Dangerous Situations

The non-compliance with transport regulations can put both human and the environment at risk. Infringements can lead to convictions and/or fines as well as to loss of business.

- The probability of an incident occurring during transport is normally greater than during handling by the manufacturer or end-user.
- Due to forces exerted on a shipment during transport, the risk involving chemicals and dangerous goods is particularly high.
- Human error, technical faults and often, climatic conditions, can lead to situations in which the various physical and mechanical forces and energies at work adversely affect the means of transport, the packaging and their contents. Such considerations must be taken into account when assessing the risk of potentially dangerous situations.

Abbreviations & Definitions.

<table>
<thead>
<tr>
<th>Chemicals</th>
<th>Includes all raw materials, intermediate products, active ingredient, finished products, preparations and products for disposal (waste)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous Goods</td>
<td>Includes all materials whose shipment is subject to the national / international regulations and which therefore can only be shipped under certain conditions and/or are forbidden for shipment by certain means/modes of transport</td>
</tr>
<tr>
<td>BULK</td>
<td>Refers to transport of Rail tanker, ISO-Tank containers, Road tankers and Parcel tankers</td>
</tr>
<tr>
<td>IBC</td>
<td>Intermediate Bulk Containers (&gt;450 liters up to 3000 liters)</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operation Procedure</td>
</tr>
<tr>
<td>TREM Cards</td>
<td>Transport Emergency Cards</td>
</tr>
<tr>
<td>DGSA</td>
<td>Dangerous Goods Safety Advisor</td>
</tr>
<tr>
<td>IMC</td>
<td>In-Market Company</td>
</tr>
</tbody>
</table>
## Hazard Class of Chemicals

<table>
<thead>
<tr>
<th>UN CLASS NO.</th>
<th>CLASSIFICATION OF GOODS</th>
<th>LABEL CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explosives</td>
<td>Black/Orange color</td>
</tr>
<tr>
<td>2.1</td>
<td>Flammable Gasses</td>
<td>Black/White/Red color</td>
</tr>
<tr>
<td>2.2</td>
<td>Non-Flammable Gasses</td>
<td>Black/White/Green color</td>
</tr>
<tr>
<td>2.3</td>
<td>Toxic Gases (Poison)</td>
<td>Black/White color</td>
</tr>
<tr>
<td>3</td>
<td>Flammable Liquids</td>
<td>Black/White/Red color</td>
</tr>
<tr>
<td>4.1</td>
<td>Flammable Solids</td>
<td>Black/White with vertical white strip</td>
</tr>
<tr>
<td>4.2</td>
<td>Substance Liable to Spontaneous Combustion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN CLASS NO.</th>
<th>CLASSIFICATION OF GOODS</th>
<th>LABEL CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3</td>
<td>Substance, in contact with Water emits flammable gases</td>
<td>Black/White/Blue</td>
</tr>
<tr>
<td>5.1</td>
<td>Oxidizing Substance</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Organic Peroxides</td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Poisonous Substance (Toxic)</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Infectious Substance</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Radioactive Substance</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Corrosives</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Miscellaneous Dangerous goods</td>
<td></td>
</tr>
<tr>
<td>Hazchem Scale</td>
<td>Harchiem</td>
<td>Issue No 1</td>
</tr>
<tr>
<td>---------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>FOR FIRE ON SPILLAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>JETS</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FOG</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>FOAM</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>DRY AGENT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>FULL</th>
<th>DILUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ST</th>
<th>BA for FIRE only</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>BA</td>
</tr>
<tr>
<td></td>
<td>BA for FIRE only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TT</th>
<th>BA for FIRE only</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>BA</td>
</tr>
<tr>
<td></td>
<td>BA for FIRE only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>W</th>
<th>FULL</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>FULL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y</th>
<th>DIALUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>BA</td>
</tr>
<tr>
<td></td>
<td>BA for FIRE only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Z</th>
<th>BA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>BA for FIRE only</td>
</tr>
</tbody>
</table>

| E  | CONSIDER EVACUATION |

---

**Notes for Guidance**

**FOG**
In the absence of fog equipment a fine spray may be used.

**DRY AGENT**
Water must not be allowed to come into contact with the substance at risk.

**V**
Can be violently or even explosively reactive

**FULL**
Full body protective clothing with BA.

**BA**
Breathing apparatus plus protective gloves

**DILUTE**
May be washed to drain with large quantities of water

**CONTAIN**
Prevent by any means available, spillage from entering drains or water course.
6.1 Chemicals Information.

- Always treat chemicals with respect
- Refer MSDS or TREM card while handling chemicals.
- Consult DGSA/Expert in case of doubt

