Must for electrical engineers / power capacitor users

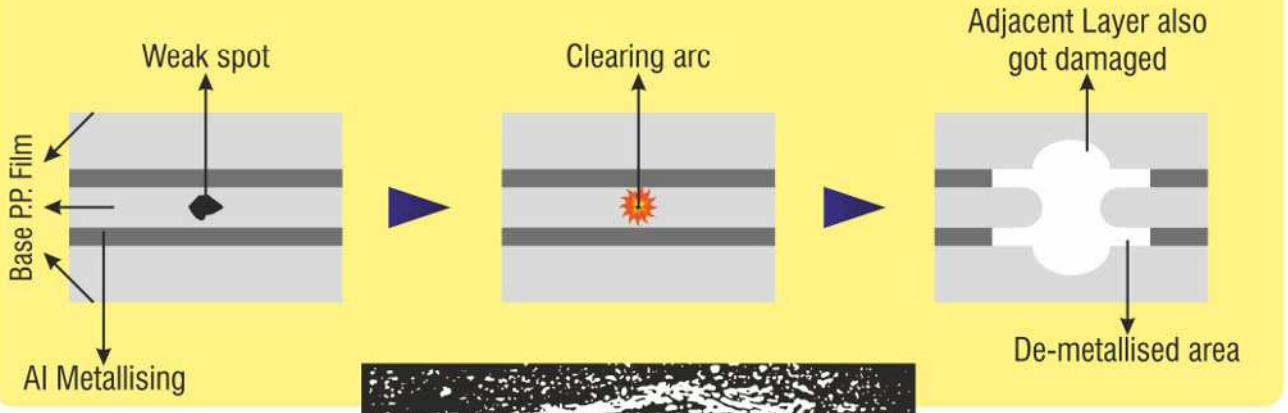
मालदे

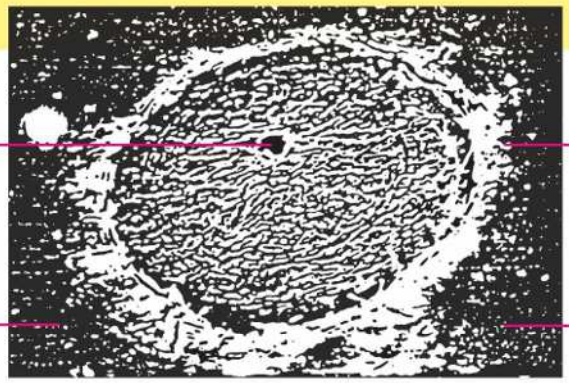
SINCE 1975

Malde

Why Self Healing Metallised Polypropylene (MPP) Power Capacitors are Short Lifed in our Country? - on account of Self Healing

- Self Healing is followed by the breakdown of dielectric, in MPP Capacitors





Burnt Polypropylene Film (Generates Heat + $H_2\uparrow$)

Zone of high electrical stresses- Due to Edge Effect (Site for corrosion)

Extremely thin Al Metallising

Metallised Al evaporated in wider area

$E \propto V^{4.7}$ Where E - Quantum of heat energy generated during self healing.
V - Voltage.

Supply voltage in developed countries - 220 V or 380 V
Supply voltage in our country - 415V/440V.
Let us consider the quantum of heat energy generated during self healing process.

In developed countries $E \propto (220)^{4.7}$ Or $(380)^{4.7}$

In our country $E \propto (440)^{4.7}$ Or $(460)^{4.7}$ during light load periods

Kindly workout the above and find out the following.

