MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : **Chloroacetyl chloride**

Cat No.: **AC147290000; AC147290010; AC147290025; AC147290050;AC147291000; AC147292500**

CAS No. : 79-04-9

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 Limited.
B/503, Sahayog, 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)

Acute dermal and inhalation toxicity	(Category 3)
Skin Corrosion/Irritation	(Category 1A)
Serious Eye Damage/Eye Irritation	(Category 1)
Specific target organ toxicity (single exposure)	(Category 3)
Target Organs - Respiratory system.	
Specific target organ toxicity (repeated exposure)	(Category 1)
Target Organs - Central nervous system, Gastrointestinal tract (GI)	

2.2 Label elements

Pictogram :

Signal word Danger

Hazard statement (s) Causes damage to organs through prolonged or repeated exposure

Causes severe skin burns
and eye damage
May be corrosive to metals
May cause respiratory irritation
Toxic if swallowed, in contact with skin or if inhaled

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
Use only outdoors or in a well-ventilated area
Do not eat, drink or smoke when using this product

Inhalation :
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell

IF ON SKIN (or hair):
If skin irritation 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 If eye irritation persists: Get medical advice/attention

Ingestion:
Rinse mouth. Do NOT induce vomiting

Spills:
Absorb spillage to prevent material damage

Storage:
Store locked up Store in a well-ventilated place.
Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place

		Disposal: Dispose of contents/container to an approved waste disposal plant
	Hazards not otherwise classified (HNOC)	Very toxic to aquatic life. Reacts violently with water. Contact with water liberates toxic gas.

SECTION 3: Composition / information on ingredients

3.1

Component	CAS-No	Weight %
Chloroacetyl chloride	79-04-9	>95

SECTION 4: First aid measures

4.1	**Description of first aid measures**	
	General Advice:	If symptoms persist, call a physician.
	If inhalation :	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 otherproper respiratory medical device. Remove to fresh air. Immediate medical attention is required. If not breathing, give artificial respiration.
	In case of skin contact :	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
	In case of eye contact :	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
	Ingestion :	Do NOT induce vomiting. Call a physician or poison control center immediately.
4.2	**Most important symptoms and effects :**	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
4.3	**Notes to Physician :**	Treat symptomatically

SECTION 5: Firefighting effects

5.1	**Extinguishing media**	
	Suitable extinguishing media :	Dry sand, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.
	Unsuitable Extinguishing Media: :	No information available
5.2	**Flash Point :** **Method :**	No information available No information available

Autoignition Temperature:	No information available
Explosion Limits:	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Specific Hazards Arising from the Chemical :	Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Contact with water liberates toxic gas. Reacts violently with water. Do not allow run-off from fire-fighting to enter drains or water courses.
Hazardous Combustion Products :	Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen chloride gas. Phosgene.

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.

	Health	Flammability	Instability	Physical hazards
NFPA:	4	0	0	W

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment as required. Ensure adequate ventilation.

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Do not expose spill to water.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do notingest. If swallowed then seek immediate medical assistance. Do not allow contact withwater.

7.2 Conditions for safe storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from water or moist air. Do not store in metal containers. Incompatible Materials. Alcohols. Bases. Amines. Metals. Water.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Chloroacetyl chloride	TWA: 0.05 ppm STEL: 0.15 ppm Skin	(Vacated) TWA: 0.05 ppm(Vacated) TWA: 0.2 mg/m^3	IDLH: 1.3 ppm TWA: 0.05 ppm TWA: 0.2 mg/m^3	TWA: 0.05 ppm STEL: 0.15 ppm

Engineering Measures

Ensure that eyewash stationsand safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

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 StandardEN 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..

