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MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : Benzoyl chloride
Cat No.: AC105750000; AC105750010; AC105750025; AC105750100
CAS No. : 98-88-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended uses : Laboratory chemicals
Uses advised against: Food, drug, pesticide or biocidal product use.

1.3 Details of the supplier of the safety data sheet

Company : Krishna Solvechem Ltd.
B/503, Shayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.
Telephone : +91-22-6123 0222
Email : exports@kscl.co.in

1.4 Emergency telephone number

Emergency Phone : +91-8657457330

SECTION 2: Hazards identification

2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/Irritation	(Category 1)
Serious Eye Damage/Eye Irritation	(Category 1)
Flammable liquids	(Category 4)
Acute oral toxicity	(Category 4)
Acute dermal toxicity	(Category 3)
Acute Inhalation toxicity – Dusts and Mists	(Category 3)
Skin Sensitization	(Category 1)
Specific target organ toxicity (single exposure)	(Category 3)
Target organs – Respiratory system	

2.2 Label elements

Pictogram :



Signal word Danger



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Hazard statement (s)

Combustible liquid
Harmful if swallowed
Toxic in contact with skin
Causes severe skin burns
and damage.
May cause an allergic skin
Reaction
May cause respiratory
irritation

Precautionary statement (s) Prevention

Wash face, hands and any exposed skin thoroughly after
handling.
Wear protective gloves/protective clothing/eye
protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray
Do not eat, drink, or smoke when using this product
Use only outdoors or in a well-ventilated area
Contaminated work clothing should not be allowed
out of the workplace
Keep away from heat/sparks/open flames/hot
surfaces – No smoking
Keep cool.

Response:

Immediately call a POISON CENTER or
doctor/physician

IF ON SKIN (or hair):

If skin irritation or rash occurs : Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated
clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

Eyes:

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

Ingestion:

IF SWALLOWED: Rinse mouth. Do not induce vomiting

Inhalation:

IF INHALED: Remove victim to fresh air and keep at rest in a
position comfortable for breathing.

Fire:

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage:

Store locked up. Store in a well-ventilated



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Hazards not otherwise classified (HNOC)	place. Keep container tightly closed.
	Disposal: Dispose of contents/container to an approved waste disposal plant
	Contact with water liberates toxic gas

SECTION 3: Composition / information on ingredients

3.1

Component	CAS-No	Weight %
Benzoyl chloride	98-88-4	>95

SECTION 4: First aid measures

4.1 Description of first aid measures

General Advice :	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required
If inhalation :	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
In case of skin contact :	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
In case of eye contact :	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Ingestion :	Do NOT induce vomiting. Call a physician immediately.
4.2 Most important symptoms and effects :	Causes burns by all exposure routes. May cause allergic skin reaction. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
4.3 Notes to Physician :	Treat symptomatically



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SECTION 5: Firefighting effects

5.1 Extinguishing media				
Suitable extinguishing media		CO ₂ , dry chemical, soda ash or lime. Water mist may be used to cool closed containers.		
Unsuitable Extinguishing Media:		Do not use water or foam		
5.2 Flash Point :		93 °C / 199.4 °F		
Method :		No information available		
Autoignition Temperature:		600 °C / 1112 °F		
Explosion Limits:				
Upper		4.9 vol %		
Lower		1.2 vol %		
Sensitivity to Mechanical Impact		No information available		
Sensitivity to Static Discharge		No information available		
Specific Hazards Arising from the Chemical :		Combustible material. Corrosive material. Water reactive. Contact with water liberates toxic gas. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.		
Hazardous Combustion Products :		Carbon monoxide (CO). Carbon dioxide (CO ₂). Phosgene. Hydrogen chloride gas. Thermal decomposition can lead to release of irritating gases and vapors		
5.4 Protective Equipment and Precautions for Firefighters:		As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.		
NFPA:		Health	Flammability	Instability
		Physical hazards		
		3	2	2
				W

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures				
Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Ensure adequate ventilation. Remove all sources of ignition. Do not get in eyes, on skin, or on clothing.				
6.2 Environmental precautions				
Should not be released into the environment. See section 12 for additional Ecological Information.				



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6.3 Methods and materials for containment and cleaning up

Wear self-contained breathing apparatus and protective suit. Remove all sources of ignition. Do not expose spill to water. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Do not allow contact with water.

7.2 Conditions for safe storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat, sparks and flame. Keep away from water or moist air. Store under an inert atmosphere. Incompatible Materials. Water. Strong oxidizing agents. Strong bases. Alcohols. Amines. Metals.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzoyl chloride	Ceiling: 0.5 ppm			

Legend

ACGIH – American Conference of Governmental Industrial Hygienists

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use only under a chemical fume hood.

8.2 Exposure controls

Personal protective equipment -

Eye / Face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice..



