ISOPA PRODUCT STEWARDSHIP PROGRAMMES

“Walk the Talk”

Methylene Chloride

Methylene Chloride:

- CLASSIFICATION :

Limited evidence of a carcinogenic effect:

Risk phrase :

Xn R40

Safety phrases:

23 Do not breathe gas/fumes/vapour/spray

24/25 Avoid contact with skin and eyes.

36/37 Wear suitable protective clothing and gloves.

Methylene Chloride: Hazardous Properties

- MAIN PRACTICAL CONCERNS:

→ **High concentrations of vapours will cause loss of feeling (anesthesia) and unconsciousness (narcosia)**

→ Skin irritation by direct contact

→ OTHER WARNING PROPERTIES:

-> Sweet, ether-like odour at rather high level : inadequate warning for hazardous exposures.

->Gas density >>>air :vapours tend to remain localized and/or diffuse slowly in the breathing zone of workers .

->Flammable range: 14% to 22% (in air) : relatively low hazard .

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 decomposition, even with a lit cigarette, methylene chloride is likely to generate phosgene and carbonyl fluoride.

…….. SO ……→

→ Use PPE when working

→ Check that the extraction system is switched on

→ Do not eat, drink or **smoke** in the workplace

→ If you feel unwell, inform your colleagues and leave the workshop .

Where could you be exposed?

Where could you be exposed?

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

ISOPA PRODUCT STEWARDSHIP PROGRAMMES

“Walk the Talk”

Pentane

Hazardous Properties of Pentane

- Flash Point: -40°C to - 20°C
  (the lowest temperature at which liquid releases sufficient vapour for ignition)
- Auto ignition temperature ca. 280°C
  (where the vapour-air mixture ignites on a hot surface.)
- Explosive vapour-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)
  Vapour has higher density than air!
- Easy build-up of electric charge.
- Highly flammable.

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 protected machinery (encapsulation, no sparks, no hot surfaces)
- Avoid electrostatic sparks (earth machinary, no plastic containers)

Incident / Alarm

- **In case of spillage or alarm from monitors**

  Keep calm

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

  Increase ventilation

  Stop leakage

  Cover spillage with absorbant

  Self-contained breathing apparatus if ventilation is insufficient

  Protective clothing

  Extinguishing material: CO_2, Foam, Powder; no water!

Use of Pentane

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

ISOPA PRODUCT STEWARDSHIP PROGRAMMES

“Walk the Talk”

Catalysts

Catalysts

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

ISOPA PRODUCT STEWARDSHIP PROGRAMMES

“Walk the Talk”

Methyl Isocyanates

Monoisocyanates and Diisocyanates

- Monoisocyanates are used for various applications – but not for polyurethanes

  For example, methyl isocyanate is used for pesticides and insecticides

- All polyurethanes are made with diisocyanates such as MDI or TDI

Monoisocyanates and Diisocyanates

- Monoisocyanates are used for various applicat… – but not for p…

  For ex… pestici…

- All polyureth… …h as MDI or T…

Methyl-isocyanate is not used in making polyurethanes

Disclaimer

These product stewardship initiatives of ISOPA and its members do not exempt customers, producers and others in the supply chain of their occupational health, safety and environmental duties and regulatory obligations. With respect to this, ISOPA and its associated members disclaim any liability in connection with the use of services rendered and of the related information provided. It is the responsibility of the user to verify the accuracy of the services and the related information which can be used by the user at his own risk.