

Test Procedure Guidelines

Test Method: **LABEL BLOCKING RESISTANCE**

PURPOSE OF PROCEDURE:

To determine the resistance of in-mold labels to blocking under adverse pressure and temperature.

DEFINITION OF TERMS:

Blocking is adhesion between labels under moderate pressure and/or temperature experienced during transit, storage or use. This would apply to adhesive coated labels for blow mold IML as well as to non-adhesive coated labels for injection IML.

EQUIPMENT/MATERIALS NEEDED:

1. 8in x 8in (20cm x 20cm) metal plates with smooth, flat surfaces, weighing approximately 4 pounds (2kg).
2. Constant temperature oven with a relative humidity below 50%.

PREPARATION OF MATERIALS:

1. Do either a or b:
 - a. Test labels are to be equilibrated to $72^{\circ} \pm 5^{\circ}$ F (22° C) at $50 \pm 10\%$ RH.
 - b. Test labels are to be taken out of process at representative process conditions.
2. Maintain oven at a constant 120° F (49° C) before the test. *Note: A more severe test may also be carried out at 130° F (54° C) or 140° F (60° C).*
3. Cut out one inch (2.5cm) squares (100) from label stock to be tested. Arrange in a test pack by stacking labels with the back or adhesive side down.

TEST PROCEDURE:

1. Place the test pack of labels on a solid, flat surface in the oven with the back or adhesive side down. Ensure that label edges are squared up and do not overhang or overlap.
2. Place the metal 4 lb. (2kg) weight directly on top of the test pack. Plate must overhang all label edges.
3. Keep the label test pack and the 4 lb. (2kg) weight in the 120° F, (49° C) oven for six (6) hours. See note above regarding 130° F and 140° F test conditions.

Option A: Remove the weight and carefully place the label test pack on a flat surface at room temperature for immediate grading evaluation. Evaluate immediately.

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Option B: Remove the weight, and carefully re-equilibrate the label test pack back to $72^{\circ} \pm 5^{\circ}$ F, ($22^{\circ} \pm 2^{\circ}$ C), at $50 \pm 10\%$ RH, prior to evaluating.

EVALUATION:

Examine the test pack by slipping or peeling the labels apart and grade for blocking resistance as follows:

ACCEPTABLE:

No sticking or adhesion between label surfaces.
Labels slide freely upon one another.

MARGINAL:

Surfaces slightly bonded and will not slide freely upon one another. Labels slide apart with minimal effort. No damage or marring of print or reverse surface.

UNACCEPTABLE:

Noticeable sticking between label surfaces. Label pack can be picked up and handled with numerous labels adhering to one another or the entire label pack is stuck together and holds fast as a unit when handled. Peeling labels apart causes damage to print and/or reverse surfaces.

DOCUMENTATION:

The allowable tolerance that is agreed upon by the customer should be in written specifications provided by the customer.

The frequency of the test to be performed must also be agreed upon by the customer. That is to say that the customer should provide in their specification how often the test is to be done and by what form of sampling method, (random or non-random). These will be used to record results.

Many customers will require representative samples to be kept in inventory to reference in the event that the customer finds a defect in the provided order. This frequency of these retains should also be specified to ensure compliance.

REFERENCES: