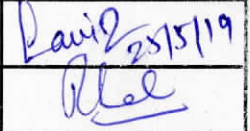
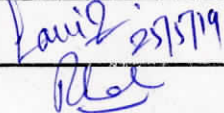


दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनीर्देश (सी एफ एफ पी) PLANT PURCHASE SPECIFICATION (CFFP - HARDWAR)	FF06025 Rev05 पृष्ठ का Page 1 of 5		
SUPERSEDES INVENTORY NO सामग्री सूचित संख्या को अधिग्रहित करें	ALKALINE PHENOL FORMALDEHYDE RESIN AND CATALYST SYSTEM				
COPYRIGHT AND CONFIDENTIAL 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 technical requirements of Alkaline Phenol Formaldehyde resin and catalyst used in Foundries. 2. Application 2.1. The resin and catalyst shall be used as binder to prepare sand mix (silica or chromite) for making mould and core making in Foundries. 2.2. The resin and catalyst are to be procured from same source as a system. The supplier shall stand guarantee for the performance of combination and ensure the compatibility of resin and catalyst with sand. 3. Compliance with national/international standard There is no national standard in compliance with above standard. However, references have been drawn from IS 10032:2013 4. Appearance 4.1. The resin shall be clear liquid, reddish brown or dark red in colour, free from dust and other visible impurities. 4.2. The catalyst shall be colourless to pale yellow clear liquid, free from any suspended matter. 4.3. During storage, separate layer at top and sedimentation at the bottom should not be formed within the stipulated shelf life. 5. Properties 5.1 RESIN: The resin when tested shall have the following properties:				
इस प्राप्ति में दी गयी सूचना भारत हैवी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप में किसी भी तरह प्रयोग, जो की कंपनी के हित में नहीं है, न किया जाये					
दिनांक एवं हस्ताक्षर SIGN & DATE सामग्री सूचित संख्या INVENTORY NO	SF RMI Chairman PSC सहमत विभाग Agreed Deptt	Shailendra Kumar Arun Agrawal GM Verma नाम Name	दिनांक एवं हस्ताक्षर Date and Signature	अनुवादक TRANSLATED BY निर्माणकर्ता WORKED BY जांचकर्ता CHECKED BY अनुमोदित APPROVED BY स्वकृति: संस्थान मानक समिति APPROVED: PLANT STANDARDS COMMITTEE निर्माण: PREPARED: FOUNDRY TECH	L Agrawal R Lakra Tushar Dave जारी: फाउंड्री प्रौद्योगिकी ISSUED: FOUNDRY TECHNOLOGY दिनांक DATE 25.5.2019