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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid, colorless
b) Odour	Pungent
c) Odour Threshold	No information available
d) pH	2-1 g/L (20°C)
e) Melting point / freezing point	-1 °C / 30.2 °F
f) Initial boiling point and boiling range	198 °C / 388.4 °F
g) Flash point	93 °C / 199.4 °F
h) Evaporation rate	No information available
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	upper: 4.9 vol % lower: 1.2 vol %
k) Vapour pressure	0.5 hPa @ 20 °C
l) Vapour density	4.88
m) Specific Gravity	1.210
n) Solubility	reacts with water
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	600 °C / 1112 °F
q) Decomposition temperature	No information available
r) Viscosity	0.0012 Pa.s at 30 °C
s) Molecular formula	C ₇ H ₅ Cl O
t) Molecular Weight	140.57



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SECTION 10: Stability and Reactivity

10.1 Reactive Hazard :	Yes
10.2 Chemical stability :	Moisture sensitive. Water reactive. Air sensitive.
10.3 Possibility of hazardous reactions :	Contact with water liberates toxic gas.
10.4 Conditions to avoid :	Excess heat. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to moist air or water.
10.5 Incompatible materials:	Water, strong bases, alcohols, amines, strong oxidizing agents, metals.
10.6 Hazardous decomposition products :	Carbon monoxide (CO), Carbon dioxide (CO ₂), Phosgene, Hydrogen chloride gas, thermal decomposition can lead to release of irritating gases and vapors.
10.7 Hazardous Polymerization	Hazardous polymerization does not occur.

SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Product Information:

Toxicologically Synergistic

No information available

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzoyl chloride	LD50 = 1900 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	LC50 = 1.45 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation :

Causes burns by all exposure routes

Sensitization:

May cause sensitization by skin contact

Carcinogenicity :

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Benzoyl Chloride	98-88-4	Group 2A	Not listed	Not listed	X	Not listed

Mutagenic Effects:

No information available

Reproductive Effects:

No information available.

Developmental Effects :

No information available.



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Teratogenicity:	No information available.
STOT - single exposure :	Respiratory system
STOT - repeated exposure:	None known
Aspiration hazard :	No information available.
Symptoms / effects, both acute and delayed:	Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Endocrine Disruptor Information :	No information available
Other Adverse Effects :	The toxicological properties have not been fully investigated.

SECTION 12: Ecological information

12.1

Ecotoxicity: Do not allow material to contaminate ground water system. Discharge to water will affect PH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzoyl chloride	Not listed	LC50: 28.5 - 45.3 mg/L, 96h static (Pimephales promelas)	EC50 = 10.4 mg/L 5 min EC50 = 11.7 mg/L 15 min EC50 = 12.2 mg/L 30 min	Not listed

12.2 Persistence and degradability: Decomposes in contact with water

Bioaccumulation/ Accumulation No information available

12.3 Mobility: No information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

14.1 UN number :

DOT: UN1736

TDG: UN1736

IATA: UN1736

IMDG: UN1736



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14.2 UN proper shipping name										
DOT :	BENZOYL CHLORIDE									
TDG :	BENZOYL CHLORIDE									
IATA :	Benzoyl chloride									
IMDG :	Benzoyl chloride									
14.3 Transport hazard class(es)	DOT: 8	TDG: 8	IMDG: 6.1	IATA: 6.1						
14.4 Packaging group:	DOT: II	TDG: II	IMDG: II	IATA: II						
SECTION 15: Regulatory information										
15.1 United states of America Inventory:										
Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags						
Benzoyl chloride	98-88-4	X	ACTIVE	-						
Legend:										
TSCA - Toxic Substances Control Act, (40 CFR Part 710)										
X - Listed										
'-' - Not Listed										
TSCA 12(b) - Notices of Export		Not applicable								
International Inventories:										
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).										
Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Benzoyl chloride	98-88-4	X	-	202-710-8	X	X	X	X	X	KE-02765
KECL – NIER number or KE number										
U.S. Federal Regulations										
SARA 313										
Component	CAS No	Weight %			SARA 313 – Threshold values %					
Benzoyl chloride	98-88-4	>95			1.0					
SARA 311/312 Hazard Categories					See section 2 for more information					
CWA (Clean Water Act)										
Component	CWA - Hazardous Substances	CWA - Reportable Quantities		CWA - Toxic Pollutants		CWA - Priority Pollutants				
Benzoyl chloride	X	1000 lb		-		-				



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Clean Air Act

Not applicable

OSHA - Occupational Safety and Health Administration

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous substances RQs	CERCLA EHS RQs
Benzoyl chloride	1000 lb	-

California Proposition 65

This product does not contain any Proposition 65 chemicals.

15.2 U.S. State Right-to-Know Regulations:

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzoyl chloride	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland Security - This product does not contain the any DHS Chemicals.

Other International Regulations

Mexico – Grade

Slight risk grade 1

Authorization/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzoyl chloride	-	Use restricted. See item 75. (see link for restriction details)	-

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Benzoyl chloride	98-88-4	Listed	Not applicable	Not applicable	Not applicable
Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Benzoyl chloride	98-88-4	Not applicable	Not applicable	Not applicable	Not applicable



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SECTION 16: Other information

16.1 Prepared By:	Regulatory affairs Krishna Solvechem Ltd
Email:	exports@kscl.co.in
Creation Date:	23-Sep-2008
Revision Date:	24-Dec-2021
Print Date:	24-Dec-2021
Revision Summary:	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 C FR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

16.2 Disclaimer:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.