



PRODUCT STANDARD - HYDROGENERATOR
CORE PLATE VARNISH (TEMPERATURE INDEX 155°C)

HG - 10122 Rev.00

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AN ALKYD PHENOLIC BASED, CORE PLATE VARNISH WITH THINNER
(TEMPERATURE INDEX 155 °C)

1.0 INTRODUCTION

Core plate varnish is used for insulation of Cold rolled non grain oriented sheet steel lamination which is used as stator core of hydrogenerators / motors. The bought out raw laminations have C6 pre-coating thickness of 4-6 microns. Core plate varnish is applied on laminations to achieve the desired thickness of insulation 9-14 microns on both sides.

The insulation class of hydrogenerators / motors is Class F and hence core plate varnish having temperature index of 155 °C is used for such application.

2.0 PRODUCT DESCRIPTION

Core plate varnish is a polyester based core plate varnish. The product consists of a polymeric binder and a solvent mixture. After evaporation of the solvent by means of a conveyerised baking oven, the resin react under application of heat to form a uniform cured film.

3.0 PROCEDURE FOR APPLICATION ON LAMINATIONS

Core plate varnish with compatible thinner is applied with the help of rollers in a conveyerised oven. The thickness of film is adjusted with the help of roller pressure and suitable thinner. The curing of the varnish takes place in a heated oven having temperature 350 °C to 450°C for a period of 1-2 min.

4.0 PROPERTIES OF CORE PLATE VARNISH

S.No.	Description	Unit	Properties
1	Colour & appearance		Yellow to reddish brown, clear liquid
2	Solid content	%	48 - 52
3	Viscosity at 25 °C		115 - 145
4	Density at 23 °C	g /ml	0.95
5	Flash point	°C	29
6	Drying in thin film 210 °C /10 min		Tack free
7	Storage life at 25°C	minimum	12 months

REVISION:

HYDROGENERATOR ENGINEERING DIVISION
BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL.

PREPARED BY

P.K. VERMA

CHECKED BY

A.DIXIT

APPROVED BY

A.BISWAS

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5.0 PROPERTIES OF THINNER FOR CORE PLATE VARNISH

S.No.	Description	Unit	Properties
1	Colour & appearance		Clear
2	Density at 23 °C	g /ml	0.8
3	Flash point	°C	>30
4	Storage life at 25°C	minimum	12 months

Note : The thinner should be compatible with core plate varnish.

6.0 PROPERTIES OF CURED VARNISH FILM

S.No.	Description	Standard	Unit	Required Value
1	Breakdown Voltage	IEC 60464-2	Volt	250 min
2	Volume resistivity	IEC 60093	Ohm-cm	1 x 10 ^11 minimum
3	Flexibility Mandrel test	IEC 60464-2 12 mm diameter DIN 46456	-	varnish coating shall not show crack / peel off on any side
4	Pencil Hardness	IEC 60464-2	-	7 H
5	Resistance to solvent Xylene	25 rubs with SWAB soaked in	-	No effect on film
6	Surface Insulation resistivity	ASTM 4717	Ohm-cm ²	1000 minimum
7	Surface Insulation resistivity after 155 °C for 24 hours	ASTM 4717	Ohm-cm ²	700 minimum
8	Coating adherence test	ASTM D3359 (Cross cut device)	-	Coating shall not show cracks / peeling off on any side.
9	Coating layer thickness		-	uniform coating
10	Temperature Index	-	°C	155

7.0 REFERENCE STANDARDS

1) IEC 60464-2 2) IEC 60093 3) ASTM 4717 4) ASTM D3359

8.0 PACKING

Vendor to furnish the packing details of Core plate varnish and thinner.