

Advantages of dielectric in MKP capacitors

The use of nitrogen as filler of the condensers has been particularly publicized in the last period by some manufacturers, but this technology, although cheaper, does not provide technical benefits on performance.

COMAR Condensatori has decided not to invest in this technology for applications, such as power factor correction, in which the expected life is always greater. The dissipation of heat generated in normal operation has always been the main problem of the capacitors. For this reason the **use of oil and resin**, with the use of aluminium housings, **allow to disperse heat up to 5 times more than nitrogen and other solutions** available today.

The vegetable oil treatment process we mainly use for the **MK-AS** series is guaranteed by very recently designed machinery and by a process control that ensures maximum and constant quality.

Even our resin "dry" capacitors are based on the same production technology and are highly reliable. In our over fifty-year experience, condenser fire cases are always rooted in improper use and / or in the scarce (absent) preventive maintenance.

DIELECTRIC FOR P.F.C. CAPACITORS in POLYPROPYLENE FILM (MKP)

Filler	THDi (harmonic distortion rate in current)	Assembly	Expected life	Dielectric strength	Thermal conductivity	MKP oxidation prevention	Fire risk	Manuf.g cost
<i>Nitrogen</i>	≤ 25%	Horizontal or Vertical	+	=	- -	+	+	-
<i>Vegetable Oil</i>	≤ 40%	Vertical	++	+++	+++	++	++	+
<i>Resin</i>	≤ 40%	Horizontal or Vertical	++	++	++	+++	+	++

Regarding thermal conductivity:

Filler	Thermal conductivity
<i>Nitrogen</i>	Low heat dissipation with MKP elements overheating
<i>Oil</i>	Excellent heat dissipation from the MKP elements
<i>Resin</i>	Good heat dissipation from the MKP elements

Regarding the oxidation prevention:

Filler	Oxidation prevention of MKP:
<i>Nitrogen</i>	Difficulty assessing the nitrogen content in the capacitor. Risk of leakage due to micro punctures or cracks
<i>Oil</i>	Content of water vapor / oxygen in the oil is controlled
<i>Resin</i>	The gel / semisolid matrix blocks oxidizing agents

Regarding the residual fire risk:

Filler	Residual fire risk:
<i>Nitrogen</i>	Flammability of polypropylene
<i>Oil</i>	Oil vapors are flammable at temperatures > 185 ° C
<i>Resin</i>	Flammability of polypropylene

This is why COMAR Condensatori has decided not to use nitrogen as a dielectric, albeit cheaper, as it does not provide technical advantages over performance.