

**one  
step  
ahead**

**Safety in Action**

ISOPA PRODUCT STEWARDSHIP PROGRAMMES

# **One Step Ahead**

**Miscellaneous info pack**

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# **One Step Ahead**

**Methylene Chloride**

# Methylene Chloride (MC or DCM):



## CLASSIFICATION :

### Risk phrases:

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



### Safety phrases:

- S23 Do not breathe gas/fumes/vapour/spray
- S24/25 Avoid contact with skin and eyes
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S36/37 Wear suitable protective clothing and gloves

# Methylene Chloride

## (European GHS Classification):



### ■ CLASSIFICATION :

#### 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 organs through prolonged or repeated exposure.

#### Precautionary Statements:

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

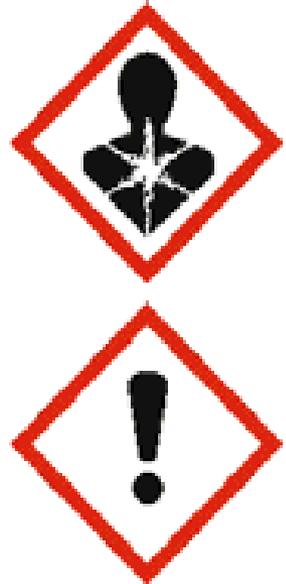
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P403 + P235 Store in a well-ventilated place. Keep cool.

P502 Refer to manufacturer/ supplier for information on recovery/ recycling.



# 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 >>>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



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 the solvent, you may be exposed to levels above the exposure limit. Open windows or doors and/or use fans to increase air circulation.

# 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 that most workers can be exposed at these given levels or lower without any harmful effects

# Protective Measures

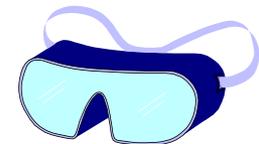


- Exposure to high levels of methylene chloride is likely if methylene chloride, or a product containing it, is used in a room with inadequate ventilation.
- When heated to combustion, (could happen even with a lit cigarette), methylene chloride decomposition products can be hydrogen chloride, carbon monoxide. Combustion products may include trace amounts of phosgene and chlorine



..... so .....→

- Use PPE (Safety Glasses; Nitril/PVA gloves) when working
- Check that the extraction system is switched on and 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 workshop



# Emergency response

- For small spills  
Absorb with materials such as Bentonite, sawdust, clay
- 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**

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**FIRST AID**

**First Aid Measures**  
In rescue situations, wear protective equipment and move person to fresh air.

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

**First Aid Measures**  
**DO NOT** induce vomiting. Call a doctor whenever a solvent has been swallowed.

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

**First Aid Measures**  
Wash the solvent from the skin

# Where could you be exposed?

- Foaming area
- Sawing area
- Foam curing area
- Cleaning operations using methylene chloride as solvent
- Spillages

**Use personal protective  
equipment and make sure  
room is well  
ventilated/extraction  
system is on!!!**

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# One Step Ahead

## Catalysts

## Catalysts

- Different catalysts to tailor cure and reactivity behavior are used in foamed and compact polyurethane technologies (rigid/flexible foam, coatings, sealants, adhesives and elastomers)
- Catalysts include amine, organotin or other heavy metal containing compounds
- These compounds can be
  - Corrosive
  - Irritant
  - Sensitisers
  - Flammable
  - Harmful or toxic by inhalation and/or skin contact

## Catalysts

- In some cases, the allowed workplace concentration is far below the smell threshold, therefore limits are far exceeded when compounds are detected by smell
- Symptoms of exposure can include chemical burn, swelling, itching, redness and hazy vision
- Consult the material safety data sheet (MSDS) for proper classification of each compounds used pure or when using blends containing single compounds to determine proper labeling, PPE and industrial handling/hygiene procedures

## Disclaimer

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