6.2 List of Hazardous Chemicals

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Chemical Name</th>
<th>Hazard Class</th>
<th>Type of Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>1,2,3-Trichloropropane (TCP)</td>
<td>6.1</td>
<td>ISO Tank</td>
</tr>
<tr>
<td>8.</td>
<td>1,2-Dichlorobenzene (ODCB)</td>
<td>6.1</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>9.</td>
<td>Dimethyl Formamide (DMF)</td>
<td>3, 6.1</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>10.</td>
<td>Chlorine Liquid</td>
<td>2.3, 8</td>
<td>Cylinders</td>
</tr>
<tr>
<td>11.</td>
<td>Bromine</td>
<td>8, 6.1</td>
<td>ISO Tank</td>
</tr>
<tr>
<td>12.</td>
<td>Monochlorobenzene (MCB)</td>
<td>3</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>13.</td>
<td>2-Prooxy-Ethylchloride (PEC)</td>
<td>6.1, 3</td>
<td>Drums</td>
</tr>
<tr>
<td>14.</td>
<td>Toluene</td>
<td>3</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>15.</td>
<td>Chloro Acetyl Chloride (CAC)</td>
<td>6</td>
<td>Drums</td>
</tr>
<tr>
<td>16.</td>
<td>Propyl Bromide (PRBR)</td>
<td>3</td>
<td>Drums</td>
</tr>
<tr>
<td>17.</td>
<td>Trimethylamine (TMA)</td>
<td>2</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>18.</td>
<td>Sulfuric Acid</td>
<td>8</td>
<td>Jerry Cans</td>
</tr>
<tr>
<td>19.</td>
<td>Ortho Chlorophenol (OCP)</td>
<td>6</td>
<td>ISO Tank</td>
</tr>
<tr>
<td>20.</td>
<td>Propanol</td>
<td>3</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>21.</td>
<td>Methanol</td>
<td>3.2</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>22.</td>
<td>Diethyl Thiophosphoryl Chloride (DETC)</td>
<td>8</td>
<td>Drums</td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Chemical Name</td>
<td>Hazard Class</td>
<td>Type of Container</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>23.</td>
<td>Zinc Sulphate</td>
<td>9</td>
<td>Bags</td>
</tr>
<tr>
<td>24.</td>
<td>Acetic Acid Anhydrous</td>
<td>8</td>
<td>Jerry Cans</td>
</tr>
<tr>
<td>25.</td>
<td>Solvent C-9</td>
<td>3</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>26.</td>
<td>Proxel BD</td>
<td>8</td>
<td>Jerry Can</td>
</tr>
<tr>
<td>27.</td>
<td>Chlorantraniliprole (CTPR)</td>
<td>9</td>
<td>Drums</td>
</tr>
<tr>
<td>28.</td>
<td>Sodium Ligno Sulphonate</td>
<td>6.1</td>
<td>Bags</td>
</tr>
<tr>
<td>29.</td>
<td>Clodinafop-propargyl</td>
<td>9</td>
<td>Drums</td>
</tr>
<tr>
<td>30.</td>
<td>Pinoxaden Tech.</td>
<td>6.1</td>
<td>Bags</td>
</tr>
<tr>
<td>31.</td>
<td>Cloquintocet-mexyl</td>
<td>9</td>
<td>Drums</td>
</tr>
<tr>
<td>32.</td>
<td>Nansa</td>
<td>3</td>
<td>Drums</td>
</tr>
<tr>
<td>33.</td>
<td>Pirimiphos-methyl</td>
<td>3.3</td>
<td>Drums</td>
</tr>
<tr>
<td>34.</td>
<td>Furnace Oil</td>
<td>3</td>
<td>Tank Truck</td>
</tr>
<tr>
<td>35.</td>
<td>Light Diesel</td>
<td>3</td>
<td>Tank Truck</td>
</tr>
</tbody>
</table>

*Above list is not exhaustive.*
Chlorine

**Protective Device**
- Safety goggles/face shield.
- PVC butyl gloves & Full body suit.
- BA set.

**Spillage**
- Stop the flow & cordon off the area.
- Stay up-wind.
- Shut off the leak if without risk, for this turn the toner with leaking point on top.
- Contain the liquid with sand & earth.
- Chlorine can be absorbed in Caustic, Lime or Soda ash solutions.

