

ISOPA PRODUCT STEWARDSHIP PROGRAMMES

One Step Ahead

Miscellaneous info pack

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Methylene Chloride

Methylene Chloride (MC or DCM) classification

CLP



DSD



Signal word: **Warning**

Hazard statements

- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation
- H336 May cause drowsiness or dizziness
- H351 Suspected of causing cancer
- H373 May cause damage to liver/ blood through prolonged or repeated exposure

Precautionary Statements

Follow precaution statements and product labelling in supplier's SDS.

Signal word: **Harmful**

Risk Phrases

- R40 Limited evidence of a carcinogenic effect
- R36/37/38 Irritating to eyes, respiratory system and skin
- R67 Vapours may cause drowsiness and dizziness

Safety Phrases

Follow precaution statements and product labelling in supplier's SDS.

Methylene Chloride: Hazardous Properties

MAIN PRACTICAL CONCERNS:

- High concentrations of vapours will cause loss of feeling (anesthesia) and unconsciousness (narcosis)
- Skin irritation by direct contact

OTHER WARNING PROPERTIES:

- Sweet, ether-like odour at rather high level: inadequate warning for hazardous exposures
- Gas density \gg air: vapors tend to remain localized and/or diffuse slowly in the breathing zone of workers
- Flammable range: 14% to 22% (in air)

Over Exposure - Inhalation Odor Threshold for methylene chloride

Exposure Guideline in ppm	Methylene Chloride
Odor Threshold	150-160
Slight (not unpleasant)	250-1000
Strong (unpleasant)	>1000

Health Effect vs Exposure level in ppm	Methylene Chloride
Headache/dizziness/sleepiness	>500 (0.05% vol)
Eye Irritation - painful	>500
LC50 (Inhalation) : Conc. Which 50% fatality in laboratory animals	15000 (1.5% vol)

If you can smell methylene chloride, you are exposed to levels above the exposure limit. Open windows or doors and/or use fans to increase air circulation.

Methylene Chloride Safe Exposure - Inhalation Exposure Limits Guidelines in ppm

OSHA PEL (8 hrs weighted average)	25
OSHA STEL (short term exposure limit 15 mins)	125
South Africa	50
Kuwait	25
UAE Dubai	50
Egypt	50

An exposure limit is the maximum acceptable concentration in workplace air of a chemical. This means most workers can be exposed at these given levels or lower without any harmful effects

Up to date limits should be checked with local legislation.
This list is not exhaustive

Where could you be exposed?

- Foaming and cutting area
- Foam curing area
- Cleaning operations using methylene chloride as solvent
!!! Do not use methylene chloride for washing hands !!!
- Spillages

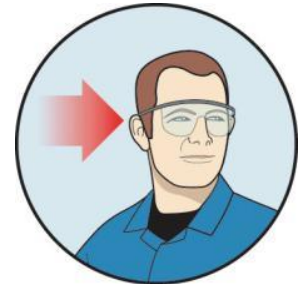
*Use PPE
and make sure room is
well ventilated / extraction
system is on!!!*

Protective Measures for methylene chloride

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Safety in Action

- Exposure to high levels of methylene chloride is likely if methylene chloride, or a product containing it, is used in a room with inadequate ventilation.
- Use adequate PPE when working
- Check that the extraction system is switched on and the room is well ventilated and provided with fresh air
→ Do not eat, drink or smoke in the workplace
- If you feel unwell, inform your colleagues and leave the workplace

