

Material Safety Data Sheet

PIVALOYL CHLORIDE

Section 1 - Product and Company Information

Substance	: Trimethylacetyl Chloride, 2,2-Dimethyl propanoyl chloride
Trade Name	: Pivaloyl Chloride
Chemical family	: Carboxylic Acid Chloride
Company	: Shiva Pharmachem Ltd. Plot No. 588, Village Luna – 391440 Taluka Padra, District: Vadodara, Gujarat, India.
Phone No.	: +91 2662-221021 / 224360
Fax No.	: +91 2662 223314

Section 2 – Hazards Identification

2.1 Classification of the substances or mixture

Classification according to regulations (EC) no 1272 / 2008 (EU GHS/CLP)

Flammable liquid (Category 2), Skin Corrosion, (Category 1B),
Acute toxicity, inhalation, (category 2), Acute toxicity, oral, (category 4)

Classification according to EU directives 67/548/EEC or 1999/45/EC

Highly Flammable. Reacts violently with water. Harmful if swallowed. Causes burn. Very toxic by inhalation

2.2 Labeling elements

Labeling according to EC 1272 / 2008 (CLP)

Pictogram



Single word Hazard Elements

Danger

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burn and eye damage
H330	Fatal if inhaled

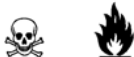
Precautionary statements

P210	Keep away from heat/spark/open flame/hot surface - No smoking.
P260	Do not breath dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves/protective clothing/eye and face protection
P284	Wear respiratory protection
P305 + P351 + P338	IF IN EYES: Rinse cautiously for several minutes.
P310	Immediately call physician

According to EU directives 67/548/EEC as amended

Material Safety Data Sheet

Hazard symbol(s)



R PHRASE (s)

R11	Highly flammable.
R14	Reacts violently with water.
R22	Harmful if swallowed.
R26	Very toxic by inhalation.
R35	Causes severe burn.

S PHRASE (s)

S16	Keep away from source of ignition – No smoking
S26	In case of contact with eyes rinse immediately with plenty of water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S45	In case of accident or you feel unwell, seek medical advice. (Show the label where possible)

2.3 Other hazard

Lachrymator.

Section 3 – Composition / Information on Ingredients

Product Name	CAS No.	EC NO.	Mol. Formula	Mol. Weight.
Pivaloyl Chloride	3282-30-2	221-921-6	C ₅ H ₉ ClO	120.58 g/mol

Section 4 – First Aid Measures

4.1 Description of first aid measure

General advice

Consult to physician. Show this safety data to the doctor.

Inhalation

If inhaled, move person into fresh air, If Not breathing give artificial respiration. Consult physician.

Skin Contact

In Case of skin contact, flush with copious amounts of water for at least 15 minute.

Remove contaminated clothing and shoes. Call a Physician.

Eye Contact

In Case of contact with eyes, flush with copious amounts of water for at least 15 minutes.

Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Ingestion

If swallowed, do not induce vomiting, wash out mouth with water provided person is conscious. Call a physician immediately.

4.2 Most important symptoms and effect, both acute and delayed.

Material is extremely destructive to tissues of mucous membrane and upper respiratory tract, eyes and skin. Cough, shortness of breath, headache, nausea.

Section 5 – Fire Fighting Measures

FLASH POINT

19 °C

Material Safety Data Sheet

AUTOIGNITION	455 °C
Lower Explosion Limit	1.95 % (v)
Upper Explosion Limit	7.4 % (v)
FLAMMABILITY	Highly flammable

CONDITIONS OF FLAMMABILITY

Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.
Unsuitable: Do not use water.

SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Vapor may travel considerable distance to source of ignition and flash back. Emits toxic fumes under fire conditions.
Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6 – Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is Complete.

Section 7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not allow to get in eyes, on skin, and on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

Incompatible Materials: Do not allow contact with water

Section 8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use no sparking tools. Use only in a chemical fume hood.

Material Safety Data Sheet

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling. Discard contaminated shoes.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Face shield (8-inch minimum).

