

Data sheet: Purocoat17 with Purosolve71

Purocoat17 surface coating is a ready-made, clear fluid of a fluoroacrylate polymer that is diluted with Purosolve71 hydrofluoroether solvent.

The coating creates a surface with good anti-humidity, anti-surface diffusion and anti-corrosion properties.

With a surface energy of 11-12 mN/m, liquids such as water, heptane and toluene as well as lubrication oils and silicones can run off the surface freely, while the protective film stays intact.

Typical application fields are the coating of circuit boards and electronic components such as micromotors, MR heads, MEMS as well as diverse hard disk components.

For applications in electronics, bonding of metallic pins is possible despite the coating. As a general rule, test probes can be used with all the pins. Masking of contact areas is usually not necessary.

Application of Purocoat17 requires control of the bath concentration. The supplier offers calculation aids and necessary equipment for the bath control to ensure that the bath concentration stays within the scale in order for the desired layer thickness to be reached.

As a rule, the coating process using the dipping method takes between 15 and 60 seconds until all surfaces are completely wetted. If a bath concentrate of 2% (Purocoat17/02) with a solid content of $\pm 0.2\%$ is adhered to, a coating of ca. 400 nm results. This is the film that remains on the assembly while emerging out of the bath. For the bath dosage, Purocoat17/10 concentrate with a 10% solid content is used for increasing the bath concentration, and Purosolve71 diluent for decreasing it. Puretecs GmbH coating machines ensure that the coated assemblies come out of the machine dry and that the elements of the solvent are recycled or deliberately channelled out to keep the bath concentration constant. The drying process takes a few minutes.

Typical physical properties

Appearance	Clear, achromatic to light liquid
Proportion of fluoropolymer	0-10% (0% with Purosolve71; 2-10% with Purocoat17/2-10)
Solvent:	HFE Purosolve71
Specific density at 25 °C	1.52 g/cm ³
Viscosity	~ 0.38cSt
Boiling point of the solvent	61 °C
Flash point	Not inflammable
Thermal stability of dried film	From -50°C to +175°C. Repels chlorinated silicone oil after 24 hours at 175 °C
Surface energy of dried film (mN/m)	11-12
Glass transformation point	-34 °C
Volume resistivity at 30% RF and 25 °C	4.6 x 10 ¹² ohms
Dielectric constant at 30% RF, 25 °C at 1 kHz	7.39
Film thickness (dipping treatment)	~ 400 nm
Dielectric dissipation factor at 30% RF, 25 °C	3.1 at 1 kHz
Dielectric strength at 35% RF, 25 °C	0.0089
Ageing and UV resistance	Very good. At least 15 years.
Refraction index	1.38

Environmental properties

Ozone decomposition potential: (ODP)	0.0
Global warming potential: (GWP)	320
Atmospheric lifetime	4.1 years
Combustibility according to UL-94	V-0
Label	No hazardous substance
Hazardousness	Non-toxic
<small>1 CFC-11 = 1.0</small>	
<small>2 GWP 100 years Integrated Time Horizon (ITH)</small>	

Processing instructions

Procedure	Immersing in bath
Immersion times	No minimum duration. Bubble-free immersion
Emergence speed	At least 50 mm/sec
Dry times	ca. 2-10 minutes. Dependent on the geometry
Particularities	Avoid scooping components
Control of the fluoropolymer proportion	Weighing out of test quantity
Limits of the fluoropolymer proportion	± 10%
Retrieval of solvent	Through condensation
Removal of coating	Soluble in fluorinated solvents, e.g. Purosolve71

Apply Purocoat without plant engineering

Purocoat17/02 (2%) can also be applied in containers sporadically in addition to the facilities of Puretecs. The most suitable are stainless steel, glass and almost all common plastics. The container should have a tightly closing lid because Purosolve and Purocoat are very volatile and the solution evaporates very fast. Make sure to keep the container open only during the process time. Should the bath no longer be used, it is best to store the coating liquid in transport containers.

Immerse the complete assembly into the bath and make sure that all air cells can escape. Then you can take the assembly out of the bath again and allow it to drain at an angle over the bath. Pay attention to nests in the assembly, from where the liquid cannot possibly escape, e.g. sockets without drain channels in particular. In this case tip the assembly accordingly. If drops no longer appear, the coating is mainly dry and the assembly can be immediately processed further. Provide sufficient ventilation because it takes a while for the coating to evaporate.

Pay attention to the bath concentration. Follow our measurement instructions. The bath concentration can be adjusted again by means of evaporation, a diluent or a concentrate. From time to time remove dirt from the surface of the bath and on the container's edge. Purocoat can be easily cleaned using paper filters.

Removal of Purocoat

The polymer film can be easily removed with fluorinated solvent. By immersing or better by means of a solution vapour (e.g. Purosolve71), Purocoat can be removed without residue. Purosolve71 vaporizes already at 61°C. Therefore, the process is not related to a high temperature load.

Disposal of Purocoat

Liquid Purocoat17 must be disposed of professionally. It must not be introduced into the sewage or into waters with fish. Remnants, bath solutions without sufficient concentration and channelled out solvents from the drying zone of the facilities are taken back by the supplier. The baths can always be filled again. Replacement is not necessary. As a result, no considerable amounts of the material are formed for disposal. Allow water contaminated with Purocoat to evaporate. Dried Purocoat can be disposed of with general household waste.

Safe handling of the product

Before you use the product Purocoat17 electronic surface coating and Purosolve71 solvent, please read the relevant actual safety data sheet of the product. Please follow all of the precautionary instructions specified therein. The document is available on request or from our website. Before the use of our product, please make sure that it is suitable for the intended use.

Packaging units and storage

Purocoat is delivered in 1 kg, 7 kg and 15 kg aluminium bottles, Purosolve in 1 kg and 7 kg aluminium bottles and in 15 kg canisters. The bottles are resealable. They can be stored in the bottles. The storage room should be ventilated. The storage capability of the material is not limited. However, please avoid heating over 60°C.

Should you have any questions concerning the material and its processing, please feel free to contact:

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