

Test Report

PPR 1668

1 kV

PowerGel Joint type RayGel-12-FR (flame-retarded) for
Plastic and Rubber Insulated Cables
tested for flammability in accordance with
ISO 6722

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PPR XXXX:

Subject of Test: PowerGel Joint type RayGel-12-FR

Date of Tests: 06 January 2003

Requirements: Compound to be flame retarded

Manufacturer: Tyco Electronics Raychem, Ottobrunn - Germany

Location of Tests: Tyco Electronics Raychem Swindon UK

Test Purpose: Qualification according to ISO 6722 specification

Reference: Laboratory Book 5236-39 (assigned to Sean Lewington)

Test Results: **All samples passed the test requirements in accordance with ISO 6722**

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ISO 6722 Testing Of RayGel Joint

1. Aim

To test the fire propagation properties of gel filled RayGel-12-FR product with PVC cable according to ISO 6722 (version ISO TC22/SC3 WG4 N588).

2. Materials

- RayGel-12-FR moulded box from flame retarded compound (lab-book reference 5236-39-A) filled with PowerGel.
- White PVC cable 0.6/1 KV 2x 4 CEI 20-22 (Centralcavi Spa Gruppo LTC)
- Flame retarded cable ties, type EPPA-024

3. Method

The test was carried out in accordance with ISO 6722. The Bunsen flame was calibrated in accordance with IEC 695-2-2, and the inner blue cone of the flame was adjusted to measure approximately 50mm in length. A type 12 RayGel was installed onto a 600 mm long cable approximately 240 mm from the bottom end, and secured using the flame retarded cable ties. The sample was suspended at 45° in a draught free fume cupboard using a steel bar thermally insulated with a flame retarded polymeric sleeve, as can be seen in Figure 1. The test sample was then exposed to the tip of the inner blue cone of the flame as shown in schematic Figure 2. The ignition source was applied to the centre of the product for a test duration of 30 seconds, after which time it was removed. Figure 3 shows the test in progress with flame applied. At least 3 samples were tested.



Figure 1 ISO 6722 Test configuration

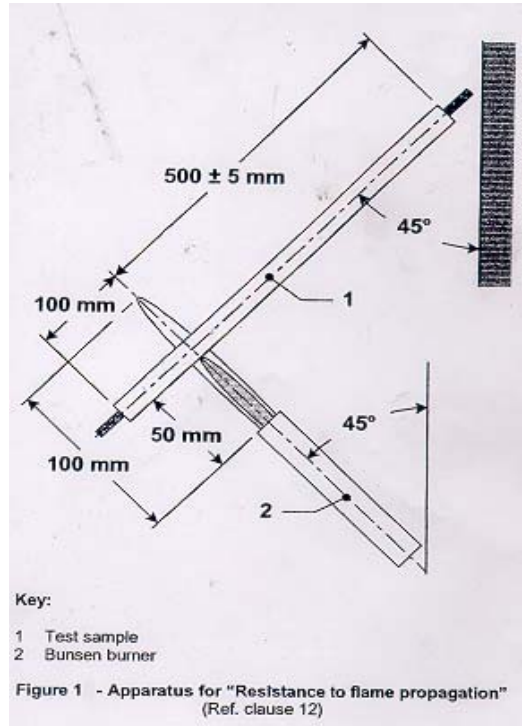


Figure 2 ISO 6722 Schematic diagram



Figure 3 Flame application

4. Pass criteria

Any combustion flame of the insulation material shall extinguish within *70 seconds* and a minimum of *50 mm insulation* at the top of test sample shall remain unburned.

5. Results

All RayGel samples made of the flame retarded polypropylene compound (5236-39-A) **passed the ISO 6722 test** with no flame damage within the RayGel box and combustion flame self- extinguished within 4-5 seconds of removing the ignition source. Figure 4 shows the sample after the 30 seconds had expired, at which point, the RayGel would self extinguish.



Figure 4 RayGel after ISO 6722 testing