

SELF-SEAL SL-100 & GG-200 SILICONE FIRESTOP SEALANTS LONG TERM AGING PROPERTIES

Air-oven aging is considered to be an acceptable test method of simulating field aging within a reasonable time frame by comparing the thermally aged characteristics of a material as measured by the change in some physical property of interest. An Underwriters Laboratories Inc.® document titled Subject UL1479 - "Fire Tests of Through-Penetration Firestops", issued August 11, 1993, proposed that the exposure of a firestop product to 90°C for 90 days would simulate approximately 20 years of field usage.

Self-Seal SL-100 and GG-200 are referred to as elastomeric sealants since they meet the following criteria for firestop joint applications:

- have a low or medium modulus;
- excellent adhesion to most substrates; and
- can expand or contract throughout the life of a joint installation with 100% recovery.

The physical properties of Self-Seal SL-100 and GG-200 were therefore measured in accordance with ASTM D-412, "Standard Test Methods for Rubber Properties in Tension" before and after exposure to air-oven aging.

	SELF SEAL SL-100		SELF SEAL GG-200	
ASTM D-412	7 day RT cure	7 day RT cure + 91 days @ 90°C	7 day RT cure	7 day RT cure + 91 days @ 90°C
Elongation at Break	652%	609%	650%	636%
50% Modulus	15 psi	13 psi	32 psi	35 psi
100% Modulus	26 psi	23 psi	45 psi	49 psi

RT = room temperature

The reduction in the elongation at break, or the elasticity of the sealants, over the 90 day test period was 6.6% and 2.2% for the SL-100 and GG-200 sealants, respectively. The change in the 50% and 100% modulus, that is, the tensile stress of the sealants at 50% and 100% elongation, decreased in the case of the SL-100 and increased slightly for the GG-200. Based on an estimated service life of 40 years for dimethylsilicone elastomers at 90°C (Encyclopedia of Polymer Science & Engineering, 2nd Edition, Volume 15, page 288, (1989)) and the above aging data for the elastomeric properties of Self-Seal SL-100 and GG-200, it is our opinion that these products will continue to perform as originally tested – **now and well into the future!**

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August 1, 2005