

Technical Data - Cable

Besilen® - Silicone (Elastomer on a Silicone Rubber Base) General Information

■ Besilen® - Elastomer on a silicone base

Besilen® is a registered trademark of SAB Bröckskes GmbH & Co. KG. It is a specially developed Silicone rubber-based material with good electrical characteristics and heat resistance. In addition to our standard Besilen® product range, we also produce specialized products that meet requirements such as:

- ▶ notch resistance for better mechanical strength
- ▶ higher temperature resistance +250°C
- ▶ Besilen® mixture compatible for the food industry
- ▶ conductive Besilen® for antistatic conductance
- ▶ non-blooming

■ Mechanical characteristics

Vulcanized Besilen® (Silicone), produced with a 50-60 A shore hardness is particularly elastic with excellent mechanical strength. A further interesting characteristic of Besilen® is that it does not stick to adhesive surfaces. They are:

- ▶ non-adhesive
- ▶ hydrophobic (water repellent)

If Besilen® cables are used in tube systems it is important that these are ventilated and open, otherwise the mechanical strength of Besilen® will be reduced.

■ Chemical characteristics

The chemical composition of Besilen® (Silicone), which deviates from standard rubber types, gives our product several outstanding characteristics including for example:

- ▶ outstanding hot air resistance
- ▶ extreme flexibility at cold temperatures (down to -40°C)
- ▶ resistant to decomposition from substances such as alcohol and high molecular oils, plant and animal fats, diluted acids, softeners, chlophen, alkalis and salt solutions
- ▶ oxygen resistant
- ▶ ozone-proof
- ▶ halogen-free
- ▶ weather resistant

■ Electrical characteristics

The electrical characteristics of Besilen® (Silicone) even at room temperature match the best known elastic insulation materials. Because of its heat resistance, Besilen® insulated cables and wires can withstand approx. 50% more electric pressure under continuous use than regular rubber insulation. This allows weight and room-saving cable construction. An outstanding safety feature of Besilen® insulation is the insulating layer of silicic acid (SiO_2) during fire.

- ▶ Dielectric constant: approx. 3.2 (at 800 Hz)
- ▶ Specific volume resistance: min. $10^{12} \Omega \times \text{cm}$
- ▶ Breakdown voltage: 20 kV/mm

Current-carrying capacity (I_z) of cables with increased heat resistance in ambient temperatures above 150°C

Ambient temperature up to °C	150°	155°	160°	165°	170°	175°
Current-carrying capacity (I_z) of the values in below-shown table	100%	91%	82%	71%	58%	41%

In ambient temperatures up to 150°C Besilen® insulated cables can be charged acc. to VDE 0298 T4 06/13 table 11, column 2 and 5. See table current-carrying capacity page O/20.

O

6

■ Exemplary application fields of Besilen® cables

For rail technique, temperature measurement technique, smelters, steel and power plants as well as rolling mills. They are equally used in lightning industry, cement, glass and ceramic treatment, refrigeration and air conditioning technique, sauna construction, foundries, plastic processing industries as well as plastic processing machine construction. Further applications are in heating devices, cookeries, thermo and process technique, engine construction, dust removal systems, ventilator construction, system heating technique, wood and paper processing, electronic industries, drive technology, switchboards and distributors, textile machine construction, ...