**Fire**
- For small fires use dry chemical powder.
- For large fire use water spray/fog.
- Don't apply water jets on pool of chlorine.
- Cool the chlorine cylinder with water spay from sides.
- Poisonous gases are formed in fire.

**First Aid**
- Move the patient to fresh air.
- Remove contaminated clothing.
- Apply artificial respiration / Oxygen if not breathing.
- Seek medical attention.
- In case of contact with skin or eyes wash with plenty of water.

**Physical Properties**
- Greenish yellow gas with pungent odor.
- Toxic & Irritant.
- Non-combustible, Oxidizing agent; may assist combustion.

**Nature of Hazard**
- Highly corrosive
- Causes severe burns in contact with skin
- Irritating to eyes & respiratory system
- Sparingly soluble in water.
- Very toxic to aquatic organisms.

**In Emergency Dial**
- Police
- Fire
- Ambulance
- Manufacturer

**Correct Technical Name**
- CHLORINE
- UN NO : 1017
- HAZCHEM : 2XE

**Special Advice**
- Avoid inhaling vapours
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.
Bromine

**CORRECT TECHNICAL NAME**

<table>
<thead>
<tr>
<th>BROMINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN NO. 1744</td>
</tr>
<tr>
<td>HAZCHEM 2XE</td>
</tr>
</tbody>
</table>

**IN EMERGENCY DIAL**

- Police
- Fire
- Ambulance
- Manufacturer

**SPECIAL ADVICE**

- Avoid inhaling vapours
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PHYSICAL PROPERTIES**

- Dark red fuming, pungent odor liquid.
- Non-combustible in itself however will react with combustible materials and may cause them to ignite.
- If exposed to a fire, the vapor pressure increases rapidly and might lead to the rupture of the receptacle.
- High Density Liquid & forms a layer under water.

**NATURE OF HAZARD**

- Very toxic by inhalation
- Liquid bromine rapidly attacks the skin and other tissues, producing irritation and burns which heal very slowly.
- Even comparatively low concentrations of vapour are highly irritating and painful to the respiratory tract.
- Very toxic to aquatic organisms.

**PROTECTIVE DEVICE**

- Self-contained breathing apparatus.
- Hand protection PVC or neoprene gloves.
- Eye protection Chemical safety goggles or face shield with safety glasses.
- For skin and body protection, protective impervious clothing, hard hat and neoprene or rubber boots.

**SPILLAGE**

- Consult an expert.
- For vapour leakage, release gaseous anhydrous ammonia from a safe distance.
- In case of liquid spills, anhydrous ammonia should not be applied directly to liquid spills.
- For all kind of spills in general, lime slurry is the most commonly used neutralizing agent due to its availability.
- Large spills: Dike area to prevent spill from spreading. Cover the bromine spillage with large amount of water before neutralizing.
- Bromine can be neutralized also by sodium carbonate solution (30%) and sodium hydroxide solution (5%).

**FIRE**

- Bromine is not combustible.
- Use extinguishing media appropriate to surrounding fire conditions.

**FIRST AID**

- Move the patient to fresh air.
- Remove contaminated clothing.
- Apply artificial respiration / Oxygen if not breathing.
- Seek medical attention.
- In case of contact with skin or eyes wash with plenty of water.
## 1, 2, 3 Trichloro Propane (TCP)

### Correct Technical Name
**1, 2, 3 TRICHLORO PROPANE (TCP)**

<table>
<thead>
<tr>
<th>UN NO</th>
<th>HAZCHEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2810</td>
<td>3YE</td>
</tr>
</tbody>
</table>

### In Emergency Dial
- Police
- Fire
- Ambulance

### Protective Device
- Self-contained breathing apparatus is a must.
- Neoprene gloves for hand protection
- Safety goggles or face shield for face protection
- For skin and body protection, body suit & neoprene or rubber boots

### Spillage
- Eliminate all sources of heat & ignition.
- Use self contained breathing apparatus & chemical resistant clothing.
- Dike & absorb the spill with inert materials (Dry sand or Earth).

