

## TECHNICAL DATA SHEET 700

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# HV400 Series Liquid Encapsulant

## Low Cost Silicones

### DESCRIPTION

HV400 series silicone systems are two part low cost, addition cured silicones. These silicone systems are designed for applications that require low stress and excellent electrical properties.

SC410 and SC420 silicones have been tested in our laboratories to be UL 94V-0.

The HV400 series silicones have an easy to use 1:1 mix ratio by weight or volume.

The HV400 series silicones systems can be room temperature cured or heat cured. The addition of heat will greatly accelerate the cure.

HV400 series silicones can be used in temperature extremes of -40°C to 200°C.

HV400 series silicones, as with all addition cured silicones, has no exotherm and very low shrinkage upon cure. During cure, HV400 series silicones will not evolve any by products. Also, they will not depolymerize as many condensation cured silicones are prone to do.

HV400 is a low viscosity system, HV410 is a medium viscosity system, and the HV420 is the highest viscosity system.

Should the HV400 series silicones prove inadequate to meet your needs, this easy to use formulation can be customized to address your particular and unique applications.

### PROCESS PARAMETERS

In order to obtain a uniform mixture, the HV400 systems, Part A and B, should be mixed prior to use as the material may settle over time.

The HV400 series silicones have a convenient 1:1 mix ratio by weight or volume. Variation from recommended mix ratios will cause variation in the finished product. Care should be made to use correct and recommended proportions to achieve reported results as described in this datasheet.

After the Part A and Part B have been added together, the material needs to be mixed thoroughly, scraping all sides and bottom of the container, as even small amounts of unmixed materials can cause irregularities of the cured and finished product.

The HV400 system, if necessary, is now ready for de-airing. Ideal electrical properties of a material are best obtained when air bubbles and voids are removed from the system. To accomplish this the material should be placed under vacuum, 28 - 30 torr, for 3-5 minutes or until the material falls back upon its self. Be careful that the vessel containing the mixture is large enough to hold material that can sometimes expand to 2-5 times it's original volume.

**HV400 SYSTEMS UNCURED PROPERTIES**

	<b>HV400</b>	<b>HV410</b>	<b>HV420</b>
<b>Color</b>	Beige	Beige	Beige
<b>SpG @ 25°C</b>	1.77	1.86	1.91
<b>Viscosity*cps</b>	10,000	16,000	30,000
<b>Filler Content %</b>	70.0	75.0	77.0

**HANDLING PROPERTIES****Mix Ratio per 100 parts A****by Weight B**

100 100 100

**by Volume B**

100 100 100

**Pot Life @ 25°C, min**

50 50 50

**Gel Time @ 25°C, min**

65 65 65

**Gel Time @ 100°C, min**

15 15 15

**CURED PROPERTIES****Thermal Conductivity**

0.3 0.35 0.4

**Hardness, Shore A**

82 85 89

**Tg by DMA, °C**

&gt;-80°C &gt;-80°C &gt;-80°C

**CTE**

190 180 170

**ELECTRICAL PROPERTIES****Dielectric Constant @ 25°C (100KHz)**

4.0 4.0 4.0

**Dissipation Factor @ 25°C (100KHz)**

0.004 0.004 0.004

**Volume Resistivity @ 25°C (ohms-cm)**4.3 x 10<sup>13</sup> 4.3 x 10<sup>13</sup> 4.3 x 10<sup>13</sup>**Dielectric Strength (volts/mil)**

600 600 600

**STORAGE AND HANDLING****Shipment**

Recommended temperature is Room temperature

**Storage**

Store at 25°C for up to 12 months

**Safety**

Refer to MSDS for details.

\* (RVDV-II+, Spindle 7 @ 10 rpm @ 25°C)

All values are considered typical based on tests believed to be accurate.  
Polysciences, Inc. may change the data as appropriate.

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