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SPECIFICATIONS

FOR

WEATHERPROOF WIRES AND CABLES

(WEATHER-RESISTING)

AND

HEAT-RESISTING WIRES AND CABLES



Approved as
AMERICAN TENTATIVE STANDARDS
by the
AMERICAN STANDARDS ASSOCIATION
May 21, 1932

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These Standards were developed in accordance with American Standards Association procedure by a Technical Subcommittee of the Sectional Committee on Insulated Wires and Cables, and under the sponsorship of the following organizations.

American Institute of Electrical Engineers
American Electric Railway Association
American Railway Engineering Association
American Society for Testing Materials
Association of Edison Illuminating Companies
Association of Railway Electrical Engineers
National Board of Fire Underwriters
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To expedite future procedure the sponsors listed above have agreed to the establishment of a single sponsorship, which now resides in the Electrical Standards Committee of the American Standards Association.

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STANDARDS
OF THE
American Institute of Electrical Engineers

SPECIFICATIONS
FOR
WEATHERPROOF WIRES AND CABLES
(WEATHER-RESISTING)

(Adopted by the Board of Directors, A.I.E.E., January 28, 1931)
(Approved as American Tentative Standard, May 21, 1932)

1. Scope.—These specifications cover weatherproof wires and cables, and the materials used for the braids and saturating compounds, as applied to metallic conductors.

MATERIALS AND PROPERTIES

2. The Covering.—The conductor is to be covered by three (or two if the purchaser so specifies) closely woven braids of cotton. The outer braid in all cases is to be of cotton yarn of not less than two ply and two ends and, in the manufacturing process, in any braid, each carrier or bobbin shall carry the same size and the same number of ends of yarn. (See Note 1.) The inner braids may contain single ply cotton yarn, or for wire No. 0 and larger, jute yarn. With the consent of the purchaser, other fibrous material or an equivalent filling may be used in place of the inner braids.

The whole covering is to be saturated with a black compound, the saturation to be so thorough that diagonal cuts through the covering down to the conductor shall expose no white or unsaturated ends. The outer braid is to be finished with a smooth hard polished finishing wax so applied as to fill completely all interstices.

The total thickness of the covering is to be considered as one-half of the difference between the diameter as measured over the braids and the diameter of the bare conductor, and must be not less than that given in Table I.

TABLE I

Size of Conductor		Minimum Thickness of Covering	
Cir mils	Sq mm	64th in.	mm
1,000,000 or over	507 and over	8	3.18
950,000 to 525,000	482 to 266	7	2.77
500,000 to 225,000	253 to 114	6	2.38
A.w.g.			
0000 to 1	107 to 42.4	5	1.98
2 to 10	33.6 to 5.26	4	1.59
11 to 14	4.17 to 2.08	3	1.19

3. The Saturating Compound.—The saturating compound shall be of such a character as to penetrate completely and fill the braid. It shall be a non-conductor, insoluble in water, and of such quality and used at such temperature that its application shall not injure or cause deterioration of the cotton covering or its equivalent, or the conductor. The completely fabricated wire shall be capable of passing the following tests:

(*a*) *Drip Test.* Samples for the drip test shall be cut in lengths of 6 inches (15 cm) and the wire bared for a distance of ¾ inch (2 cm) from each end. The samples with one end secured in a suitable clamp are then to be suspended at an angle of 45 deg in an electrical oven approximately 1 foot (30 cm) cube, and maintained at a temperature of 160 deg Fahrenheit (71 deg C) for one hour. At the end of this time the compound shall not have dripped, formed globules on the lower side of the sample, or bubbles upon its surface.

(*b*) *Bending Test.* Each sample for the bending test shall be wrapped six convolutions around its own

Note 1. **Definitions**
Ends: The number of threads (laid parallel) woven from one bobbin or tube.
Ply: The number of component parts twisted together to form a thread, each part consisting of fibre twisted together.

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