### Physical Properties
- Clear, colorless, odorless & flammable liquid.
- During a fire, irritating & highly toxic gas is generated by thermal decomposition.
- Vapor are heavier than air & may travel along the surface to a distant source of ignition & flash back.

### Nature of Hazard
- Very toxic by inhalation, affects central nervous system, may cause headache, disorientation, itching.
- This product is reported to be mutagenic.
- Very toxic to aquatic organisms.

### Fire
- Use carbon dioxide, dry chemical or polymer foam as extinguishing media.

### First Aid
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
- Treat by observation & supportive measures as indicated by patient's condition.
Dimethyl Carbonate (DMC)

**CORRECT TECHNICAL NAME**

**DIMETHYL CARBONATE (DMC)**

**UN NO**: 1161

**HAZCHEM**: 3YE

**IN EMERGENCY DIAL**

Police
Fire
Ambulance

**SPECIAL ADVICE**

- Avoid inhaling vapours
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PHYSICAL PROPERTIES**

- Clear, colorless, flammable liquid with pleasant odor.
- Flash Point: 18 deg C.

**NATURE OF HAZARD**

- Flammable liquid
- Keep away from heat, spark, and flame.
- Keep container closed.
- Use with adequate ventilation.

**PROTECTIVE DEVICE**

- Self-contained breathing apparatus.

**SPILLAGE**

- Eliminate all sources of heat & ignition.
- Use self-contained breathing apparatus & chemical resistant clothing.
- Dike & absorb the spill with inert materials (Dry sand or Earth). Flush residual spill with copious amounts of water.

**FIRE**

- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.

**FIRST AID**

- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
**2- Propoxy Ethyl Chloride (PEC)**

<table>
<thead>
<tr>
<th>CORRECT TECHNICAL NAME</th>
<th>SPECIAL ADVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 PROPOXY ETHYL CHLORIDE (PEC)</td>
<td>Avoid inhaling vapours</td>
</tr>
<tr>
<td>UN NO : 2929</td>
<td>If in contact with skin or eyes wash thoroughly with copious water.</td>
</tr>
<tr>
<td>HAZCHEM : 3YE</td>
<td>Obtain medical attention.</td>
</tr>
<tr>
<td>IN EMERGENCY DIAL</td>
<td>Inform Police, Fire Brigade, &amp; Manufacturer.</td>
</tr>
</tbody>
</table>

**PHYSICAL PROPERTIES**
- Colorless to yellowish clear flammable liquid with ether like narcotizing odor.
- Corrosive & react violently with water.

**NATURE OF HAZARD**
- Toxic Flammable liquid
- Harmful if inhaled & irritant to skin.
- Keep away from heat, spark, and flame.

**PROTECTIVE DEVICE**
- Self-contained breathing apparatus.
- Rubber gloves for hand protection.

- Safety goggles or face shield for face protection
- Working suite for body protection & rubber boots.

**SPILLAGE**
- Eliminate all sources of heat & ignition.
- Dam up leaked liquid & pump it into a suitable container for disposal.
- The rest, contain with solid absorbent & collect for disposal.
- Avoid entry of spill in drain or soil.

**FIRE**
- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.
- DO NOT use water jets.

**FIRST AID**
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
N, N-Dimethyl Formamide (DMF)

**PROTECTIVE DEVICE**
- In low concentration use mask with filter cartridge (type A).
- In high concentration: wear self-contained breathing apparatus.
- Use protective gloves (butyl, neoprene)
- PVC full body suit & rubber boots.

**SPILLAGE**
- Eliminate all sources of heat & ignition.
- Contain leaking liquid with absorbing materials used for organic liquids.
- Contain the leak with sand or earth.
- Prevent contamination of soil, drains and surface water.

**FIRE**
- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.

**FIRST AID**
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.

**PHYSICAL PROPERTIES**
- Colorless Liquid with faint amine odor.
- Miscible with water & soluble in most organic solvents.

