise the risk of lung injury and irritation of the eye, nose and throat. The NIOSH recommendation that a Ceiling be placed on the exposure level relates to a single report of slight conjunctivitis in workers exposed to 6-8 mg/m3 for 5 minutes. This study also reported severe neurologic symptoms and haematologic signs attributed to liver dysfunction in workers exposed at 2 ppm, (10 mg/m3). A weakness of this study is that sampling and analytical methods, number or percentage of workers affected, or possible exposures to other chemicals were not described.
In the majority of mutagenicity tests carried out to date, benzyl chloride has proved to be a direct mutagen. In animal studies after subcutaneous, epicutaneous and intragastric administration, it was carcinogenic to rats and mice; intestinal absorption resulted in both local and systemic tumours.

PERSONAL PROTECTION



EYE

· Close fitting gas tight goggles.
· Full face shield.
DO NOT wear contact lenses.
· 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

Rubber gloves.
Safety footwear.
Rubber boots.

OTHER

· Impervious protective clothing.
· Eyewash unit.
Ensure there is ready access to a safety shower.

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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

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. 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:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25- 0.5 m/s (50- 100 f/min.)
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)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
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	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents

continued...

2: Contaminants of low toxicity or of nuisance value only.
3: Intermittent, low production.
4: Large hood or large air mass in motion

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.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless to yellow, watery, flammable liquid with a pungent odour.
Vapour is a powerful tear gas. Insoluble in water. Soluble in alcohol, ether and chloroform. Very refractive.
Saturation vapour concentration 6.2 g/m3.

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.
Corrosive.
Toxic or noxious vapours/gas.
Contact with water liberates toxic gas.

Molecular Weight: 126.6
Melting Range (°C): - 48 to - 39
Solubility in water (g/L): Immiscible
pH (1% solution): Not applicable.
Volatile Component (%vol): 100 approx.
Relative Vapour Density (air=1): 4.36
Lower Explosive Limit (%): 1.1
Autoignition Temp (°C): 585
State: Liquid

Boiling Range (°C): 175 - 179
Specific Gravity (water=1): 1.1
pH (as supplied): Not applicable
Vapour Pressure (kPa): 0.12 @ 20 C
Evaporation Rate: <1 BuAc=1
Flash Point (°C): 67
Upper Explosive Limit (%): 14
Decomposition Temp (°C): Not available
Viscosity: Not available

log Kow : 2.3

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable under normal handling conditions.
Polymerisation may occur slowly at room temperature.
Contact with water liberates toxic gases.

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Section 11 - TOXICOLOGICAL INFORMATION

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.

EYE
When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN
Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.
Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
The vapour is highly discomforting.

INHALED
Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.

CHRONIC HEALTH EFFECTS
On the basis, primarily, of animal experiments, the material may be regarded as carcinogenic to humans. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in cancer on the basis of:
- appropriate long-term animal studies
- other relevant information.

Primary route of exposure is usually by inhalation.
Exposure by all routes may causes tremor of the eyelids and fingers and unsteadiness.
Can cause liver and blood disorders.
Chronic irritation of upper respiratory tract occurs after prolonged & repeated exposure to vapours. Comparatively low volatility & pungent odour limit the magnitude of inhalation exposures in the workplace [CHRIS].
Benzyl chloride has little tendency to bioaccumulate in mammals [NIOSHTIC].
Weekly, subcutaneous, high dose (80 mg/kg) administration of benzyl chloride for 51 weeks resulted in injection site sarcomas but no metastases, Benzyl chloride administered by gavage in corn oil at a dose

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of 50 to 100 mg/kg body weight (mice) and 15 to 30 mg/kg (rats), 3 times a week for 2 years, produced a statistically significant increase in the incidence of papillomas and carcinomas of the forestomach of mice and an increase of thyroid C-cell tumours in female rats.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Inhalation (rat) LC50: 150 ppm/2h	Nil Reported

Human cell mutagen
Reproductive effector in rats.
NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.
WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Section 12 - ECOLOGICAL INFORMATION

Hazardous Air Pollutant:	Yes
Fish LC50 (96hr.) (mg/l):	3.9- 6
log Pow (Verschueren 1983):	2.3
Half- life Soil - High (hours):	290
Half- life Soil - Low (hours):	15
Half- life Air - High (hours):	218
Half- life Air - Low (hours):	22
Half- life Surface water - High (hours):	290
Half- life Surface water - Low (hours):	15
Half- life Ground water - High (hours):	290
Half- life Ground water - Low (hours):	15
Aqueous biodegradation - Aerobic - High (hours):	672
Aqueous biodegradation - Aerobic - Low (hours):	168
Aqueous biodegradation - Anaerobic - High (hours):	2688
Aqueous biodegradation - Anaerobic - Low (hours):	672
Photooxidation half- life air - High (hours):	218
Photooxidation half- life air - Low (hours):	22
First order hydrolysis half- life (hours):	15
Acid rate constant [M(H+)- HR]- 1:	290

log Kow : 2.3
Koc: 123-482
Half-life (hr) H2O surface water: 14-470
Henry's Pa m^3 /mol: 3.40E-04
BCF: 16-33
Toxicity Fish: LC50(96)3.9-17mg/L
Toxicity invertebrate: cell mult. inhib.4.8-50mg/L
Bioacculmulation: not sig
Effects on algae and plankton: cell mult. inhib.30-50mg/L
Degradation Biological: sig
processes Abiotic: hydrol, slow Rxn OH*

continued...

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.
Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Incinerate residue at an approved site.
Use soda ash or slaked lime, mixed and sprayed with water, to neutralise.
Ensure damaged or non-returnable containers are decontaminated before disposal.
Decontaminate empty containers.
Recycle containers if possible, or dispose of in an authorised landfill.

WASTE DISPOSAL PROCEDURES
• Collect and package recoverable quantities of benzyl chloride into labelled containers for recycling or incineration. Dissolve benzyl chloride in a flammable solvent and burn in a furnace equipped with an afterburner and scrubber [Armour 1996]. Wear protective clothing and eye protection to control personal contact. Work in a well ventilated area and place 7.9g of 85% potassium
hydroxide pellets into a three necked flask. Add 31.5% ethanol and stir the contents. Heat the solution to gentle reflux and dropwise add (12.6g, 0.1mol) benzyl chloride. Heat under reflux for 2 hours. Cool and dilute the mixture with
water. Discard the reaction mixture into the drain [Armour 1996].

SPILLAGE DISPOSAL
• Cover and contain the spill with a 1:1:1 mixture by weight of sodium carbonate
or calcium carbonate, calcium carbonate and sand. Scoop the absorbed benzyl chloride into a container and package for incineration. Wash the area of the spill thoroughly with water and soap [Armour 1996].

Section 14 - TRANSPORTATION INFORMATION

Labels Required: TOXIC,CORROSIVE
HAZCHEM: 2W

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	8
UN Number:	1738	Packing Group:	II

Shipping Name:BENZYL CHLORIDE

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	8
UN/ID Number:	1738	Packing Group:	II

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Section 14 - TRANSPORTATION INFORMATION

ERG Code: 6C
Shipping name:BENZYL CHLORIDE

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	8
UN Number:	1738	Packing Group:	II
EMS Number:	F- A, S- B		

Shipping name:BENZYL CHLORIDE

Section 15 - REGULATORY INFORMATION

REGULATIONS

benzyl chloride (CAS: 100-44-7) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
OECD Representative List of High Production Volume (HPV) Chemicals
WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established

Section 16 - OTHER INFORMATION

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: 17-Jun-2015