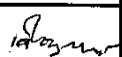
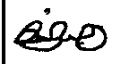
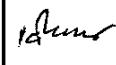
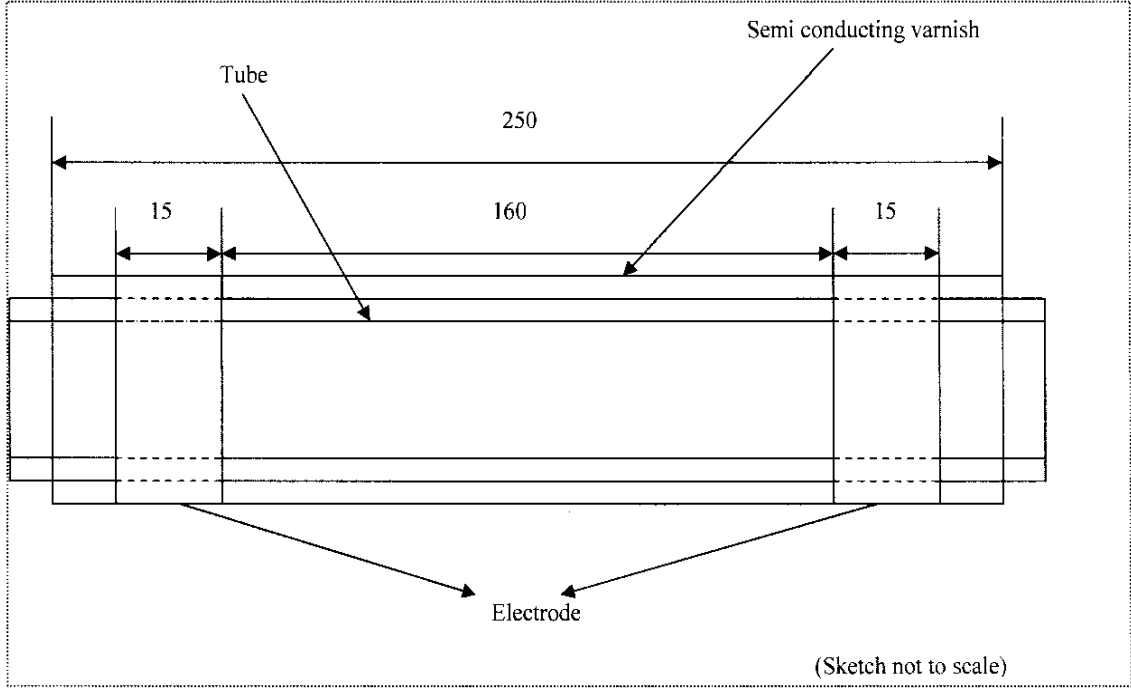


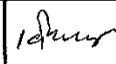
दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हार्डवयर) PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)		HW 27869
				मुख पृष्ठ PREFACE SHEET
सामग्री सूची संख्या को SUPERSEDES INVENTORY NO.	<u>SEMI CONDUCTING VARNISH</u> केवल आंतरिक प्रयोग हेतु प्रदायक को देने से पूर्व इस मुखपृष्ठ को निकाल दें । FOR INTERNAL USE ONLY REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS समतुल्य मानक/सूची आदि COMPARABLE STANDARDS / CATALOGUES ETC. सुझाए/सम्भावित प्रदायक एवं श्रेणी SUGGESTED / PROBABLE SUPPLIERS AND GRADES. VONROLL ISOLA - SWITZERLAND GRADE : SIB 8001 (FORMERLY SIB 642) कोई अन्य जानकारी ANY OTHER INFORMATION			
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स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।				
दिनांक एवं हस्ताक्षर SIGN & DATE 				
सामग्री सूची संख्या INVENTORY NO. P-3306	स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE		PPS 2-71	
REV.NO. 02 Dt. 30-04-07	(SUPERSEDES)	निर्माण : PREPARED : ISE & CPL	जारी : मानक विभाग ISSUED : STANDARDS DIVISION	दिनांक : DATE : 05-08-93

दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हार्डवेयर)		HW 27869	
		PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)		पृष्ठ का Page 1 of 5	
सामग्री सूची संख्या को अधिकृतित कराते है	SUPERSEDES INVENTORY NO.	<u>SEMI CONDUCTING VARNISH</u>			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.		1. GENERAL : This specification governs the requirements of Semi conducting varnish consisting of modified Phenolic resin as binding agent, solvents and silicone carbide powder. The material is of proprietary nature and corresponds to varnish grade SIB 8001 of M/s VonRoll Isola – Switzerland. The varnish is suitable for machines of Thermal class B-F .			
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग को कि कम्पनी के हित में हानिकारक हो न किया जाए		2. APPLICATION : The varnish is used for end corona protection applications on stator coils and bars of High voltage electrical rotating electrical machines. The varnish is applied generally with a brush on the insulation surface.			
3. COMPLIANCE WITH NATIONAL STANDARDS :		There is no Indian standard covering this type of material. This is based on BHEL experience.			
4. PROPERTIES :		4.1 GENERAL QUALITY : Because of the high density of the pigment/filler, it has a tendency to settle down. The varnish shall be thoroughly stirred to make it uniform before use. The quality of coating obtained shall be smooth, uniform and without hair-line marks. Skin formation in sealed container of the varnish is not permissible.			
दिनांक एवं हस्ताक्षर SIGN & DATE 17/11/01	सामग्री सूची संख्या INVENTORY NO. P-3306	नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE	TSX QAX EME सहमत विभाग AGREED DEPTT.	
नाम NAME A.K. CHATURVEDI	दिनांक एवं हस्ताक्षर DATE & SIGNATURE 30.04.07	अनुवादक TRANSLATED BY	निर्माणकर्ता WORKED BY S.A. MIRAJ	जांचकर्ता CHECKED BY V.C. GOYAL	
नाम NAME R.K. SINGH	दिनांक एवं हस्ताक्षर DATE & SIGNATURE 30.04.07	पर्यवेक्षणकर्ता SUPERVISED BY V.C. GOYAL	30.04.07		
स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE		PPS 2.71		निमार्ण : जारी : मानक विभाग ISSUED : STANDARDS DIVISION	
REV.NO. 02 (SUPERSEDES) Dt. 30.04.07		तैयार : PREPARED : ISE & CPL		दिनांक : DATE : 05.08.93	

दिनांक एवं हस्ताक्षर SIGN & DATE				संस्थान क्रय विनिर्देश (हीप - हार्डवेयर) PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)		HW 27869 पृष्ठ का Page 2 of 5		
सामग्री सूची संख्या INVENTORY NO. सामग्री सूची संख्या को अनिवार्यतापूर्वक रूप से धारित किया जाना चाहिए।		4.2 Colour : Grey 4.3 Viscosity : (a) 900 ± 100 mPa.s at 20°C (When measured as per DIN 53019) (OR) (b) 190 ± 10 seconds at $27 \pm 2^\circ\text{C}$ (When measured using Flow cup No.4 as per IS 3944) 4.4 Solid content : $52 \pm 3 \%$ 4.5 Pigment content : Min. 35 % :- For reference 4.6 Drying time at Room Temp. ($\approx 23^\circ\text{C}$) : Surface dry : ≈ 30 minutes Complete dry : ≈ 10 hours 4.7 High voltage test on tube : Shall withstand 60 kV for 10 minutes without flashover , tracking or excessive heating 5.0 SAMPLING : One sample of about 0.5 litre quantity shall be taken for testing from a lot of every ten containers, after thorough stirring of the contents . If the results of this sample do not meet the specification , then two more samples are drawn from remaining containers. If two of three results do not meet the requirements of this specification then the lot is considered as not conforming to the specification. 6.0 SHELF-LIFE : The varnish shall have a minimum shelf-life of 12 months when stored at $20 - 25^\circ\text{C}$ under sealed condition in a dry place . 7.0 TEST METHODS : 7.1 Solid content : As per standard IEC 60464-1/-2 OR IS 101 , Part-2 , Section 2 7.2 Pigment content : As per standard IS 101 , Part 8 , Section 2						
स्वत्वधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत देशी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं अपरचलन के बिना किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।		COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.						
हस्ताक्षर एवं दिनांक SIGN & DATE 		REV.NO.				निर्माणकर्ता WORKED BY S.A. MIRAJ		 30.04.07
सामग्री सूची संख्या INVENTORY NO. P-3306		02				जांचकर्ता CHECKED BY V.C. GOYAL		 30.04.07

दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हार्डवयर) PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)		HW 27869	
				पृष्ठ Page	का of
सामग्री सूची संख्या INVENTORY NO.	SUPERSEDES INVENTORY NO.	7.3 Drying time : Preparation of Test panel : A plane glass panel , free from surface irregularities , of approximate size 150 x 150 x 2 mm , shall be taken. This shall be cleaned to remove oil and grease, by the following method.. The panel is dipped in Trichloroethylene or carbon tetra chloride solvent and rubbed with a clean and soft cloth. The panel is further rinsed thoroughly with water and then washed with soap and water until the wetted panel shows no water breaks, when held in vertical position. The panel is then allowed to to dry in dust-free air. The semi conducting varnish is applied on the test panel, prepared as above, either by brush or by careful spraying , to obtain a smooth and uniform coat. The coated panel is dried in horizontal position at an ambient temperature of about 23 – 27°C for the specified time period. After this period , a piece of tissue paper of approx. diameter 20 mm is placed on the dried varnish film and is further loaded with 100 g weight for surface-dry check and 200 g weight for complete(hard)-dry check , for one minute. The paper should not stick to the varnish film when lifted after removal of the weight.			
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.		7.4 High voltage test on tube : Approximately 250 ml sample is taken from the original container after thorough stirring. The viscosity of this sample is adjusted to 25 – 30 seconds by flow cup by adding thinner of following composition. 1. Butanol (Butyl Alcohol) - LR Grade : 3 Parts by Vol. 2. Ethyl Acetate - LR Grade : 2 Parts by Vol. The varnish is then applied uniformly by brush on a Phenolic laminate tube or any other suitable tube of outer diameter approx. 30 mm and of length approx. 400 mm . After a period of minimum one hour , a second coat of the same varnish is applied. This is allowed to dry for about 24 hours at Room temperature. Aluminium foil electrodes are applied as per the arrangement shown in Figure-I . The sample is subjected to high voltage test at 60 kV for 10 minutes between the two electrodes. The sample is considered to have passed the test, if there is no flash-over or tracking during the test duration and no excessive heating is observed on the surface of the sample after completion of the test .			
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।	दिनांक SIGN & DATE	REV.NO. 02 निर्माणकर्ता WORKED BY S.A. MIRAJ  30.04.07 सामग्री सूची संख्या INVENTORY NO. P-3306 जांचकर्ता CHECKED BY V.C. GOYAL  30.04.07			

दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)		HW 27869 पृष्ठ का Page 4 of 5	
सामग्री सूची संख्या को अधिकतम करता	SUPERSEDES INVENTORY NO.	FIGURE – I 			
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स्वत्वधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं आवरण केवल उसी के बिना की जायेगी जो कि कम्पनी के हित में हानिकारक हो न किया जाए।		8. TEST AND COMPLIANCE CERTIFICATE : The supplier shall furnish certificate of compliance to this specification/Grade SIB 8001 and Test certificate , with each supply of the material. The certificate shall carry information about the grade , Batch/lot No., date of manufacture/expiry, Test results obtained and preferably BHEL P.O.No.			
9. CRITERIA FOR ACCEPTANCE : The material shall be accepted on the basis of compliance certificate to this Specification / Grade SIB 8001 furnished by the supplier .					
दिनांक एवं हस्ताक्षर SIGN & DATE 17/5/07	REV.NO. 02	निर्माणकर्ता WORKED BY S.A. MIRAJ	जांचकर्ता CHECKED BY V.C. GOYAL	30.04.07	30.04.07

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सामग्री सूची संख्या INVENTORY NO.	SUPERSEDES INVENTORY NO.	10. PACKING & MARKING : The varnish shall be packed in air-tight tin containers of 5 kg capacity. Each container shall be marked giving following information. i) Material name / Specification No. ii) BHEL P.O.No. (Optional) iii) Net weight / Gross weight iv) Manufacturer's name & Lot reference v) Date of manufacture./ expiry & Storage conditions			
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स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।		12. CROSS REFERRED STANDARDS : DIN 53019 , IS 3944 , IEC 60464-1/-2 , IS 101 , Part-2 , Section 2 , IS 101 , Part 8 , Section 2			
दिनांक DATE		13. REJECTION : BHEL reserves the right to reject the entire lot of the material not conforming to the requirements of this specification. Parts of the lot not subjected to testing but found to be defective or to contain hidden defects can be rejected at a later stage.			
सामग्री सूची संख्या INVENTORY NO.	REV.NO.			निर्माणकर्ता WORKED BY	जांचकर्ता CHECKED BY
P-3306	02			S.A. MIRAJ	V.C. GOYAL
					
				30.04.07	30.04.07