TECHNICAL INFORMATION

SPI Supplies
206 Garfield Avenue,
West Chester, PA 19380, USA

Vacseal® High Vacuum Leak Sealant

Weight loss in vacuum by sublimation

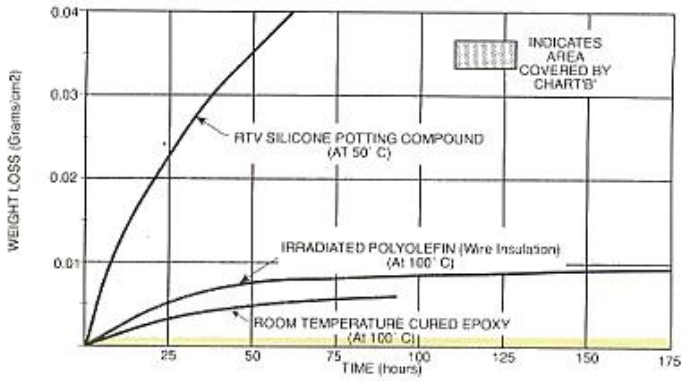

CHART "C"

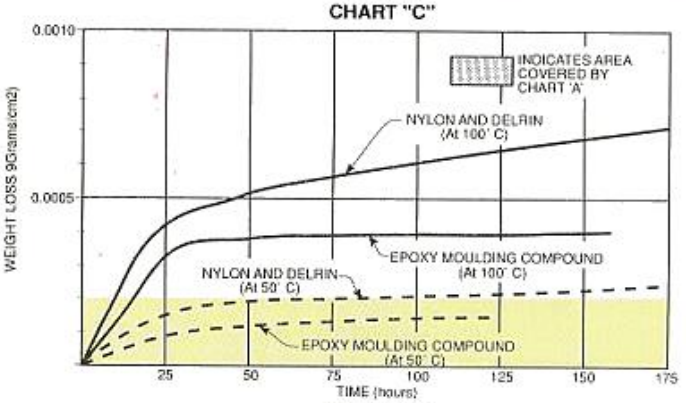

CHART "B"

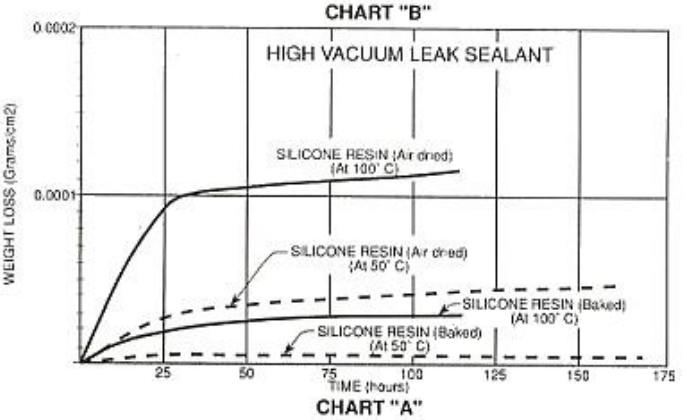

CHART "A"

Optimum Use Of Specifications
Thorough testing should be independently done for satisfactory performance.

At 50° C, the weight loss after 175 hours in vacuum is only 0.00001 grams/cm^2 , compared to 0.01 grams/cm^2 for epoxy sealants. Residual gas analysis shows no evidence of hydrocarbons or other contamination attributable to the use of Vacseal® being used on UHV systems capable of attaining ultimate vacuums of $1x10^{-12}$.

The curves in the graphs show the weight losses vs. time at 50 and 100° C for several commonly used materials in vacuum. Samples were placed in a thermal chamber at a pressure of less than 5×10^{-6} torr and at the temperature indicated. The silicone resin used in Vacseal® had a lower weight loss in vacuum than any other material tested.

Indications of how well Vacseal® can effect a permanent seal in vacuum systems has been demonstrated repeatedly on systems capable of attaining ultimate pressures of below 1×10^{-12} torr after being baked at temperatures above 450° C.

Steady State Weight loss of materials tested:

Vacseal (silicone resin)	**1.6×10^{-8} g/cm_2/hr**
Epoxy molding compounds	**2.6×10^{-7} g/cm_2/hr**
Nylon® and Delrin® (polyoxymethylene)	**4.0×10^{-7} g/cm_2/hr**
Epoxy (room temperature cure)	**6.4×10^{-7} g/cm_2/hr**
Wire insulation	**1.0×10^{-5} g/cm_2/hr**
Silicone rubber (RTV)	**1.0×10^{-4} g/cm_2/hr**

Vapor pressure characteristics

The vapor pressure of Vacseal®is the highest when initially sprayed or brush painted onto the system. The vapor pressure can be reduced to nearly that of most metals by simply curing with a modest amount of heat. Vacseal®is compatible with pressures of 1×10^{-12} torr. Recommended cure times are 30 minutes at 200° C, or 15 minutes at 250° C. Several days are required for a room temperature cure.

Revised: EER

Date: 10/15