IS 10810-40 (1984): Methods of Test for Cables, Part 40: Uniformity of Zinc Coating on Steel Armour [ETD 9: Power Cables]

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UDC 621·315·222 : 669·14 : 669·586 : 620·1

Indian Standard

"जनवरी १९९६"

(Reaffirmed 2001)

METHODS OF TEST FOR CABLES

PART 40 UNIFORMITY OF ZINC COATING ON STEEL ARMOUR

Power Cables Sectional Committee, ETDC 59; Panel for Methods of Tests for Cables, ETDC 59/P1 [Ref : Doc : ETDC 59 (2240)]

1. Scope — Covers the method for checking uniformity of zinc coating on galvanized mild steel wires, strips and tapes of armour for electric cables.

2. Significance — Steel armours are galvanized to prevent rusting. This test is carried out to ascertain the uniformity of coating by determining the thinnest portion of zinc coating on armouring material.

3. Terminology — *See* IS : 1885 (Part 32) - 1971 'Electrotechnical vocabulary : Part 32 Cables, conductors and accessories for electricity supply '.

4. Apparatus — A glass container whose internal dimensions shall be such as to allow a clearance of at least 25 mm between container walls and specimen immersed in the solution.

5. Material

5.1 *Copper Sulphate Solution* — Dissolve about 36 g of crystalline copper sulphate ($CuSO_4\ 5H_2O$) in each 100 ml of distilled water. The water may be heated to aid solution of the crystals, but if heated, the solution should be allowed to cool before neutralizing.

Neutralize the free sulphuric acid with solution by shaking with excess of copper carbonate (chemically pure) or copper hydroxide chemically pure (about one gram/litre of solution) and allow to stand for at least 24 hours before filtering or decanting the solution. The specific gravity of the test solution during the test shall be 1·186 at 27 ± 2°C. Adjustment may be made by adding distilled water or solution of higher specific gravity.

5.2 *Volume of Copper Sulphate Solution* — The volume of the solution in millilitres shall be numerically at least 8 times the approximate surface area in cm^2 of the immersed portion of the articles being tested. The solution shall be discarded after completion of test and fresh solution used for any additional test.

6. Test Specimen — Not less than 150 mm in length. Portions obviously damaged shall not be used. The test specimen may be straightened by hand. It shall be cleaned with a volatile organic solvent and then wiped dry with a clean soft cloth.

7. Conditioning — At the commencement, and during the progress of the test, the temperature of the test specimen and of the solution shall be maintained within the limits 27 ± 2°.

8. Procedure — Cleaned specimens shall be subjected to as many one-minute or half-minute successive dips as prescribed in relevant standard by immersing them in the test solution, taking care that they do not touch each other. During the test, neither the samples nor the solution shall be agitated. After each dip, withdraw the sample, rinse immediately in clean running water, and remove any black deposit by a fibre brush, taking care that all the holes and pockets are removed. Wipe the samples dry with a clean soft cloth and except after the final dip, return immediately to solution. At the end of the specified number of dips, the sample shall be finally rinsed, wiped dry, and visually examined for any deposit of copper on the base metal. Any deposit of metallic copper within 25 mm of the cut end shall be disregarded.

8.1 *Detection of False End Point* — If it is possible to remove the bright copper deposit with an ink eraser or to peel the copper deposit with the edge of a blunt tool such as the back of the knife blade, and zinc appears underneath the copper, such an appearance of deposited copper shall be construed as false end point.

Adopted 14 March 1984 | | Gr 1

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9. Tabulation of Observations

Sample No.	*Observation*
	Red Deposit of Copper Yes/No

10. Calculation — No calculation is involved.

11. Report

11.1 *Reference Specification* _____

Specimen No.	*Size* mm	*No. of Dips*	*Red Deposit of Copper*
			Yes/No

11.2 *Conclusion* — Specimen meets/does not meet the requirements of the specification.

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TO
IS 10810 (PART 40) : 1984 METHODS OF TEST FOR CABLES

PART 40 UNIFORMITY OF ZINC COATING ON STEEL ARMOUR

(*Page* 1, *clause* 5.1, *para* 2, *line* 4) — Substitute '18 ± 2°C' *for* '27 ± 2°C.'

(*Page* 1, *clause* 7, *line* 2) — Substitute '18 ± 2°C' *for* '27 ± 2°'.

(ETD 09)