

Oil Resistance of Silicone Insulation

Advantages of this state-of-the-art insulating material are cores with an insulation of a special silicone rubber.

The kind and concentration of the oils and hydrocarbons in contact with the silicone rubber, but also the temperature and duration of exposure have an influence of the behaviour.

Nevertheless, silicone rubber compounds are used for applications, which require special properties compared to PVC- or XLPE insulations. Main differences are in the field of flame retardancy, resistance to chemicals and suitability for extremely high and low temperatures.

Within the field of chemical resistance silicone rubber is especially stable towards oils and many different types of hydrocarbons, including stability at elevated temperature. At the same time the behaviour of silicone rubber towards oils is different from thermoplastic materials, like polyvinyl chloride (PVC) or crosslinked materials, like crosslinked polyethylene (XLPE).

In general silicone rubber compounds are resistant to polar chemicals, except strong acids or bases. In contact with non-polar oils or hydrocarbons silicone rubber compounds will swell. Yet, most oils do not affect the polymer structure by degrading the material. Mechanical properties will be reduced, when the polymer swells. After drying of the oils the silicone rubber compound regains its former structure. Thermoplastic compounds, but also crosslinked polyethylene will not regain their properties after removal of the oil or will decompose faster than silicone rubber.

Oil resistant



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