दिनांक ऐसा हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (सी एफ एफ पी) PLANT PURCHASE SPECIFICATION (CFFP - HARDWAR)		FF06025 Rev 05															
				पृष्ठ का Page 2 of 5															
सामग्री सूचित संख्या INVENTORY NO.	SUPERSEDES INVENTORY NO.	<table border="1"> <tr> <td>Viscosity at 30° C</td> <td>30-50 secs measured with B4 cup at the time of receipt.</td> </tr> <tr> <td>Density at 25° C</td> <td>1.2 to 1.3 gms/cm³</td> </tr> <tr> <td>Nitrogen content</td> <td>Traces</td> </tr> <tr> <td>Permission Free Phenol</td> <td>0.5% max</td> </tr> <tr> <td>Permission Free Formaldehyde (Formalene)</td> <td>0.2% max.</td> </tr> <tr> <td>Solid Content</td> <td>50-60% - to be measured by heating up resin at 150 °C for 1 hour on a petridish</td> </tr> <tr> <td>Shelf Life</td> <td>Minimum 8 weeks from date of receipt in CFFP when stored at temperature upto 20 °C max.</td> </tr> </table>				Viscosity at 30° C	30-50 secs measured with B4 cup at the time of receipt.	Density at 25° C	1.2 to 1.3 gms/cm ³	Nitrogen content	Traces	Permission Free Phenol	0.5% max	Permission Free Formaldehyde (Formalene)	0.2% max.	Solid Content	50-60% - to be measured by heating up resin at 150 °C for 1 hour on a petridish	Shelf Life	Minimum 8 weeks from date of receipt in CFFP when stored at temperature upto 20 °C max.
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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.		5.2 CATALYST Catalyst shall be ester material and when used with the resin supplied, will give the properties as per Clause 5.3. The shelf life of the catalyst should be at least one year from the date of receipt of material in CFFP.																	
		5.3 SAND MIX: 5.3.1 The sand mix prepared as per clause 5.4.2 shall be tested for compression strength, bench life and following requirement shall be met.																	
इस प्रालेख में दी गयी सूचना भारत हैवी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप में किसी भी तरह प्रयोग, जो की कंपनी के हित में नहीं है, न किया जाये		<table border="1"> <tr> <td>Time after making of AFS standard specimen</td> <td colspan="2">Minimum compression strength at ambient temperature of 25-30 °C</td> </tr> <tr> <td rowspan="2">A</td> <td>4 Hour</td> <td>12 Kg/cm²</td> </tr> <tr> <td>24 Hour</td> <td>24 Kg/cm²</td> </tr> <tr> <td colspan="3"> In winter months (shop floor temperature less than 20 °C), when the development of strength becomes slow, strength development after 24 hours is to be considered. </td> </tr> <tr> <td>B</td> <td>Bench life</td> <td>10- 35 minutes at shop floor ambient temperature which peaks around 40 - 44 °C in May-June and dips to as low as 3-5 °C in Dec-Feb</td> </tr> </table>				Time after making of AFS standard specimen	Minimum compression strength at ambient temperature of 25-30 °C		A	4 Hour	12 Kg/cm ²	24 Hour	24 Kg/cm ²	In winter months (shop floor temperature less than 20 °C), when the development of strength becomes slow, strength development after 24 hours is to be considered.			B	Bench life	10- 35 minutes at shop floor ambient temperature which peaks around 40 - 44 °C in May-June and dips to as low as 3-5 °C in Dec-Feb
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दिनांक ऐसा हस्ताक्षर SIGN & DATE		Note: Though the acceptance of the material shall be on the basis of the test results as described above, it is important to note that the resin-catalyst system is used throughout the year having varying temperature and humidity condition. The months of May-June has temperatures going as high as 44 °C with very low humidity levels, whereas, in the months of December to February, the temperatures dips to around 3-5 °C. Vendor to ensure that the supply of resin-catalyst combination is amenable to work in the climatic condition during the shelf life of material.																	
		5.3.2 Gas emission during pouring of the mould: The fumes generated during sand preparation and mould/core making shall not be excessive which inhibit working on the shop floor.																	
सामग्री सूचित संख्या INVENTORY NO.	निर्माणकर्ता WORKED BY		Lavin Agrawal																
	जांचकर्ता CHECKED BY		R Lakra																

दिनांक वेम हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (सी एफ एफ पी) PLANT PURCHASE SPECIFICATION (CFFP - HARDWAR)		FF06025 Rev 05 पृष्ठ का Page 3 of 5	
सुपरसेड्स INVENTORY NO सामग्री सूचित संख्या को अधिग्रहित कर्ता	5.4 Sampling and method of preparation of sand mix 5.4.1 Sampling The composite samples of resin and catalyst shall be drawn from each batch of the consignment in line with sampling procedure given in IS:10032, Annexure B. 5.4.2 Preparation of sand mix Testing shall be done for both chromite and silica sand mixes. The high silica sand or chromite to be used for determining the properties of the sand mix should be absolutely dry (max. 0.5% moisture) and clay content not more than 0.20%. Silica sand (AFS 40-50) / Chromite sand (AFS 45-55) - 100 parts Alkaline Phenolic Resin - 2.2% of silica sand, 2% of chromite sand, by weight Catalyst - 22% of resin by 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 6 Submission of Sample Vendors who are not qualified/registered for this product in CFFP or who have not supplied this material to CFFP in last 5 years from tender opening date, should submit a sample of 10 kg resin and 3 kg catalyst, free of cost, alongwith their technical bid during tender enquiry stage. Laboratory test shall be done based on clauses 4.1, 4.2, 5.1, 5.3.1. Offers of those vendors shall be considered technically acceptable if they confirm all conditions of this specification and the lab results are in conformance to values as stated in this specification. 7 Acceptance Test 7.1 The supplier shall offer the material, batchwise to CFFP only after evaluating the suitability with respect to the properties in Clause 4 and 5. 7.2 CFFP shall however re-evaluate the properties as per Clause 5.3 for each batch of consignment. The properties as per Clause 5.1 will be checked on surveillance basis. 7.3 Within shelf life, if the binder does not meet the property requirements as per clause no. 4 and 5 of this specification, it shall be rejected irrespective of its previous acceptance. The supplier shall be liable for replacing such material free of cost. 7.4 The material shall be judged on shop floor during use for pungency of fumes. If it is found to be excessive and creating difficulties in working, the same shall be rejected.					
इस प्रालेख में दी गयी सूचना भारत हैवी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रालेख एवं अप्रत्यक्ष रूप में किसी भी तरह प्रयोग, जो की कंपनी के हित में नहीं है, न किया जाये					
दिनांक वेम हस्ताक्षर SIGN & DATE					
सामग्री सूचित संख्या INVENTORY NO			निर्माणकर्ता WORKED BY	Lavin Agrawal	
			जांचकर्ता CHECKED BY	R Lakra	

