

## 1.0 PURPOSE

To determine if the compound used to encapsulate electrical assemblies adheres to cable(s) protruding from the compound so as to provide isolation from potentially explosive atmospheres.

## 2.0 SCOPE

Encapsulated assemblies and parts evaluation per ACRI2010.

## 3.0 REFERENCES

ACRI2010 "Encapsulation Criteria"

## 4.0 DEFINITIONS

- 4.1. Adhesion – Moisture, gas and dust tight permanent agglutination of a compound to a surface.
- 4.2. Compound – Thermosetting, thermoplastic and elastomeric materials, with or without fillers and/or additives, are considered, after solidification, to be compounds.
- 4.3. Encapsulated Electrical Assembly – An assembly that uses encapsulation to seal electrical components from exposure to the ambient atmosphere.

## 5.0 TEST EQUIPMENT

Test weight, whichever is lower:

- tensile force of 20 times the value (in newtons) of the diameter of the cable (in millimeters), or;
- a weight equal to 5 times the weight of the heaviest encapsulated electrical assembly sample.

The minimum test weight shall have a tensile force of one newton. The test weight can be any size or shape and incorporate any method for attaching to the cable being tested.

Note: One newton equals approximately 0.2248 pounds.

## 6.0 TEST SAMPLES

- 6.1. Two samples of the encapsulated electrical assembly in their marketable form.
- 6.2. Both samples will be tested in an ambient temperature of  $(20 \pm 5)^{\circ}\text{C}$ . One sample shall be previously untested. The other sample shall be tested after completing the thermal endurance to heat and the encapsulated assembly stabilization tests in ASTP2245.

## 7.0 PROCEDURES

- 7.1. The samples shall be subjected to a visual inspection.
- 7.2. Securely fasten the test weight to the cable being tested.
- 7.3. Secure the encapsulated electrical assembly so that the cable hangs in the least favorable direction. The encapsulated electrical assembly can be secured using any method that allows the unobstructed suspension of the test weight from the cable.
- 7.4. Apply tensile force to the cable using the test weight for a period of one hour.
- 7.5. The samples shall be subjected to a final visual inspection.

## 8.0 TEST DATA

- 8.1. Manufacturer's name and part number of compound.
- 8.2. Manufacturer's name and part number of the encapsulated electrical assembly.
- 8.3. Record weight of each encapsulated electrical assembly.
- 8.4. Identify the cable(s) being tested.
- 8.5. Record diameter of cable(s).
- 8.6. Record weight of test weight.
- 8.7. Record the test samples visual inspections.

## 9.0 PASS/FAIL CRITERIA

No damage to the compound or cable shall be evident, for example, cracks in the compound, exposure of encapsulated components, displacement of the cable or failure of adhesion.