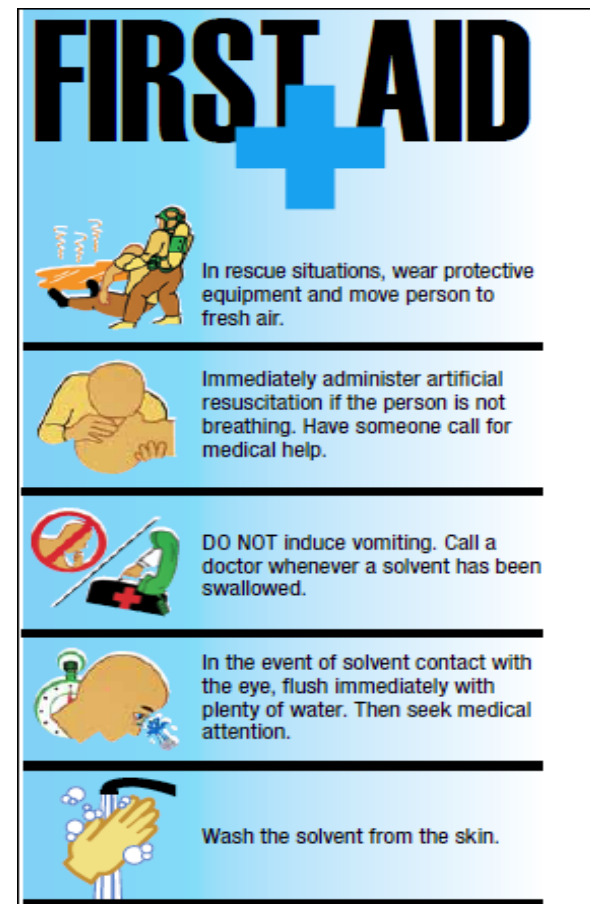


Emergency response for methylene chloride


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Safety in Action


- For small spills
Use absorbent material
- Find information on these sections in SDS:
 - Hazards Identification**
 - First-aid measures**
 - Fire Fighting Measures**
 - Accidental Release Measures**
 - Handling and Storage**
 - Exposure Controls / Personal Protection**





FIRST AID

 In rescue situations, wear protective equipment and move person to fresh air.

 Immediately administer artificial resuscitation if the person is not breathing. Have someone call for medical help.

 DO NOT induce vomiting. Call a doctor whenever a solvent has been swallowed.

 In the event of solvent contact with the eye, flush immediately with plenty of water. Then seek medical attention.

 Wash the solvent from the skin.

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Catalysts

Catalysts



- Catalysts can be corrosive, irritants, sensitisers and flammable
- Symptoms of exposure include chemical burn, swelling, itching, redness and hazy vision
- Use the right PPE when working with catalysts and polyol formulation components (see SDS)

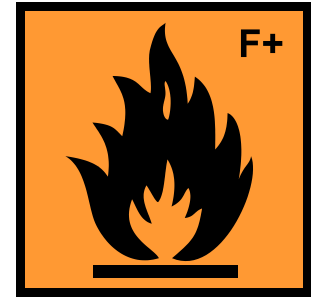
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Pentane

Hazardous Properties of Pentane

- Highly flammable
- Flash Point: - 40°C to - 20°C
(the lowest temperature at which liquid releases sufficient vapour for ignition)
- Auto ignition temperature ca. 280°C
(at which the vapor-air mixture ignites on a hot surface.)
- Explosive vapor-air mixtures:
Lower explosion limit: 1,4 Vol% = 41 g/m³
Upper explosion limit 7,8 Vol% = 240 g/m³
(Evaporation rate at 20°C - 30°C > 2,4 kg/h per m² surface)
Vapor has higher density than air!



Beware of easy build-up of electric charge

Protective Measures

Avoid explosive atmosphere (primary measure)

- No open handling, closed systems
- Controlled ventilation
- Generate inert atmosphere with Nitrogen



Avoid sources of ignition (secondary measures)

- Explosion-proof machinery (encapsulation, no sparks, no hot surfaces)
- Avoid electrostatic sparks (earthed machinery, no plastic containers)



Incident / Alarm



- **In case of spillage or any alarm**

Keep calm

- **Stop pentane dosage, avoid ignition sources**

Increase ventilation

Self-contained breathing apparatus if ventilation is insufficient

Protective clothing

Stop leakage

Cover spillage with absorbant

Extinguishing material: CO₂, Foam, Powder no water!



Use of Pentane - Summary

Pentane is highly flammable and may build up explosive mixtures with air

- Avoid any ignition source
- Ensure that static electricity cannot build-up
- Monitor level of pentane in air
- Remember that pentane is heavier than air

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