SN-14

Research Designs and Standards Organisation
(Traction Installation Directorate)

Reasoned document of A & C Slip 5 to RDSO's Specification No. ETI/OHE/65(8/87) with A & C Slip No. 1,2,3 & 4 of CCC wire rod for Electric Traction.

1. A & C Slip 5 to RDSO's Specification No. ETI/OHE/65(8/87) with A & C Slip No. 1,2,3 & 4 of CCC wire rod was uploaded on RDSO website for one month for seeking comments,
2. Comments/suggestions received so far from viewers are summarized below:

| Clause No. | Particular as per draft proposed | M/s Hindalco | RDSO's Remark |
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| 2 | In preparation of specification following standards and specifications are referred:<br>1. IS: 9713-1983 or latest for purpose of sampling<br>2. IS: 440-1964 or latest for chemical analysis of copper<br>3. IS: 613-2000 or latest for Electrical Resistivity Test.<br>4. RDSO Specification ETI/OHE/76 (6/97) with latest amendments | IS:440-1964 or latest or any other established instrumental/Chemical method of chemical analysis of copper. (Reference IS: 9713-1983) | May Not be acceptable as no specific Instrumental/Chemical method analysis is suggested. |
| 6.2 | Measurement of dimensions:<br>Discard approximately 2.5m lengths from the end of the coil. Three measurements at 60o angular displacement shall be made around the circumference at two places 4m apart. An average of six readings shall be considered as the diameter of the wire rod. The diameter shall be as per table-3 of RDSO specification ETI/OHE/76 (6/97) with latest amendments | Since it is continuous casted copper rod, no need to discard 2.5 meter length from the end of coil. | May Not be acceptable as the procedure of discarding is specified by para 5.1.1 of IS 9713:1983 . |
| 6.7 | Electrical Resistivity Test:<br>Electrical resistivity of CCC wire rod shall be determined in accordance with IS 613-2000 or latest. Resistivity shall not be greater than 0.01737 ohm $mm^2/m$ at 20°C | IS: 613-2000 is based on volume based resistivity. CCC wire rod is oval in shape. There are chances of error while calculating volume. Firm suggested to include mass based resistivity and conductivity in % IACS(International annealed copper standard). Resistivity, max, at 20 degree centigrade annealed=0.15328 ohm. g/sq. meter or 0.01737 ohm. Sq.mm/meter (100% IACS min) | May not be acceptable as para 5.3 of IS 613:2000 specifies the density of high conductivity copper shall be taken as 8.89 $g/cm^3$.Using mass and density, volume can be calculated. |
| 8.2 | Suitable metal tag having information mentioned in Clause 8.1 shall be provided for identification. | --- | Metal tag is proposed in line with IS 613:2000 |