

COMPRESSION SET OF POLYURETHANE FOAM**Application**

This procedure is used to determine the constant deflection compression set expressed as a percentage of the original deflection of seating grade polyurethane foam.

Apparatus Required**Steam Autoclave**

Equipment necessary to maintain required temperature and pressure.

Bandsaw**Saw Blade**

(Regular bandsaw with a double beveled scalloped edge band knife blade may be used.)

Dial Gage

Model #35B-30 (range 0 - 50 mm, 1 division = 0.02 mm) mounted to a stand gage having a 25 mm circular diameter circular indenter foot and used exclusively for compression set measurements by having the shaft spring removed.

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Compression Device

This consists of two flat plates 100 x 200 x 13 mm steel plate. The two steel plates must be held parallel to each other by bolts and the space between the plates must be adjustable to the required deflection thickness using spacers or shims.

Date	Action	Revisions
2001 09 11	Revised	Editorial – no technical change A. Cockman
1999 01 19		

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Conditioning

All test specimens or parts (from which test specimens will be obtained) shall be preflexed twice to 80 - 90 % (10 - 20 % compression) of their thickness then conditioned (post cured) at 23 +/- 2 °C and 50 +/- 5 % relative humidity for seven days minimum prior to testing and tested under the same conditions. The post cure time shall commence from time of demolding part or from time of slab cure. When test specimens are submitted to Ford Motor Company for evaluation and if the test specimens (or parts from which test specimens will be obtained) have previously been post cured seven days at the supplier's plant, then the test specimens (or part) need only be preflexed twice (80 - 90 %) as above and conditioned 2 h at the above temperature and relative humidity prior to testing.

Samples Size and Selection

All test specimens shall be selected from an area that is directly below the IRGL circle, (Indentation Residual Gage Load) or as specified on the engineering drawings. The test specimen shall be free of skin, voids, hard spots, striations and densifications or knit lines. These specimens shall be cut 50 x 50 x 25 mm with the mm dimension perpendicular to the part top surface, and the top surface of the cut specimen, parallel to, and 6 mm below the top surface of the part. Specimens less than 25 mm thick shall be plied up, without the use of cement, to a 25 mm thickness.

Three test specimens per part shall be tested. The computed Cd values reported shall be the mean of those observed. If any value deviates more than 20 % from this mean, two additional specimens shall be tested and the mean for all five values shall be reported.

Preparation

After selection and cutting to the required size, all specimens must be dust free and shall be conditioned for 1/2 h at 23 +/- 2 °C and 50 +/- 5 % relative humidity.

Procedure

1. Using the Federal Products dial gage, take height measurements at each of the four corners and at the center of each sample, average the five measurements, and record as original height. The outer circumference of the indenter foot shall be approximately 3 mm in from each edge of foam specimen when measuring corners.
2. Place two specimens in the compression device at least 38 mm apart, and deflect 75 % using spacer bars, and shims.