**NATURE OF HAZARD**
- Combustible liquid.
- Can cause harm to an unborn child.
- Irritation to eyes.
- Harmful by inhalation.
- Harmful in contact with skin & can be absorbed through skin.
- Can cause alcohol intolerance.
- The vapour is heavier than air and spreads along the ground.
Trimethyl Amine (TMA)

CORRECT TECHNICAL NAME
TRIMETHYL AMINE (TMA)

UN NO : 1083
HAZCHEM : 2PE

IN EMERGENCY DIAL
Police
Fire
Ambulance

SPECIAL ADVICE
- Avoid inhaling vapours
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

PHYSICAL PROPERTIES
- Colorless, highly flammable gas with fishy to ammonical odor.
- Flash Point (-7)°C & soluble in water.

NATURE OF HAZARD
- Flammable gas
- Readily forms explosive mixtures with air.
- Affects mucus membrane of respiratory track.
- Keep away from heat, spark, and flame.

PROTECTIVE DEVICE
- Self-contained breathing apparatus.

- PVC rubber gloves for hand protection
- Safety goggles or face shield for face protection
- PVC full body suit & rubber boots.

SPILLAGE
- Eliminate all sources of heat & ignition.
- Try to stop leak if without leak.
- Dilute the leak with water.
- Contain the leak with sand or earth.

FIRE
- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.

FIRST AID
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
**Methanol**

**CORRECT TECHNICAL NAME**

**METHANOL**

**UN NO** 1230

**HAZCHEM** 2PE

**IN EMERGENCY Dial**

Police

Fire

Ambulance

**SPECIAL ADVICE**

- Avoid inhaling vapours
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PHYSICAL PROPERTIES**

- Colorless, watery liquid with alcoholic odor.
- Flammable liquid.

**NATURE OF HAZARD**

- A human poison by ingestion & by skin contact.
- Toxic effect is extended to the nervous system, particularly optic nerves & retina which may lead to permanent blindness.
- Persons with eye, liver, kidney & lung problems should avoid contact.

**PROTECTIVE DEVICE**

- Air-supplied respirator or BA set.
- Do not use organic canister mask.
- Wear boots, safety goggles, protective apron and rubber gloves.
- Keep eye wash bottle handy.

**SPILLAGE**

- Shut off leaks if without risks.
- Drench with water.
- Contain leak using sand/earth.

**FIRE**

- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.
- Keep the containers cool by spraying water if exposed to heat or flame.
- Unusual Hazards Containers may explode in fire.

**First aid**

- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
- Suggested antidotes, Baking soda in glass of water.
O, O-Diethyl Thiophosphoryl Chloride (DETC)

PROTECTIVE DEVICE

- Self-contained breathing apparatus.
- PVC/Neoprene rubber gloves for hand protection
- Safety goggles or face shield for face protection
- PVC full body suit & rubber boots.

SPILLAGE

- Small liquid spills, soak up by means of an inert absorptive material such as hydrated lime, sawdust
- Large liquid spills should be contained or diked and then absorbed with an inert absorptive material such as hydrated lime, sawdust.

FIRE

- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.
- Keep the containers cool by spraying water if exposed to heat or flame.
- Keep upwind.
- Dike to prevent water runoff.

FIRST AID

- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
- Suggested antidotes, Baking soda in glass of water.

PHYSICAL PROPERTIES

- Colorless to light yellow liquid with pungent perceptible odor.
- Slightly soluble in water.

NATURE OF HAZARD

- Highly corrosive causes burns.
- Toxic by inhalation.
- Potent irritant and will cause injury to eyes, respiratory tract and skin on prolonged exposure.
- Symptoms of irritation may not appear until several hours after exposure.
- Exposure to vapors may cause irritation to eyes, which may be quite painful, especially in combination with light.
- In case of severe exposure, pulmonary edema may occur.
Monochlorobenzene (MCB)

**CORRECT TECHNICAL NAME**

<table>
<thead>
<tr>
<th>MONOCHLOROBENZENE</th>
<th>SPECIAL ADVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN NO : 1134</td>
<td>Avoid inhaling vapours.</td>
</tr>
<tr>
<td>HAZCHEM : 3WE</td>
<td>If in contact with skin or eyes wash thoroughly with copious water.</td>
</tr>
<tr>
<td>IN EMERGENCY DIAL</td>
<td>Obtain medical attention.</td>
</tr>
<tr>
<td>Police</td>
<td>Inform Police, Fire Brigade, &amp; Manufacturer.</td>
</tr>
<tr>
<td>Fire</td>
<td></td>
</tr>
<tr>
<td>Ambulance</td>
<td></td>
</tr>
</tbody>
</table>

**PHYSICAL PROPERTIES**

- Colorless liquid with almond/mild moth ball like odor.
- Flammable liquid, insoluble in water.
- Forms a layer above water.

