

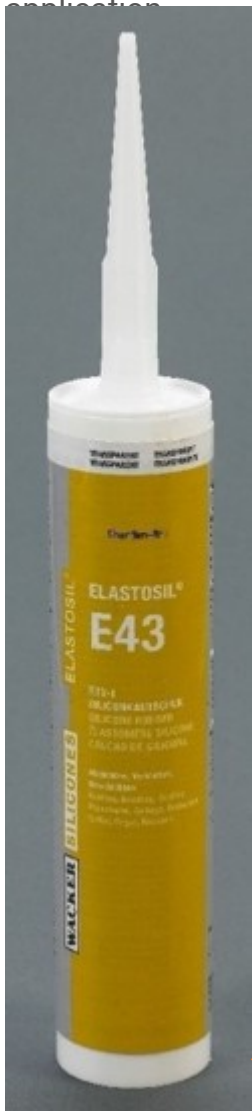
# adhere academy: are RTV silicone sealants corrosive?

## Description



Yes, *some are*. It is good to understand this chemistry and the

different types so that you can make sure you choose an appropriate RTV silicone sealant for your application.



RTV silicone sealants are very useful products, because of their outstanding long

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term thermal resistance and stability (-50° to +180°C or more), long-lasting flexibility and low Young's modulus, very good adhesion, superior weathering, UV and radiation resistance and very good chemical resistance. There are flame retardant formulations, meeting UL94 V-0.

These are single part products, so are very easy to handle and process with low capital investment. They are available as flowable, self-levelling or non-sag grades. The "RTV" stands for room temperature vulcanising, which means that these single part products cure at room temperature, with no need for any mixing or external energy. *RTV silicone sealants require moisture from the air to cure*, so RH (relative humidity) is an important factor for cure speed and depth. They are classed as condensation curing silicones.

They are normally categorised in terms of the small amount of the chemical produced as a by-product during reaction with the atmospheric moisture that allows the crosslinking mechanisms to occur, leading to the formation of elastic and relatively tough silicone rubber. There are two main types:

## **Acetoxy**

As the name suggest, the by-product of cure is *acetic acid*. Most people carrying out DIY work on showers, baths and kitchens are familiar with acetoxy cure silicone sealants that give off the characteristic odour resembling strong vinegar. This family of sealants dominates the world of silicone sealants because of their extensive use as construction sealants in buildings in such applications as expansion joints, window installations, etc. However, the formation of acetic acid places a restriction on their use in applications where non-corrosion is a prerequisite.

## **Alkoxy**

The by-product of cure is either methanol (so-called "methoxy" sealants) or more commonly a mixture of *methanol and ethanol*. Both types come under the generic name of "alkoxy" silicone sealants. Both methyl alcohol (methanol) and ethyl alcohol (ethanol) have faint, relatively pleasant odours. Alkoxy sealants are completely neutral and do not react with copper and its alloys, or with other metals. They

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also exhibit excellent primerless adhesion to many types of substrate.

There are other cure types (e.g. oxime, amine, acetone), but they are not so popular, usually for health and safety or cost reasons.

So if you are involved in applications where the corrosiveness of an acetoxy cure silicone would damage your products – a good example is anything to do with electronics – then you should specify a **neutral cure, alkoxy RTV silicone sealant**. [Let us know](#) if you need further help with product selection.

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