

Research Designs and Standards Organisation  
(Traction Installation Directorate)

Reasoned document of TI/STR/025 for Continuous Cast Copper (CCC) Wire Rods.

1. STR no. TI/STR/025 for Continuous Cast Copper (CCC) Wire Rods was uploaded on RDSO website for one month dated 06.07.2020 for seeking comments,
2. Comments/Suggestion received from viewers are as below.

Clause No.	Particular in Draft STR	Comments Received	RDSO Remarks
1.0	<p>This Schedule of Technical Requirements (STR) is to assess manufacturing capability of the Vendor for new Registration /Approval in RDSO to manufacture and supply of Continuous Cast Copper Wire Rods of size 19.1 to 26.5 mm diameter manufactured by South Wire Process.</p> <p>This STR shall be read in conjunction with RDSO Specification No. TI/SPC/OHE/CW/0971 and TI/SPC/OHE/CCC/0871 with latest amendments.</p>	<p><b><u>M/s Vedanta Limited</u></b></p> <p>To include "SMS-Contirod" as well</p>	<p>Not accepted at this stage. Inclusion of Contirod process requires field trials of Contact wire drawn out of CCC rod manufactured by Contirod process.</p> <p>M/s Vedanta vide letter no. TI/OHE/CW/POLICY/18 dated 20.03.2020 was advised to submit the comparison of 19.6 mm rod manufactured by Southwire process and Contirod process. Reply from firm awaited.</p>
		<p>-----</p>	<p>In compliance of Spl DG letter no. SplDG(VD)/Misc dated 25.06.2020 regarding inclusion of Make in India clause added in the technical specification.</p>
2.1.1(i)	<p><del>Raw material : Electrolytic grade Copper cathodes conforming to the requirement of LME Grade 'A' copper as listed in the London Metal Exchange. Copper used, should be Grade 'A' copper conforming to the chemical composition of Cu-Cath-1 of IS 191:2007 or latest.</del></p>	<p><b><u>M/s HCL</u></b></p> <p>Copper <b>Cathode</b> used, should be <b>LME</b> Grade 'A' copper conforming to ..... Cu Cath-1 of IS 191:2007 or latest.</p> <p>LME Gr-A is bench mark for Copper Cathode quality and globally acceptable.</p>	<p>May be accepted</p>
		<p><b><u>M/s Hindalco Industries Limited</u></b></p> <p>Raw material: Electrolytic grade Copper cathodes conforming to the requirement of LME Grade 'A' copper as listed in the London Metal Exchange. Copper used, should be Grade 'A' copper conforming to the chemical composition of Cu-Cath-1 of IS 191:2007 or latest.</p>	<p>May be accepted</p>

		<p><b>Reason:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> LME A Certified Copper cathode is the best quality Copper accepted globally.</li> <li><input type="checkbox"/> Grade A copper conforms to the chemical composition of one of the following standards: <ul style="list-style-type: none"> <li><input type="checkbox"/> BS EN 1978:1998 - Cu-CATH-1</li> <li><input type="checkbox"/> GB/T 467-2010 - Cu-CATH-1</li> <li><input type="checkbox"/> ASTM B115-10 - cathode Grade 1</li> </ul> </li> <li><input type="checkbox"/> Production from more than one production plant must be separately listed in LME.</li> <li><input type="checkbox"/> The LME registration process involve both non-technical and technical aspects like financial status, production practice etc.</li> <li><input type="checkbox"/> On technical criteria like electrolytic refined Cathode, Production to conform chemically to the Grade A Chemical Specification etc. are the parameters to maintain for consistent quality and supply of the material.</li> </ul>	
2.1.1	<p><del>(i) Facilities for sourcing in India or importing copper concentrate (Raw Material) from leading copper mines in the world. In case of later factory should preferably be located nearby port.</del></p> <p><del>(ii) Smelter plant to produce Matte &amp; slag.</del></p> <p><del>(iii) Piere smith converter for Blister copper for treatment of matte.</del></p> <p><del>(iv) Process for refinement of blister copper (98-99%) to make anode copper.</del></p>	<p><b><u>M/s Vedanta Limited</u></b></p> <p>Reinstate 2.2.1 (ii), (iii) and (iv) These clauses not to be deleted</p> <p><b><u>M/s Hindalco Industries Limited</u></b></p> <p>Following Clauses to be continued:</p> <p>(i) Facilities for sourcing in India or importing copper concentrate (Raw Material) from leading copper mines in the world. In case of later factory should preferably be located nearby port.</p> <p>(ii) Smelter plant to produce Matte &amp; slag.</p> <p>(iii) Converter for Blister copper for treatment of matte.</p> <p>(iv) Process for refinement of blister copper (98-99%) to make anode copper.</p>	<p>Not accepted. These facilities are required to make copper cathode from copper concentrate. Raw material for furnace is copper cathode, which is easily available. Including these facilities [2.2.1 (ii), (iii) and (iv) ] in STR, will restrict the manufactures who have rod manufacturing facilities but does not have copper cathode manufacturing facilities. Hence these clause are deleted so that vendor base can be increased.</p> <p>Not accepted. These facilities are required to make copper cathode from copper concentrate. Raw material for furnace is copper cathode, which is easily available. Including these facilities [2.2.1 (ii), (iii) and (iv) ] in STR, will restrict the manufactures who have rod manufacturing facilities but does not have copper cathode manufacturing facilities. Hence these clause are deleted so that vendor base can be increased.</p>

## 134831/2020/O/o PED/II/RDSO

2.1.1(viii)	<p><del>Ultrasonic Eddy current</del> flaw detector.</p>	<p><b><u>M/s Hindalco Industries Limited</u></b></p> <p>As per various specifications of wires including contact wire, the ultrasonic test is required during production stage of Contact Wire by the wire manufacturer. So the above clause is not required.</p> <p><b><i>Reason:</i></b> CCC wire rod is tested by "Eddy current" as per OEM-SouthWire guidelines. Also, Ultrasonic testing is done by contact wire manufacturers pre, post &amp; during drawing of contact wires, so no need to include Clause "Ultrasonic Testing" for CCC wire rod.</p>	<p>Not accepted as ultrasonic/eddy current testing of rod for detecting blow holes or any manufacturing defects is essential at manufacturing stage of Rod.</p> <p>However, Eddy current is added as option to Ultrasonic current</p>
		<p><b><u>M/s Vedanta Limited</u></b> "Eddy current" to be continued in the standard</p>	<p>May be accepted</p>
		<p><b><u>M/s HCL</u></b></p> <p>Ultrasonic/Eddy Current flaw detector.</p> <p>Most of the CC Rod manufacturers globally use Eddy Current flaw detector system, hence both Ultrasonic/Eddy Current should be given in specification.</p>	<p>May be accepted.</p>