**NATURE OF HAZARD**

- Vapor and liquid extremely irritating to eyes and skin, may be absorbed through the skin.
- May cause respiratory tract irritation.
- Harmful or fatal if inhaled or swallowed.
- Avoid contact with aluminum.
- Very toxic to aquatic organisms.
- Keep away from heat, sparks, flames and other sources of ignition.

**PROTECTIVE DEVICE**

- Self-contained breathing apparatus.
- Neoprene gloves for hand protection.
- Safety goggles or face shield for face protection.
- For skin and body protection, full body suite & rubber boots.

**SPILLAGE**

- Eliminate all sources of heat & ignition.
- Dike & absorb the spill with inert materials (Dry sand or Earth).

**FIRE**

- Use regular dry chemical, carbon dioxide, water foam.
- Large fires: Use regular foam or flood with fine water spray.
- Cool containers with water spray until well after the fire is out.

**FIRST AID**

- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
Chloroacetyl Chloride (CAC)

**CORRECT TECHNICAL NAME**

**CHLOROACETYLE CHLORIDE (CAC)**

<table>
<thead>
<tr>
<th>UN NO</th>
<th>1752</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZCHEM</td>
<td>3WE</td>
</tr>
</tbody>
</table>

**IN EMERGENCY DIAL**

- Police
- Fire
- Ambulance

**SPECIAL ADVICE**

- Avoid inhaling vapours
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PHYSICAL PROPERTIES**

- Colorless to pale yellow liquid with suffocating odor.

**NATURE OF HAZARD**

- Corrosive effect on skin and mucous membranes
- Vapors may cause severe irritation to the eyes and respiratory tract.
- Causes skin burns.
- Poison.

**PROTECTIVE DEVICE**

- Self-contained breathing apparatus.
- Neoprene gloves for hand protection

**SPILLAGE**

- Dike & absorb the spill with inert materials (Dry sand or Earth).

**FIRE**

- Non-flammable.
- Exposure to fire may cause the container to burst.
- Use extinguishing media appropriate to surrounding fire conditions.

**FIRST AID**

- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
Sodium Hydroxide (Caustic Soda)

**CORRECT TECHNICAL NAME**

**SODIUM HYDOXIDE (CAUSTIC SODA)**

**UN NO :** 1824  
**HAZCHEM :** 2R

**IN EMERGENCY DIAL**

- Police
- Fire
- Ambulance

**SPECIAL ADVICE**

- Avoid inhaling vapours.
- If in contact with skin or eyes wash thoroughly with copious water.
- Obtain medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PROTECTIVE DEVICE**

- Dust type respirator.
- Safety goggles or face shield for face protection.
- For skin and body protection, full body suit & rubber boots

**SPILLAGE**

- Dike & absorb the spill with inert materials (Dry sand or Earth).
- Avoid seepage in drains.

**FIRE**

- Non-flammable.
- Keep the container cool by spraying water if exposed to fire.
- Use extinguishing media appropriate to surrounding fire conditions.

**FIRST AID**

- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.

**PHYSICAL PROPERTIES**

- Milky white odorless liquid.
- Alkaline inorganic compound.
- Non-combustible, non-flammable liquid soluble in water.

**NATURE OF HAZARD**

- Corrosive effect on skin and mucous membranes.
- May cause severe damage to respiratory tract.
- Causes skin burns.
**Thiamethoxam**

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>THIAMETHOXAM (TMX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN NO</td>
<td>1325</td>
</tr>
<tr>
<td>HAZCHEM</td>
<td>3WE</td>
</tr>
</tbody>
</table>

**IN EMERGENCY DIAL**
- Police
- Fire
- Ambulance

**SPECIAL ADVICE**
- Avoid inhaling vapours.
- If in contact with skin or eyes wash thoroughly with water.
- Obtain Medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PHYSICAL PROPERTIES**
- Harmful flammable solid with deflagrating properties.
- Slightly beige crystals.

