Performing an Adhesion Test on EVA Material

Introduction

In order to determine the adhesion level of an EVA sample, a peel test is performed. A sample of EVA is bonded to a piece of glass using the laminator. The EVA is delaminated from the glass at a set speed while the force needed is recorded. The following describes the method used to perform an adhesion test.

Equipment Needed

- Scissors
- 1” x 6” Glass Plate
- Utility Knife
- Release Liner Paper
- Black Permanent Marker
- Pliers
- Reagent Grade Isopropynol
- 1” x 12” TPT or TPE sheet
- Ruler

Attaching EVA to Glass Plate

Step	Action
1	Clean both sides of the glass plate with isopropynol and dry with tissue paper.
2	Place glass plate on a large sheet of release liner. Note: Be sure to place glass near the left end of the release liner to allow room for EVA.
3	Cut a 1” x 12” piece of EVA and place on the glass aligning left edges and extending EVA lengthwise to the right.
4	Place a small sheet of release liner across the glass, beneath the EVA at a distance of ½” from the right edge of the glass.
5	Place a 1” x 12” section of TPT on top of EVA and glass, with the shiny side facing down.
6	Place a large sheet of release liner on top of everything to cover entire sample.
7	Laminate entire setup for required time and temperature per procedure for the product.
8	Remove sample after time has been reached and let cool to room temperature.

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Creating EVA Peel Strips

Step	Action
1	Place glass face down on a cutting board with TPT/EVA portion pointed upward.
2	Use a ruler and black marker to measure and mark 3 points spaced ½" from the edge of the test piece.
3	Cut two, ½" strips of TPT/EVA from top to bottom, using a utility knife. Be sure to trim any excess EVA that may have flowed over the sides of the glass. Note: Be sure to cut strips attached to the glass too.
4	From the top, pull each strip toward the glass until the EVA attached to the glass provides resistance.
5	Use utility knife to brush across the point where the EVA meets the glass to loosen the connection.

Setting Up the EVA Sample

Step	Action
1	Load sample into the jaws of the tensile tester and tighten securely.
2	Load test method for **Standard Tensile Test**
3	Set crosshead speed for 200mm (7.9inches) per minute.
4	Measure width of test strip.

Operating Peel Testing Mechanism and Analysis Software

Step	Action
1	**Start Test**
2	**Stop Test** if the test strip slips from the jaws or when less than one inch of the sample remains adhered to the glass.
3	If sample does slip, attempt to re-affix TPT/EVA strip in jaws and repeat the test.
4	**Analyze** tensile stress.
5	**Determine Average Force** during test. Adhesion strength will be average force divided by width of peeled sampled.