

COMPRESSION CHARACTERISTICS OF CURED SILICONE POLYGEL**Application**

This is a procedure for determining the percent compression under a given load of a cured silicone polygel.

Apparatus Required**Sample Molds**

3 required. See Figure 1.

Cylinder and Piston Assembly

1 required. See Figure 1.

Tensile Testing Machine

Range to 20,000 pounds minimum, equipped with deflectometer and recorder or equivalent.

Source: Tinius Olsen Testing Machine Co.
Easton Road
Willow Grove, PA 19090

Analytical Balance

Mettler Model H10T or equivalent.

Source: VWR Scientific
P.O. Box 187
Allen Park, MI 48101

Storage Bottles

VWR Catalog Number 16195-066 or equivalent.

Oven

VWR Catalog Number 52223-020 or equivalent.

Rust Inhibitor

Stauffer SWS-C-449 (DO NOT SUBSTITUTE).

Source: Stauffer Chemical Company
P.O. Box
Adrian, MI 49221

Date	Action	Revisions
2001 04 30	Revised	Editorial – no technical change A. Cockman
1992 07 28		

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Naphtha

Ford Standard M557 or equivalent. Caution: This material is flammable. Observe caution in its use.

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. Clean 3 molds with naphtha and brush. Coat inside surfaces with rust inhibitor and allow to stand until dry. Rust inhibitor acts as a mold release and is compatible with the polygel fluid.
2. Fill the 3 molds with silicone fluid sample to approximately 1/4 inch from top. Allow samples to stand for at least 4 hours or until all air bubbles have disappeared.
3. Place the filled molds in preheated oven at 400 +/- 5 °F for one hour. Remove from oven and allow to cool to 23 +/- 2 °C.
4. Carefully remove sample (slug) from mold. If necessary, compressed air may be blown in along sides of mold to facilitate sample removal. Slug must not be broken. Trim the slug by taking slices off the top until the sample weighs 65 +/- 0.05 grams.
5. Set tensile machine up for compression testing on 20,000 pound scale with 0.2 in/minute crosshead speed.
6. Insert weighed slug into cylinder, rounded end down. Inspect rubber seal on piston assembly. Replace seal after twenty tests, or whenever damage to seal is noted. Place piston assembly in cylinder on top of sample slug. See Figure 2.
7. Compress slug to 8,000 pounds, hold for 5 minutes, and reduce load to 2,000 pounds.
- 7a. With recorder operating, increase load to 20,000 pounds and immediately decrease to 0 load, at 0.2 in/minute crosshead speed.
- 7b. Repeat step 7a on separate area of recorder chart. Remove piston and sample.
8. Test the second sample through steps 6, 7, 7a and 7b. Retain the third sample for verification. Store all samples, as well as a sample of uncured polygel in labeled bottles.
9. Measure the displacement in inches from the recorder chart on the relaxation curve. See Figure 3. Average the first and second runs and determine the percent compression from Table 1. Report as required in the Engineering Specification.

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.