**NATURE OF HAZARD**
- Combustible, harmful marine pollutant.
- Poisoning by contact with skin by inhalation or ingestion.
- Decomposes in fire giving out toxic fumes.

**PROTECTIVE DEVICE**
- Suitable respiratory protective device.
- Hand protection PVC or neoprene gloves.

**SPILLAGE**
- Sweep up spilled substance but avoid making dust.
- Dampen the solid material carefully to prevent being blown away.
- Collect the material in specially marked, tightly closed containers.
- Spilled products must be disposed off.
- If substance has entered water course or sewers or vegetation, inform police.

**FIRE**
- Keep container cool by spraying water if exposed to fire.
- Do not use direct water jets.
- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.

**FIRST AID**
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
Ortho-Chloro Phenol (OCP)

CORRECT TECHNICAL NAME
ORTHO-CHLORO PHENOL (OCP)

UN NO : 2021
HAZCHEM : 3WE

IN EMERGENCY DIAL
Police
Fire
Ambulance

SPECIAL ADVICE
- Avoid inhaling vapours.
- If in contact with skin or eyes wash thoroughly with water.
- Obtain Medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

PROTECTIVE DEVICE
- Self-contained breathing apparatus.
- Hand protection PVC or neoprene gloves
- Eye protection Chemical safety goggles or face shield with safety glasses.
- For skin and body protection, protective impervious clothing, hard hat and neoprene or rubber boots

SPILLAGE
- Absorb with inert, damp, non-combustible material, and then send for disposal.
- For large spills use water sprays to reduce vapors.
- Prevent entry into sewers/ drains etc.

PHYSICAL PROPERTIES
- Light yellow liquid with unpleasant odor.
- Reactive with oxidizing agents.
- Combustible, liquid soluble in methanol.

NATURE OF HAZARD
- Poisonous liquid
- Highly flammable in presence of open flames / sparks.
- Causes severe skin burns and eye damage.
- Very toxic to aquatic life.

FIRE
- Do not use water jets.
- Use water spray, carbon dioxide, dry chemical or polymer foam as extinguishing media.
- Keep the container cool by spraying water if exposed to fire.

FIRST AID
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
PROFENOFOS

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>PROFENOFOS (PFF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN NO</td>
<td>3018</td>
</tr>
<tr>
<td>HAZCHEM</td>
<td>3WE</td>
</tr>
</tbody>
</table>

**IN EMERGENCY DIAL**
- Police
- Fire
- Ambulance

**SPECIAL ADVICE**
- Avoid inhaling vapours.
- If in contact with skin or eyes wash thoroughly with water.
- Obtain Medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PROTECTIVE DEVICE**
- Nitrile rubber gloves for hand protection.
- SCBA in case of major spill or fire.
- Goggles for eye protection.
- Chemical safety goggles or face shield with safety glasses.
- For skin and body protection, protective impervious clothing, hard hat and neoprene or rubber boots.

**PHYSICAL PROPERTIES**
- Yellow to light brown liquid with mild onions like odor.
- Non-oxidizing & not explosive.
- Organophosphorus Pesticide.

**NATURE OF HAZARD**
- Harmful if swallowed or inhaled
- Toxic
- May cause an allergic skin reaction
- Very toxic to aquatic life with long lasting effect.
- This product contains an anticholinesterase compound

**SPILLAGE**
- Prevent further leakage or spillage if safe to do so.
- Do not flush the leaked material into surface water or sewer system.
- Contain spillage & then collect with non-combustible absorbent material & place in container for disposal.

**FIRE**
- Keep container cool by spraying water if exposed to fire.
- Do not use direct water jets as it may scatter & spread fire.
- Use water spray, carbon dioxide, dry chemical, polymer or alcohol resistant foam as extinguishing media.

**FIRST AID**
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
- Specific antidotes are oximes.
**Axial**

**PRODUCT NAME**
**AXIAL**

**UN NO:** 3082  
**HAZCHEM:** 3WE

**IN EMERGENCY DIAL**  
Police  
Fire  
Ambulance

**SPECIAL ADVICE**  
- Avoid inhaling vapours.  
- If in contact with skin or eyes wash thoroughly with water.  
- Obtain Medical attention.  
- Inform Police, Fire Brigade, & Manufacturer.

