



Test Method to determine if a Product can be described as being an HTC (High Temperature Cured) Product

Background

Signage, path marking and photoluminescent products can be vulnerable to peeling, cracking and distortion if the manufacturing process doesn't ensure high temperature stability of the polymers in the product. This test method shows a way to determine if the product is suitably temperature-stable and allows the use of the term HTC (High Temperature Curing) to describe a fully cured, durable product.

Aim

To determine if a product has been sufficiently cured during manufacturing to integrally bond the active ingredients into the carrier polymer.

Method

Each test sample is to be provided in duplicate, one to be tested and one held back as a control piece. For sheet materials, each piece should be cut into a square of 200mm x 200mm, with their dimensions exactly recorded. For lineal materials, each piece should be cut to 200mm lengths, with their dimensions exactly recorded.

Testing shall be carried out at a third party test laboratory, with internationally recognised credentials.

The laboratory oven is to be pre-heated to 150°C +/- 2°C.

The test samples are to be placed on an uncoated 0.9-1mm thick aluminium sheet and exposed to the test conditions of 150°C for 20 min +/- 20 sec.

After exposure, the test samples are to be allowed to cool to room temperature on the aluminium sheet for 45 minutes, then photographed. They are photographed again after at least 24 hours to allow any colour changes associated with energy absorption/radiation to dissipate. The assessment for change is to take place after 24 hours, based on AS/NZS 1580.481.1:1998 Coatings Exposed to Weathering (12 Parameters of Change).

Specifically:

AS/NZS 1580.481.1.12 – Degree of Colour Change

AS/NZS 1580.481.1.9 – Degree of Blistering

AS/NZS, ISO Rating Scale for Degree of distortion/shrinkage

Make a note of the dimensional change in mm.



Acceptance Criteria

Colour change – pass is 0 or 0t (trace), fail is all other values (1-5, darker, lighter, redder, bluer, yellower, greyer, whiter)

Blistering – pass is 0, fail is all other values Distortion – pass is 0, fail is all other values

The test piece receives an HTC pass, only if it achieves a pass for colour change, blistering and distortion.

Conclusion

Test pieces that pass the HTC test, are deemed to be representative of products that have been manufactured in such a way that the active ingredients are integrally bonded to the polymer carriers to give the product maximum longevity and durability.