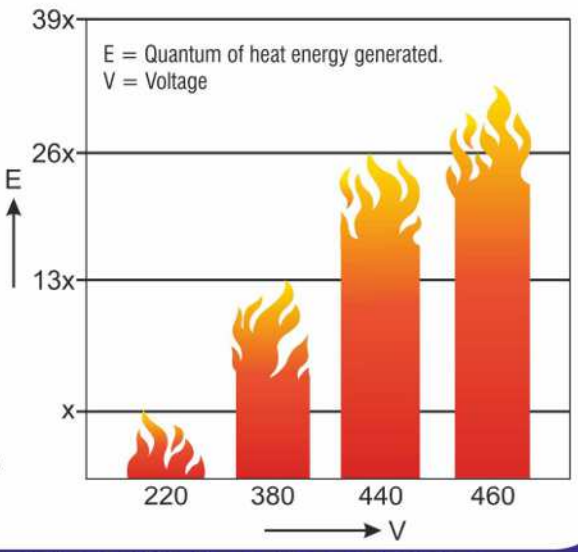
Say at 220 Volts E = X

at 380 Volts E = 13 X

at 440 Volts E = 26 X **(26 times!)**

at 460 Volts E = 32 X

This tremendously high quantum of heat energy will damage the adjacent layers of polypropylene film, causing successive self healing and generating big quantum of gases (sometimes resulting in fire / bursting of capacitors) Hence prematured failure.



SELF HEALING IS SELF KILLING OF POWER CAPACITORS

Note: Compare to developed countries, our conditions differ: • High ambient temperature. • Voltage shoots upto 460V during low peak hours. • Distributions system is not well protected against transients / spikes and harmonics.

Now you will realise,
Why our design engineers go for the costlier
FILM+FOIL
super technology
and have always
flatly refused the acceptance
of Self Healing MPP (SH-MPP)
technology for
MALDE POWER CAPACITORS.

Q *Is the specification FILM+FOIL sufficient to get good power capacitor ?*

A *ABSOLUTELY NO. Something else also should be specified.*

- Must be genuine **FILM+FOIL** DESIGN - Which is non self healing. It comprises of a layer of hazy polypropylene film of 14 micron as dielectric and 5 micron high purity, soft – annealed aluminium foil as a conducting plate.

Beware of following terminologies - MISUSED

1. **MD - XL :** Some manufacturers may offer Single Layer - Self Healing Double Metallised Paper designed capacitors with 0.2 Watt to 0.5 Watt / KVAr losses.
2. **Double Dielectric / Heavy Duty** : Some manufacturers may offer Single Layer - Self Healing MPP designed capacitors with 0.5 Watt / KVAr losses.
3. **All PP / FILM+FOIL** : Some manufacturers may offer Single Layer PP designed capacitors with 10 micron Polypropylene film.

- Impregnant should be of Capacitor Grade i.e. SAS - 60E Premixed with 0.7% epoxide' and should not be transformer oil,castor oil and rape-seed oil.
- Raw material should be of good quality. By going for inferior quality raw materials, price can be reduced considerably, but premature failure becomes confirmed.
- Bushing should have high mechanical strength and the method of fixing should be proper to get leakproof joint.
- Must have built-in fuse with each wound coil.
- There should be a meaningful guarantee that **NO REDUCTION IN OUTPUT OR NO FALL IN CURRENT FOR 60 MONTHS.** If any reduction is found, either capacitor should be replaced and the same guarantee should be given from the date of replacement or **REFUND** of hard earned money invested.
- If you want to know more details about the different technologies of power capacitors, please ask for detailed technical booklet. It is yours, absolutely free of cost.

FILM + FOIL
LONG LIFE DESIGN

HUMBLE REQUEST TO ALL POWER CAPACITOR USERS

At least now, make a routine habit to measure a capacitor current with help of Ammeter / Tong Tester once in two months and maintain the records. If any reduction in current / failure of capacitor is noticed, please protest to the supplier / manufacturer immediately. This may help you to protect your investment in power capacitor.

Check the Name Plate of failed capacitor - MAY FIND TYPE AS "SH-MPP", MAY CONCLUDE AS NOT SUITABLE FOR OUR VOLTAGE SUPPLY SYSTEM AND AMBIENT TEMPERATURE. **READ**

If you feel that we are providing Good Information, then please send the Name, Contact Number & Address of Electrical Consultants / Contractor / Panel Builder

Given for information upto our best of knowledge without any guarantee as regards either for mistake or omission

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25 KVAr x 4 Nos. in Bank form