---

**PROTECTIVE DEVICE**
- Nitrile rubber gloves for hand protection.  
- SCBA in case of major spill or fire.  
- Goggles for eye protection.  
- Chemical safety goggles or face shield with safety glasses.  
- For skin and body protection, protective dust impervious protective suit, hard hat and neoprene or rubber boots.

**SPILLAGE**
- Prevent further leakage or spillage if safe to do so.  
- Do not flush the leaked material into surface water or sewer system.  
- Contain spillage & then collect with non-combustible absorbent material & place in container for disposal.

**FIRE**
- Keep container cool by spraying water if exposed to fire.  
- Do not use direct water jets as it may scatter & spread fire.  
- Use water spray, carbon dioxide, dry chemical, polymer or alcohol resistant foam as extinguishing media.

**FIRST AID**
- Shift the casualty to fresh air.  
- Remove contaminated clothing & shoes.  
- Flush skin with plenty of soap & water.  
- Get medical aid immediately.

---

**PHYSICAL PROPERTIES**
- Yellow to light orange combustible liquid with aromatic odor.  
- Non-oxidizing, non-explosive liquid.  
- Marine Pollutant.

**NATURE OF HAZARD**
- Toxic, may be fatal if swallowed & enters airways.  
- May cause allergic skin reaction.  
- May cause respiratory irritation.  
- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Pretilachlor

**PRODUCT NAME**
PRETILACHLOR
(PTC)

**UN NO:** 3082
**HAZCHEM:** 3WE

**IN EMERGENCY DIAL**
- Police
- Fire
- Ambulance

**SPECIAL ADVISE**
- Avoid inhaling vapours.
- If in contact with skin or eyes wash thoroughly with water.
- Obtain Medical attention.
- Inform Police, Fire Brigade, & Manufacturer.

**PROTECTIVE DEVICE**
- Nitrile rubber gloves for hand protection.
- SCBA in case of major spill or fire.
- Goggles for eye protection.
- Chemical safety goggles or face shield with safety glasses.
- For skin and body protection, protective dust impervious protective suit, hard hat and neoprene or rubber boots.

**SPILLAGE**
- Prevent further leakage or spillage if safe to do so.
- Do not flush the leaked material into surface water or sewer system.
- Contain spillage & then collect with non-combustible absorbent material & place in container for disposal.

**PHYSICAL PROPERTIES**
- Yellow to light brown liquid with weak odor.
- Non-oxidizing, non-explosive liquid.
- Immiscible in water.

**NATURE OF HAZARD**
- May cause allergic skin reaction.
- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**FIRE**
- Keep container cool by spraying water if exposed to fire.
- Do not use direct water jets as it may scatter & spread fire.
- Use water spray, carbon dioxide, dry chemical, polymer or alcohol resistant foam as extinguishing media.

**FIRST AID**
- Shift the casualty to fresh air.
- Remove contaminated clothing & shoes.
- Flush skin with plenty of soap & water.
- Get medical aid immediately.
**NEW GHS Labels**

GHS is the internationally agreed Globally Harmonized System of Classification and Labeling of Chemicals. GHS aims to improve the health and safety of workers, consumers and the environment by ensuring consistent hazard communication on the chemicals being used. GHS will be progressively implemented worldwide. Many countries are in the process of implementing GHS or consulting on the implementation of GHS in their national regimes.

India has not yet implemented GHS.

| 1 | Explosive  
|  | Extremely self-reactive  
|  | Organic Peroxide  |
| 2 | Pressurized gases  
|  | Compressed gas  
|  | Liquefied gas  
|  | Refrigerated liquefied gas  
|  | Dissolved gas |
| 3 | Flammable  
|  | Self-reactive  
|  | Pyrophoric  
|  | Self-heating  
|  | Emits flammable gas  
|  | Organic peroxide |
| 4 | Oxidizing |
| 5 | Corrosive  
|  | Corrosive to metals  
|  | Corrosive to skin  
|  | Severe eye damage |
| 6 | Acutely Toxic |
| 7 | Health hazard  
|  | Carcinogen  
|  | Mutagen  
|  | Reproductive toxicity  
|  | Specific target organ toxicity  
|  | Aspiration hazard  
|  | Respiratory sensitizer |
| 8 | Harmful  
|  | Irritant  
|  | Skin sensitizer  
|  | Specific target organ toxicity  
|  | Narcotic effects |
| 9 | Hazardous to the environment |