

SAFETY MEMO

October 18th, 2021 – Acetone (C₃H₆O) - CAS#67-34-1



Did you know?

What is Acetone?

Acetone, also called dimethyl ketone, 2-propanone, or beta-ketopropane, is a clear, colourless liquid with a sweetish odour detectable at 20ppm. It is an organic ketone, characteristically known for its high volatility, ability to break down nail polish, and for other solvent and cleaning purposes. With a low flash point of -20°C (-4 °F), acetone is highly flammable and should be kept away from ignition sources.

Where do we find it?

Acetone is often used in these ways:

- Solvent extraction of active compounds
- Cleaner for paint, grease, oil, resin, inks, and adhesives
- Main compound in nail polish remover

How to protect yourself?

- Skin contact with acetone should be avoided. Solvent-resistant gloves and clothing should be used when handling.
- Wear chemical safety goggles when handling
- Hands should be washed after handling
- Local exhaust should be provided to mitigate inhalation. Approved filter respirators for organic gases should be used if inhalation exposure is above the exposure limit.
- Ensure all equipment is electrically grounded before handling. Do not cut, drill, grind or weld near acetone containers, no matter how full.

Why is it a hazard?

Acetone has a low flash point of -20 °C (-4 °F) and at room temperature can form a flammable mixture in the air. This occurs at concentrations of 2.5-13 vol%, or 25,000-130,000 ppm¹. Acetone vapors are heavier than air and may travel along the ground towards ignition sources.

Acetone is irritating to the skin and eyes and harmful by inhalation and ingestion. The exposure limit ranges based

on jurisdiction between 250-1000 ppm for total weight average, and 500-1250 ppm for short term exposure.

Design Considerations

Acetone is a Class B2 and Class D2B flammable liquid and can react exothermically with other compounds. It therefore should be kept away from oxidizing agents, strong alkaline and basic materials, heat, flames, and sparks. Bonding and grounding of equipment should be done to avoid ignition of acetone. Acetone should be stored in fireproof, closed containers in an upright position. It is not corrosive to aluminum alloys or carbon steel.

Adequate ventilation to maintain acetone concentrations below the exposure limit is critical to worker safety. Eyewash stations and showers should be installed near areas of use and handling.

Additional examples of typical mitigation and containment measures that can be implemented are as follows:

- Equipment design (instrumentation, automation, detection devices, pressure and vacuum-relief valves)
- Primary and secondary containment (liquid tight construction, dikes, curbs, dedicated drainage system)
- Safe operating procedures (SOPs)

When creating engineering designs involving acetone, care must be taken to understand the hazards involved and to provide effective control strategies.



¹ PubChem, Acetone.

<https://pubchem.ncbi.nlm.nih.gov/compound/Acetone#section=AEGIs-Notes>