Section 9 - Physical and Chemical Properties

Appearance Color	: Colorless
Form	: Clear liquid
Odor	: Pungent
pH	: Acidic
BP/BP Range	: 105.0 - 108.0 °C
MP/MP Range	: - 56.0 °C
Flash Point	: 19 °C Method: closed cup
Flammability	: Highly flammable
Auto ignition Temp	: 455 °C
Explosion Limits Lower	: 1.9 % (v)
Upper	: 7.4 % (v)
Vapor Pressure	: 40 mbar at 20 °C
Density	: 0.98 g/cm ³ at 20 °C
Partition Coefficient	: n-Octanol / water (log Pow) 1.45
Dynamic Viscosity	: 0.86 Pas at 20 °C
Vapor Density	: > 1 g/l
Volatility	: 100%
Solvent Content	: Nil
Water Content	: Reacts violently with water hence not applicable.
Solubility	: Miscible with toluene, methylene chloride, ethylene chloride etc.

Section 10 - Stability and Reactivity

STABILITY:

Stable under normal conditions of temperatures and pressure

Conditions to Avoid:

Do not allow water to enter container because of violent reaction.

Material Safety Data Sheet

Materials to Avoid:

Alcohols, Oxidizing agents, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, Carbon dioxide, Hydrogen chloride gas

HAZARDOUS POLYMERIZATION:

Will not occur

Section 11 - Toxicological Information

ACUTE TOXICITY

Oral	: LD50	Rat	638 mg/kg
Inhalation	: LC50	Rat	>1.43 - < 1.64 mg/l 4 hrs
Dermal	: LD50	Rabbit	>2010 mg/kg

IRRITATION / CORROSION

Eyes

Rabbit

Remarks: Risk of serious damage to eyes

Skin

Rabbit

Remarks: Corrosive

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE**Skin Contact:**

Causes burns.

Skin Absorption:

May be harmful if absorbed through the skin.

Eye Contact:

Causes burns.

Lachrymator.

Inhalation:

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be fatal if inhaled.

Material Safety Data Sheet

Ingestion:

Harmful if swallowed.

Section 12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type	: LC50 Fish
Species	: Onchorhynchus mykiss (Rainbow trout)
Time	: 96 h
Value	: > 300 mg/l
Test Type	: EC50 Daphnia
Species	: Daphnia magna
Time	: 24 h
Value	: 320 mg/l
Test Type	: EC50 Algae
Species	: Scenedesmus subspicatus
Time	: 96 h
Value	: 75 mg/l

Section 13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT Regulations

UN No.	: 2438
Hazard Class	: 6.1
Packing Group	: I
Poison Inhalation Hazard	: Yes
Sub Risk	: 3, 8
Proper Shipping Name	: Trimethylacetyl chloride
Label	: 6.1, 3, 8

RID/ADR

UN No.	: 2438
Hazard Class	: 6.1
PG	: I
Subrisk	: 3, 8
Proper Shipping Name	: Trimethylacetyl chloride

IMDG

UN No.	: 2438
Hazard Class	: 6.1
PG	: I

Material Safety Data Sheet

Subrisk : 3, 8
Proper Shipping Name : TRIMETHYL ACETYL CHLORIDE
Marine Pollutant : No
Severe Marine Pollutant : No

IATA

UN No. : 2438
Hazard Class : 6.1
PG : I
Subrisk : 3, 8
Proper Shipping Name : Trimethylacetyl chloride
Inhalation Packing Group I : Yes

Section 15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER : F-T+

Highly Flammable.

Very toxic.

R-PHRASES: 11-14-22-26-35

Highly flammable. Reacts violently with water. Harmful if swallowed. Causes burns. Very toxic by inhalation.

S-PHRASES: 16-26-36/37/39-45

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (Show the label where possible)

Section 16 – Additional Information

NFPA Hazard Code

HEALTH: 3 FIRES: 3 REACTIVITY: 2 SPECIAL:

HMIS III rating

Health: 3 Flammability: 3 Physical Hazard: 2

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Shiva Pharmachem Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incident, consequential or exemplary damages, howsoever arising, even if Shiva Pharmachem Ltd has been advised of the possibility of such damages.