INSULATING MATERIALS CLASSIFICATION

S 1

1 - GENERALITIES

RTE	CLASS	OLD DESIGNATION
< 90	70	
> 90 - 105	90	Y
> 105 - 120	105	A
> 120 - 130	120	E
> 130 - 155	130	B
> 155 - 180	155	F
> 180 - 200	180	H
> 200 - 220	200	
> 220 - 250	220	
> 250	250	

These are the maximum authorized temperatures to the hottest point when the machine is used at a nominal rate (Norm NF EN 60085 - C26-206).
This does not mean that those temperatures can be indefinitely maintained. Nevertheless, the experience shows that in usual conditions that is in case of alternance of full charge and lower charge working and when cooling conditions are not constantly the hardest, the machine life is usually satisfactory when these maximum values are respected.
Such a classification as the one of the chart 2 can not be accurate and exhaustive as we constantly develop new products. For the latest, it is necessary to compare with existing products, taking into account the results of enough satisfactory tests or experiences.
In fact, even for above mentioned products, and in case of use in high tension machines, the quality and longevity of an insulation depend on the process and put up of the materials used.
On the other hand, the inevitable lack of details of some designations makes difficult the exact assessment of the quality of products.
Some of these products can have much more properties than most of average quality products in the same category.
It is therefore up to the manufacturer to take the responsability of the right qualification of the insulation materials he uses.
Finally, the insertion of new insulating materials in this chart has to be made with care, it is possible that some products show superior heat properties than those of the class to which they were temporary attributed.
The up date of the chart will thus be carried out as soon as the experience will prove its necessity.

2 - CLASSIFICATION ACCORDING TO C 51 - 100 , ADD I of 14 -05 -1957

2.1 - MAIN PRODUCTS CORRESPONDING TO INSULATING CLASSES.

2.1.1 - CLASS Y - maxi 90°C

- Cotton
- Natural silk
- Papers
- Insulating cardboard
- Vulcanized fibre
- Wood
- Polyvinyl chloride
- Natural vulcanized rubber

Internet : www.e-bourgeois.com
E-mail : info@e-bourgeois.com

80440 - DOMMARTIN - FRANCE
TÉL. +33 (0)3 22 09 50 11 - FAX. +33 (0)3 22 09 64 16

2.1.2 - CLASS A - maxi 105 °C
- Cotton.
- Natural silk.
- Papers, Varnished papers.
- Insulating cardboards.
- Vulcanized fibre, Cellulose acetate.
- Wood, Varnished cotton or silk based cloths.

2.1.3 - CLASS E - maxi 120 °C
- Polyurethane, Cotton laminates, Melamine laminates.
- Cellulose triacetate, Polyethylene terephtalate.
- Melamine Formaldehyde, phenol formaldehyde, phenolfurfural.

2.1.4 - CLASS B - maxi 130 °C
- Glass fabric varnished with oil and class B synthetic resins.
- Mica agglomerated with class B resins.
- Glass fabric and class B resins laminates.

2.1.5 - CLASS F - maxi 155 °C
- Polyester.
- Glass fabric varnished with class F resins.
- Mica agglomerated with class F resins.

2.1.6 - CLASS H - maxi 180 °C
- Glass fabric varnished with class H resins.
- Mica agglomerated with class H resins.
- Glass fabrics and silicone resins laminates.
- Silicone elastomeres.

2.1.7 - CLASS C - over 180 °C
- Mica, Porcelain, Quartz, Glass, Aramide.
- Heat treated glass fabric.
- Agglomerated mica, Polyetrafluorethylene (not under 250 °C).

2.2 - MAIN VARNISHES OR RESINS CORRESPONDING TO THE INSULATION CLASSES.

2.2.1 - CLASS Y
- Aniline, formaldehyde resins.
- Urea, Formaldehyde resins.

2.2.2 - CLASS A
- Polyester resin with cross wrap.
- Varnishes based on natural resins and siccative oils.
- Lac, Copal, Synthetic resins.
- Phenol, Formaldehyde resins.

2.2.3 - CLASS E
- Polyester resins with cross wrap.
- Polyethylene terephtalate, Phenol resins.
- Varnishes based on alkyde resins and oil.
- Melamine formaldehyde resins.
- Phenolfurfural resins.

2.2.4 - CLASS B
- Varnishes based on synthetic resins and oil.
- Lac, Epoxy resins.
- Asphaltic and bituminous compounds.
- Polyester resins with cross wrap.
- modified synthetic resins.
- Alkyde resins, Asphaltic and synthetic oily resins.

2.2.5 - CLASS F
- Alkyde resins, Epoxy resins, Silicone.
- Polyester resins with cross wrap.
- Polyurethane with high heat stability, Alkyde resins.

2.2.6 - CLASS H
- Selected silicone resins.
- Silicone elastomeres.

2.2.7 - CLASS C
- Derived silicone resins which have a high heat stability.

3 - REMARKS

The class of temperature defins a set composed of the product and the resins or the impregnation material but not the product itself.

The resins or impregnation products can have other reactions with other different promptings from temperature. For example, pressure can drop the use temperature of a product.

Each user must therefore bare in mind the above mentioned information and study his particular problem.

BREAKDOWN TENSION = WORKING TENSION x 2 + 1000 VOLTS