STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF TESTING CONVEYOR AND ELEVATOR BELTING

AS 1334.9
DETERMINATION OF ELECTRICAL RESISTANCE OF CONVEYOR BELTING

1 SCOPE. This standard sets out a method for determining the electrical resistance of conveyor and elevator belting.

2 PRINCIPLE. An electrical current is passed through electrodes to the surface of a suitably prepared test specimen of belting. The resistance of the belting between the electrodes is measured after a given time.

3 APPARATUS. The following items of apparatus are required:

(a) Two brass electrodes, one an annulus of 125 mm inside diameter by 150 mm outside diameter by 22 mm high, and the other a cylinder of 25 mm diameter by 32 mm long, and arranged as shown in Fig. 1. Each electrode shall have an insulated lead attached by means of a suitable screw.
(b) A suitable insulated base such as polyethylene sheeting or laminated phenolic sheet not less than 1.5 mm thick and larger than the specimen or sample being tested.
(c) Equipment capable of applying an adjustable d.c. potential between 40 V and 1000 V such that not more than 1 W is dissipated.
(d) A measuring device for measuring the current passed or the resistance between the electrodes.
(e) Means of conditioning a test piece and carrying out the test at a temperature not greater than 23°C and relative humidity not greater than 70 percent.

4 TEST PIECES.

(a) Two test pieces 300 mm square shall be cut from the sample of belting. Each test piece shall be tested on the carrying side and on the pulley side of the belting to give a total of four test surfaces. Alternatively, the sample may be tested without cutting test pieces in which case two test areas shall be prepared on the carrying side and two on the pulley side. Each test area shall be not less than 300 mm square.

    The test pieces (or areas) shall be suitably identified.

(b) Where necessary, each test surface shall be buffed to expose a clean smooth surface of the cover for testing.
(c) Each test surface shall be thoroughly washed with distilled water and allowed to dry. After drying, it shall be conditioned as required in Clause 5.

NOTE: The surface of synthetic rubber belting may need buffing before testing to remove any conducting or insulating film. This may be done for one test area only. Any adverse discrepancy between the readings will indicate the need for buffing. Synthetic rubber belting may be buffed using a 130 mm diameter paper-backed open-coat garnet sanding disc, grit 40, weight E in a hand-held power drill. The maximum surface speed of the sanding disc should not be greater than 8.0 m/s to 8.5 m/s. Compounded PVC belting may be buffed using an open-coat garnet sanding disc, grit 40, weight E at a surface speed not exceeding 2.5 m/s. Care should be taken, however, to sand only small areas at a time, so as not to cause the plastics materials to run.

5 CONDITIONING OF TEST PIECES. The belting shall be tested not less than 5 days after manufacture. The test pieces shall be conditioned at a temperature not exceeding 23°C and relative humidity not greater than 70 percent for a period not less than 2 h immediately before testing.

NOTE: Non-compliance with the limit of resistivity specified can be proved only at the specified upper limits of temperature and humidity. However compliance can be proved at any temperature and humidity below the above specified limits for temperature and humidity at which the resistivity is below that specified.

6 PROCEDURE. The tests shall be carried out at a temperature not greater than 23°C and humidity not greater than 70 percent, as follows:

(a) Clean the contact surfaces of the electrodes and connect the leads to them.