



## Material Safety Data Sheet Benzenesulfonyl Chloride

### SECTION 1.1 – PRODUCT IDENTIFICATION

<b>Product Name</b>	:	Benzenesulfonyl Chloride
<b>Molecular Formula</b>	:	C <sub>6</sub> -H <sub>5</sub> -S-O <sub>2</sub> -Cl
<b>Molecular Weight</b>	:	176.62 g/mole
<b>CAS No.</b>	:	98-09-9

### SECTION: 1.2 – COMPANY IDENTIFICATION

**Company Name:** Indenta Chemicals (India) Pvt. Ltd.

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### SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS #	% by Weight
Benzenesulfonyl Chloride	98-09-9	100

**Toxicological Data on Ingredients:** Benzenesulfonyl Chloride: ORAL (LD50): Acute: 1960 mg/kg [Rat]. 828 mg/kg [Mouse].

### SECTION 3: HAZARD IDENTIFICATION

**Potential Acute Health Effects:** Hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant, corrosive), of ingestion, of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.

**Potential Chronic Health Effects:** CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

### SECTION 4: FIRST AID MEASURES

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## SECTION 5: FIRE AND EXPLOSION DATA

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**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 450°C (842°F)

**Flash Points:** CLOSED CUP: 110°C (230°F).

**Flammable Limits:** Not available.

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub>...), hydrogen chloride, and chlorine.

**Fire Hazards in Presence of Various Substances:** Slightly flammable to flammable in presence of open flames and sparks, of shocks, of heat.

**Explosion Hazards in Presence of Various Substances:** Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Dimethyl sulfoxide reacts violently or explosively with benzenesulfonyl chloride.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:** Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

## SECTION 7: HANDLING AND STORAGE

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**Precautions:** Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from direct sunlight or strong incandescent light. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Avoid shock and friction. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, alkalis, moisture.

**Storage:** Moisture Sensitive (reacts with water). Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F).

## SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

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**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:** Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

**Personal Protection in Case of a Large Spill:** Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** Not available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**Physical state and appearance:** Liquid. (Oily liquid.)

**Odor:** Pungent.

**Taste:** Not available.

**Molecular Weight:** 176.62 g/mole

**Color:** Clear Colorless.

**pH (1% soln/water):** Not applicable.

**Boiling Point:** 252°C (485.6°F)

**Melting Point:** 14.5°C (58.1°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.38 (Water = 1)

**Vapor Pressure:** 0.8 kPa (@ 20°C)

**Vapor Density:** 6.1 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Insoluble in cold water, hot water.

## SECTION 10: STABILITY AND REACTIVITY

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**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, high temperatures, mechanical shock, ignition sources, contact with water.

**Incompatibility with various substances:** Reactive with oxidizing agents, metals, alkalis, moisture. The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure.

**Corrosivity:** Not available.

**Special Remarks on Reactivity:** Corrosive and water-reactive. Incompatible with ammonia, aliphatic amines, dimethylsulfoxide, methyl formamide, water or moisture. Decomposes in hot water to produce corrosive and toxic hydrochloric acid, benzenesulfonic acid Rate of reaction decreases as temperature decreases. Corrosive to metals in presence of water due to formation of hydrochloric acid and benzenesulfonic acid.

Special Remarks on Corrosivity: Corrosive to metals in presence of water due to formation of hydrochloric acid and benzenesulfonic acid.

**Polymerization:** Will not occur.

## SECTION 11: TOXICOLOGICAL INFORMATION

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**Routes of Entry:** Absorbed through skin. Eye contact.

**Toxicity to Animals:** Acute oral toxicity (LD50): 828 mg/kg [Mouse].

**Chronic Effects on Humans:** Not available.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (corrosive, irritant), of eye contact (corrosive), of ingestion, of inhalation (lung corrosive).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Hazards: Skin: Causes skin irritation and burns. Eye: Causes eye irritation and burns. Ingestion: Causes gastrointestinal tract irritation and burns. May cause perforation of the digestive tract. May be harmful if swallowed. May affect behavior (somnolence - general depressed activity), and respiration (respiratory depression). Inhalation: Causes irritation and chemical burns to the respiratory tract. May cause pulmonary edema and severe respiratory disturbances dyspnea)

## SECTION 12: ECOLOGICAL INFORMATION

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**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## SECTION 13: DISPOSAL CONSIDERATION

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**Waste Disposal:**

## SECTION 14: TRANSPORT INFORMATION

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**DOT Classification:** Class 8: Corrosive material

**Identification:** Benzenesulfonyl Chloride UNNA: 2225 PG: III

**Special Provisions for Transport:** Not available.

## SECTION 15: OTHER REGULATORY INFORMATION

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**Federal and State Regulations:** New York release reporting list: Benzenesulfonyl Chloride Pennsylvania RTK: Benzenesulfonyl Chloride Massachusetts RTK: Benzenesulfonyl Chloride New Jersey: Benzenesulfonyl Chloride TSCA 8(b) inventory: Benzenesulfonyl Chloride TSCA 8(d) H and S data reporting: Benzenesulfonyl Chloride: Effective date: 3/7/86; Sunset date: 12/19/95 CERCLA: Hazardous substances: Benzenesulfonyl Chloride: 100 lbs. (45.36 kg)

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):**

CLASS E: Corrosive liquid. CLASS F: Dangerously reactive material.

**DSCL (EEC):** R22- Harmful if swallowed. R34- Causes burns. S26- In case of contact with eyes, rinse immediately with

plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of [\*\*\*] S36/39- Wear suitable protective clothing and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 1

**Personal Protection:**

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 1

**Reactivity:** 2

**Specific hazard:**

**Protective Equipment:** Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

**SECTION 16: ADDITIONAL INFORMATION**

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