दिनक ऐम हस्ताक्षर SIGN & DATE		संस्थान क्रय विनीर्देश (सी एफ एफ पी) PLANT PURCHASE SPECIFICATION (CFFP - HARDWAR)		FF06025 Rev 05 पृष्ठ का Page 4 of 5	
सुपरसेड INVENTORY NO. सामग्री सूचित संख्या को अधिगृहीत कर्ता	8 Inspection, Deviation and Replacement 8.1 BHEL reserves the right to inspect material at site before despatch. The supplier shall intimate in advance enclosing a copy of test certificate of the material offered for inspection. However, inspection at BHEL shall be final. The supplier shall offer BHEL representative all reasonable test facilities without charge to satisfy the latter that the material is being furnished in accordance with this specification. The supplier shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities are not available at his works, the supplier shall make necessary arrangements for carrying out the prescribed test elsewhere. 8.2 If the material received is not found in accordance with the requirements, it shall be rejected and the supplier will have to replace it free of cost at the earliest.				
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	9 Test Certificates 9.1 Unless otherwise specified, one original and three copies of original manufacturer's test certificates shall be supplied with each consignment bearing the following information. In order to facilitate quick clearance of material, the supplier shall ensure to send a copy of test certificate along with despatch document. a. BHEL PO No. with Date b. Specification No. c. Supplier reference d. Identification No. / Batch No. e. Date of manufacture f. Date of expiry g. Test results as per Clause 4 and 5 h. Any change in addition level recommended i. Storage system for resin and catalyst j. Any other specific information which the supplier would like to convey. 9.2 Suppliers other than the original manufacturer shall ensure providing original manufacturer's test certificates with linkage to supplier's invoice stating the batch No., lot No, etc. of the supply.				
इस प्रावधान में दी गयी सूचना भारत हैवी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप में किसी भी तरह प्रयोग, जो की कंपनी के हित में नहीं है, न किया जाये	10 Packing and Marking The resin and catalyst should be supplied in sealed containers. Resin should be in packing of 100-200 kg. Corresponding packing for catalyst should be 25% of resin packing weight. The packing shall be that of original manufacturer's. The material of the container should be such that it will not have any effect on the quality of resin and catalyst. Each container shall have the following marking. (a) Supplier's name and trade mark, if any. (b) Name of the product (c) Date of manufacture and date of expiry (d) Batch No. (e) Net Weight & Gross Weight				
दिनक ऐम हस्ताक्षर SIGN & DATE	सामग्री सूचित संख्या INVENTORY NO.		निर्माणकर्ता WORKED BY	Lavin Agrawal	
			जांचकर्ता CHECKED BY	R Lakra	

दिनांक एम हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (सी एफ एफ पी) PLANT PURCHASE SPECIFICATION (CFFP - HARDWAR)		FF06025 Rev 05							
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सुपरसेड INVENTORY NO.	RECORD OF CHANGES										
समीचीन संचित संख्या को अधिग्रहित कर्ता											
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						REV CODE	NO. OF CHANGES	Nature of change	SHEET NO.	SIGN	DATE
						01	1	Clause No. 5.1 and 6.2, 7.2, 7.3, 9 modified Clause 6.4, 7.4 added	1,2,3		27.2.07
						02	2	Clause Nos. 9 & 10 modified to incorporate original manufacturer's test certificates and packing.	3, 4		18.7.09
						03	3	Clause 6 – criteria for sample submission added. Other clauses renumbered. Testing for chromite sand mix added. Packing clause modified to give weight of packing.	2, 3, 4		20/1/17
						04	4	Sand-Resin-Catalyst mix ratio modified in Clause 5.4.2 Reference of IS-10032 given in clause 3 Viscosity measurement device specified in clause 5.1 Sampling lot defined as per IS10032 in clause 5.4.1	1, 2, 3		25/5/18
05	1	Bench life value modified to give both upper and lower limits. Note on ambient temperature introduced in clause no. 5.3.1	2		25/5/2019						
DISTRIBUTION OF PRINTS											
						RMI					
						STANDARD SECTION					
MATERIAL PLANNING											
दिनांक एम हस्ताक्षर SIGN & DATE	निर्माणकर्ता WORKED BY Lavin Agrawal										
समीचीन संचित संख्या INVENTORY NO.	जांचकर्ता CHECKED BY R Lakra										