

Polyvinylchloride (PVC) Thermoplastic Material General Information

■ Polyvinylchloride (PVC) - Thermoplastic material

The application areas for this thermoplast in the plastics industry are diverse. There are various types of PVC used in the wire and cable industry. National (VDE) and International (IEC) Standards Authorities have specified PVC parameters for the different PVC mixtures. The characteristics of standardized PVC mixtures for the cable industry are defined under the following VDE standards, for example:

- ▶ PVC - insulation mixture EN 50363-3, VDE 0207-363-3
- ▶ PVC - jacket mixture EN 50363-4-1, VDE 0207-363-4-1

PVC that hardens after polymerization is not suitable for insulating and protecting wires and cables. The necessary mechanical, thermal and electrical levels can only be reached with the addition of complements.

The main additives are:

- ▶ softeners ▶ stabilizers ▶ filler materials ▶ slip additives

■ Materials

SAB special PVC (Y):

Our special PVC (YA and YM) are used for insulation and jacketing purposes. PVC type YA is used for conductor insulation and is particularly flexible and has very good electrical characteristics. PVC type YM jacket material has good mechanical characteristics and high flexibility.

The temperature range is as follows

Static:	-40° up to +70°C
Flexible:	+5° up to +70°C

SAB cold resistant PVC (YK):

Cold resistant PVC shows good flexibility and mechanical strength even at sub-zero temperatures. It can also be exposed to various weather influences.

The temperature range is as follows

Static:	-40° up to +70°C
Flexible:	-20° up to +70°C

SAB heat resistant PVC (YW):

Heat resistant PVC can resist temperatures up to +105°C. The insulation and jacket materials possess good electrical and mechanical values and have very good heat resistance. The highest valid operational temperature on the conductor itself according to VDE 0207 is +90°C. Any application above this temperature reduces the usable life.

The temperature range is as follows

Static:	-40° up to +90°C
Flexible:	+5° up to +90°C
short time use:	+105°C

SAB PVC oil resistant PVC (YOE):

Our YOE PVC mixtures are oil resistant according to EN 50363-4-1 + VDE 0207-363-4-1, mixture TM5. Usually used as a jacket material, it can also be used as insulation.

The temperature range is as follows

Static:	-40° up to +70°C
Flexible:	+5° up to +70°C

PVC can be classified as inflammable due to its chemical composition. SAB PVC compounds fulfill the criteria regarding burning characteristics according to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW1, CSA FT1 and FT2. Halogen is however released during a fire, which is a danger to humans, nature, buildings and machines. In addition, PVC control and data cables are not designed for outdoor use.

■ Exemplary application fields of PVC insulated cables

For control devices, for example, machine tools, conveyor belts, assembly and production lines and in plant and switchboard construction, devices and equipment of communication technique, household appliances, generators, transformers and machine construction. They are equally used for control units, electric, installation and packing technique, textile and wood processing as well as machine tool construction. Further application fields are electric and data processing, in cleaning devices, automobile industry, automation technique, press and tool construction. Other fields of use are machine construction for paper and printing industry, surface treatment, iron and steel industry, bottling plants, chemical industry, for intrinsically safe circuits, at control devices in hazardous areas, CNC centers, lamps and lightning technique, ...