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Clear Liquid
b) Odour	Pungent
c) Odour Threshold	No information available
d) pH	No information available
e) Melting point / freezing point	-22 °C / -7.6 °F
f) Initial boiling point and	105 °C / 221 °F @ 760 mmHg

boiling range	
g) Flash point	No information available
h) Evaporation rate	No information available
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	No data available No data available
k) Vapour pressure	No information available
l) Vapour density	No information available
m) Specific Gravity	1.420
n) Solubility	Reacts violently with water
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	No information available
q) Decomposition temperature	No information available
r) Viscosity	No information available
s) Molecular formula	C2 H2 Cl2 O
t) Molecular Weight	112.94

SECTION 10: Stability and Reactivity

10.1	**Reactive Hazard :**	Yes
10.2	**Chemical stability :**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions :**	Reacts violently with water. Contact with acids liberates toxic gas. Corrosive to metals.
10.4	**Conditions to avoid :**	Excess heat. Exposure to moist air or water. Exposure to moisture. Incompatible products.
10.5	**Incompatible materials:**	Alcohols, Bases, Amines, Metals, Water
10.6	**Hazardous decomposition products :**	Carbon monoxide (CO), Carbon dioxide (CO2), Hydrogen chloride gas. Phosgene.
10.7	**Hazardous Polymerization**	Hazardous polymerization does not occur

SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Product Information:

Oral LD50 ATE = 50 – 300 mg/kg

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chloroacetyl chloride	LD50 = 200 mg/kg (Rat)	LD50 = 662 mg/kg (Rat) LD50 = 316 - 501 mg/kg (Rabbit)	LC50 = 3.05 mg/L (Rat) 1 hLC50 = 660 ppm (Rat) 1 h LC50 = 4.69 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

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

Irritation : CAUSES SEVERE EYE BURNS. Causes skin burns

Sensitization: No information available

Carcinogenicity : The table below indicates whether each agency ha Any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Chloroacetyl chloride	79-04-9	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects: No information available.

Reproductive Effects: No information available.

Developmental Effects : No information available.

Teratogenicity: No information available.

STOT - single exposure : Respiratory system

STOT - repeated exposure: Central nervous system (CNS) Gastrointestinal tract

Aspiration hazard : No information available.

Symptoms / effects,both acute and delayed: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causessevere swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information : No information available

Other Adverse Effects : The toxicological properties have not been fully investigated.

SECTION 12: Ecological information

12.1

Ecotoxicity:

Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Chloroacetyl chloride	Not listed	42 mg/ 96h	Not listed	35 mg/L 48h

12.2	**Persistence and degradability:**	Persistence is unlikely
	Bioaccumulation/ Accumulation	No information available
12.3	**Mobility:**	Is not likely mobile in the environment. Log pow : -0.22

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 : UN1752 TDG : UN1752

IATA : UN1752 IMDG : UN1752

14.2	**UN proper shipping name**				
	DOT :	CHLOROACETYL CHLORIDE			
	TDG :	CHLOROACETYL CHLORIDE			
	IMDG :	CHLOROACETYL CHLORIDE			
	IATA :	CHLOROACETYL CHLORIDE FORBIDDEN FOR IATA TRANSPORT			
14.3	**Transport hazard class(es)**	DOT: 6.1	TDG: 6.1	IMDG: 6.1	IATA: 6.1
14.4	**Packaging group:**	DOT: I	TDG: I	IMDG: I	IATA: I

SECTION 15: Regulatory information

15.1 United states of America Inventory:

Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags
Chloroacetyl chloride	79-04-9	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), Japan(ISHL), Australia(AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Chloroacetyl chloride	79-04-9	X	-	201-171-6	X	X	X	X	X	KE-05500

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

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
Chloroacetyl chloride	X	X	X	-	X

U.S. Department of Transportation
Reportable Quantity (RQ): N

DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security - This product contains the following DHS Chemicals.
Legend – STQs = Screening threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Chloroacetyl chloride	APA

Other International Regulations

Mexico – Grade No information available

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)
Chloroacetyl chloride	79-04-9	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantitiesfor Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantitiesfor Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Chloroacetyl chloride	79-04-9	Not applicable	Not applicable	Not applicable	Not applicable

SECTION 16: Other information

16.1 Prepared By: Regulatory affairs
Krishna Solvechem Limited
Email: exports@kscl.co.in
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Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under29 C F R 1910.1200 to align with the Globally Harmonized System ofClassification 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.