
# Acetone

*Acetone is a colourless and volatile chemical used in a wide number of industrial processes. As a chemical it is highly flammable with a low flash point. It is produced from propylene and alongside phenol.*

Acetone is not highly toxic though it is irritable in direct contact with human tissue and when vaporised and inhaled into the respiratory system and eyes. It is miscible with water and an important industrial solvent.

**Applications**

- Acetone is chiefly used a solvent, for example it is an ingredient in the production of methyl methacrylate, an important material for plastic products such as PVC, cellulose acetate and acryics.
- As a solvent it is also used to thin resins such as polyester, in the manufacture of paints and varnishes.
- The solvent qualities are also used in the degreasing of metal engineering parts and heavily rusted/seized threads and surfaces and removing residual superglue and solder.
- Acetone is used in cosmetic and medical products such as nail varnish, skin peeling treatments and pharmaceutical drugs.

**Pumping considerations**

The two crucial aspects of handling acetone are the volatile nature of the fluid and the selection of appropriate wet-side materials.

**Flammable and volatile**

Acetone has a low flash point at just -20oc. At room temperature when mixed with air it may ignite when met with an ignition source such as a naked flame or spark.

The build up of static charge when being transferred in an unearthed, non-conductive pump casing may also cause the fluid to ignite. Any pump is recommended to be made of a conductive material with pump being earthed and most likely built to an ATEX rated specification.

**Compatible materials**

As acetone is a solvent, the selection of compatible materials must prevent the material itself being dissolved. Acetone is a polar solvent and must not be combined with similar materials such as PVC, kynar, tygon, buna n and natural rubber as these elastomers will inherently fail.


Compatible materials include most metals, PTFE and ETFE.

The vapour pressure of Acetone is also much higher than that of water. This must be taken into account when specifying pumps such relying on flooded suction.

The suction port can be oversized to allow better intake and the discharge can be controlled to maintain a healthy NPSHr to prevent cavitation. It is also recommended to implement the equivalent with a double diaphragm pump as well as a peristaltic to ensure the diaphragm and hose life are not compromised.

**Suitable pumps**

Suitable pump types include both metallic mag drive pumps and non-metallic mag drive pumps where the wet-side is ETFE material-lined.

This pump type is especially suitable as it is does not have mechanical seals and is therefore 100% leak-free with no risk of the fluid in contact with the air. These pumps are almost universally available in ATEX specification.

For smaller flow rates and dosing requirements an AODD or peristaltic pump can be used to deliver an accurate flow rate with the allowance for short periods of dry-running such as container transfer applications.

At ambient temperature EPDM hoses and stainless steel flange ports are compatible. For AODD specification, an aluminium or stainless steel body with stainless steel seats and PTFE ball valves are compatible. Should a non-metallic casing be required, a conductive version (with the addition of carbon in the plastic mix) should be sort and earthed to prevent static build-up.

Verder supply pumps for virtually every chemical type and application. The Verder range includes leak-free mag drive pumps, chemically inert non-metallic AODD pumps, peristaltic dosing pumps for the accurate delivery of chemical including abrasive and solid-laden types.

Contact us for advice on specifying a pump for your acetone process on 01924 221 001 or email sales@verder.co.uk


*A Verdermag mag drive pump which is highly suitable for pumping acetone. It is available in metallic and non-metallic builds and ATEX-rated specification. The key benefit is that the pump is 100% leak-free.*

*Disclaimer: The information contained in this sheet has been researched from credible sources and should be considered as a guide only. Due to the many variables in a process, it is recommended contacting Verder for advice about your exact fluid and operating conditions.*

**VERDER Ltd.**
Unit 3, California Drive
Castleford,
West Yorkshire, WF10 5QH
United Kingdom

**TEL** +44 (0) 1924 221 001
**FAX** +44 (0) 1132 465 649
**MAIL** sales@verder.co.uk
**WEB** www.verder.co.uk

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