



Chemical resistance of silicone sealants

In answer to questions regarding the effects of solvents and industrial chemicals on silicone rubber, the following data has been compiled. Silicones are in general, chemically inert and are attacked by only a few common materials. Among them are concentrated sulphuric acid, hydrofluoric acid and under long term exposure, high pressure steam.

Like any elastomer, silicone has a tendency to physically absorb those materials with a solubility parameter near to its own. This absorption may cause the rubber to swell and to soften slightly. In few applications, this volume increase is advantageous. For example, a silicone rubber gasket exposed to certain solvents will swell to form a tighter seal. The change undergone by silicone rubber in contact with an absorbed solvent is primarily physical. After the solvent has completely evaporated, the silicone rubber will return to its original physical properties.

Limitations & liability

Chemical resistance strongly depends on concentration, temperature and exposure time. That is why we do not give any guarantee on chemical resistance. However we can, without any warranty, provide the knowledge and experience of our raw material supplier in the format of this chemical resistance list. It is the responsibility of the user to verify by his own tests if the product is suitable for the application. ASP Dichtstoffe is not liable for any kind of incidental or consequential damages.

The following table shows silicone resistance to various common materials. It indicates the volume change which may be expected from silicone rubber submerged in a chemical or solvent for one week at room temperature.

The following definitions for solvent resistance were assigned:

- 1 = excellent, less than 10% volume change
- 2 = good, 10-25% volume change
- 3 = fair, 25-75% volume change
- 4 = poor, greater than 75% volume change
- 5 = disintegrates

Acids

Citric	1
Hydrochloric, 3% and Conc.	1
Hydrofluoric	5
Phosphoric, dilute	1
Sulphuric, 10%	1
Sulphuric, Conc.	5
Nitric, 7% and Conc.	1-2
Acetic, 5% and Conc.	1



Basis

Ammonium Hydroxide, 10%	1
Ammonium Hydroxide, Conc.	1
Potassium Hydroxide	1
Sodium Hydroxide, 5% and 50%	1

Inorganic Chemicals

Anhydrous Ammonia	1
Sodium Chloride, 10%	1
Hydrogen Peroxide, 3%	1
Sodium Carbonate, 20%	1
Water / Water 70 Hrs @ 100C	1

Organic Chemicals

Detergents	1
Freon 12	2
Freon 114	3
Methyl Chloride	3
Tricresyl Phosphate	1

Oils

ASTM#10.1 aliphatic, 70 Hrs @ 150C	1
ASTM#30.1 aromatic, 70 Hrs @ 150C	3
Castor 0.1	1
Diester oils	2
Linseed oil / Mineral oil	1
Silicone oil also after 70 Hrs @ 150C	3

Solvents

Acetone	3
Butyl Alcohol	2
Carbon Tetrachloride	4
Diaceton Alcohol / Ethyl Alcohol	1
Gasoline	4
Jet Fuel, JP4	3
Mineral Spirits & Toluene	4