

Research Designs and Standards Organisation
(Traction Installation Directorate)

Reasoned document of RDSO's Specification No. TI/SPC/OHE/HDCSCF/0031 for Hard Drawn Stranded Copper Conductor.

RDSO's Specification No. TI/SPC/OHE/HDCSCF/0031 for Hard Drawn Stranded Copper Conductor was uploaded on RDSO website for one month dated 29.07.2020 for seeking comments,

1. Comments/Suggestion received from viewers are as below.

Clause No.	Particular	Comments Recieved	RDSO's Remark
3(ix)	<p>The wire shall be made out of the ETP copper conforming to IS:191-2007 or latest (Pt.V) or out of cathode copper conforming to IS:191-2007 or latest (Pt.IV) or out of continuous cast copper wire rods which shall have the following chemical composition.</p> <p>Element :%/ppm</p> <p>Cu+Ag :99.90%Min</p> <p>Bi+Te+Se :<20ppm</p> <p>Pb :<5ppm</p> <p>Sb :<4ppm</p> <p>As :<5ppm</p> <p>Sn+Ni+Fe+Si+Zn+Co :<50ppm</p> <p>Oxygen :<450ppm</p>	<p><u>M/s Vedanta Limited</u></p> <p>The wire shall be manufactured out of continuous cast copper wire rods whose chemical composition conforming to Cu- Cath-1 of IS:191-2007 or latest (and having oxygen < 450 ppm) and which are made out of the ETP copper LME Grade A copper cathodes and also whose chemical composition conforming to Cu-Cath-1 of IS:191-2007 or latest.</p> <p>Element % ppm</p> <p>Cu+Ag: 99.99 % min</p> <p>Bi: < 2 ppm</p> <p>Te: < 2 ppm</p> <p>Se: < 2 ppm</p> <p>Bi+Te+Se: < 3 ppm</p> <p>Pb: < 5 ppm</p> <p>Sb: < 4 ppm</p> <p>As: < 5 ppm</p> <p>Fe: < 10 ppm</p> <p>S: < 15 ppm Sn+Ni+Fe+Si+Zn+Co: < 20 ppm</p> <p>Cr+Mn+Sb+Cd+As+P: < 15 ppm</p> <p>Oxygen: < 450 ppm</p> <p>To improve the end product quality and also in line with continuous cast copper wire rods Specification TI/SPC/OHE/CCC/087 1. Important to include both LME Grade A and Cu-Cath-1 of IS 191:2007 to ensure check on Input raw material quality.</p>	May be accepted
15.5	----	-----	Para added regarding proof of purchase of raw material.

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16.0	The tests indicated in Clause 15.1 shall constitute routine tests and shall be carried out by the manufacturer and records maintained on the samples from each drum.	<p><u>M/s APAR Industries</u></p> <p>Copper purity in stranded conductor shall only be evaluated in Acceptance test and not in routine test.</p> <p>Testing of one sample (one wire) per 6 drums or minimum one sample for less than 6 drums by Electrolysis Test method (IS: 440-1964 or latest) for determination of copper content shall be in case of Acceptance test only & shall be removed from routine test.</p> <p>As conducting it in routine test is a time consuming activity on an average it takes 18.0 hours to finish the copper purity test.</p>	May be accepted.
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