

**TEST TO VERIFY WATER IMPERMEABILITY
OF URETHANE FOAM SEALS**

Application

This procedure describes a method of testing heater and air conditioning backplate assemblies, with urethane foam seals, for water impermeability of the seal material.

Apparatus Required

Furniture Paste Wax or equivalent

Alcohol - ethyl or methyl, reagent grade

Clear Acrylic Plastic Sheet - 2 pieces
250 x 280 x 6 mm

Plywood Sheet - 2 pieces
150 x 150 x 12.5 mm

Slots should be cut in the plywood to allow for the thickness of the clear acrylic sheets and to compress a urethane seal 50 to 75 percent.

Specimen Die - see Figure 1

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Choose an area of the seal which lends itself to entrapment of water (e.g., min diameter), or specimens cut with die.

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2. The clear acrylic panels must be free of surface contamination. Clean with alcohol and then apply furniture paste wax. After coating the clear plastic sheets and allowing them to dry a few minutes, buff briefly to form a smooth even coating. The sheets should then be placed against both parallel surfaces of the urethane seal being tested.
3. Clamp the clear acrylic panel using the slots in the plywood squares to compress the seal over the area being tested. The seal must be evenly compressed to 50 to 75 percent of the free state height.

Note: Care should be taken not to touch or recontaminate the clear acrylic plastic surface during the process of applying it to the seal.
4. Fill the void between the clear plastic sheets above the seal I.D. or radius of the die cut specimen with 0.25 kPa or a 25 mm head of water.
5. After 90 minutes, examine for wicking or water penetration. This can be observed by actual formation of water droplets below the seal and will result in a drop in the water level.
6. Carefully pour the water out of the void and remove the plywood squares and acrylic plastic sheets from the foam seal. Hand squeeze the seal to determine if it has soaked up any water.
7. The part fails the test if there is any water penetration of the seal material being tested (e.g., water droplets below the seal or soaked into the seal).

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.