



## SLA-220

SLA-220 is a low density, RF-transparent ablator insulator. It is available as molded panels which can be bonded to primed substrates with silicone adhesives using vacuum bag pressures. The material is a silica filled elastomeric silicone composition that forms a silicaceous rather than carbonaceous char under ablative heating conditions therefore, it retains RF-transparency during and after thermal exposure. Because of its low weight loss during ablation, the material has also been considered as a reusable ablative/insulative heat shield for applications where the surface temperature does not exceed 1500 degrees Fahrenheit.

Technical assistance is available for unique thermal protection requirements through Lockheed Martin Thermal Protection Products Department. Staff members are prepared to assist customers in evaluating thermal protection needs through visits to off-site locations or at New Orleans plant.



### SLA-220 Utilizations:

SLA-220 is flight qualified or tested for the following applications

- Viking (Mars lander) - Radar altimeter thermal protection
- Space Shuttle External Fuel Tank - Range Safety antenna
- Space Shuttle Solid Rocket Boosters - Range antenna safety antenna
- Minuteman & PACIII - Antenna ascent heat protection

### Material Characteristics:

Color	White to light gray
Density	15.5+3.0lb/ft <sup>3</sup>
Hardness	>30 (Shore A)
Storage Life	Indefinite
Toxicity	SLA-220 is non-toxic

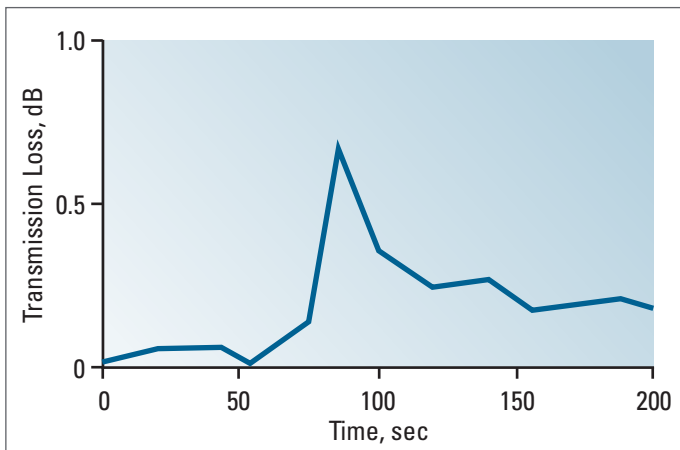
### Normal Properties:

Tensile Strength (ASTM D-638, Type I)	85psi @ 75°F
Elongation	3.4% @ 75°F
Thermal Expansion (ASTMC-177)	10.4 x 10 <sup>-6</sup> in/in/° F/ between -150° + 300° F

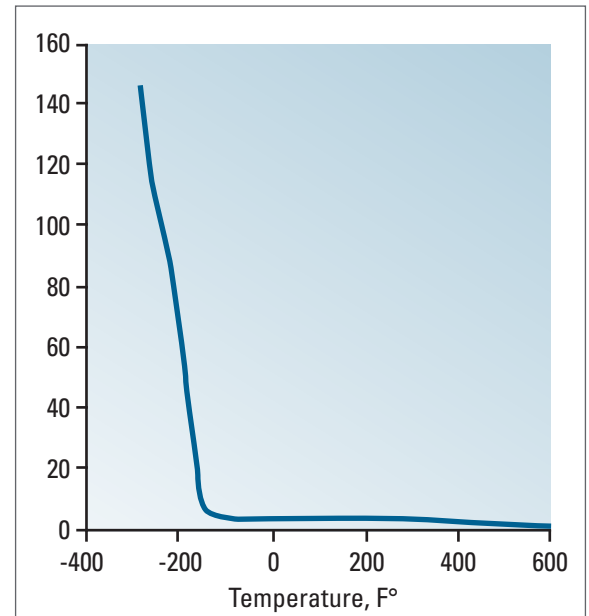
The technical data and information contained herein is for information only and not for particular applications. Properties shown are typical for SLA-220 but may vary depending on processing and cure. Users of SLA-220 should conduct their own tests to verify the materials suitability for their particular application.

Heating Rate Btu/ft <sup>2</sup> -sec	Exposure Time sec	Type of Heating	Char Depth in.	Signal Attenuation dB
—	—	—	0.00	0.5
11.4	45	Quartz Lamps	0.22	0.8
11.4	95	Quartz Lamps	0.35	1.6
6.0	250	Plasma Arc	0.15	0.8
60.0	50	Plasma Arc	0.24	1.6

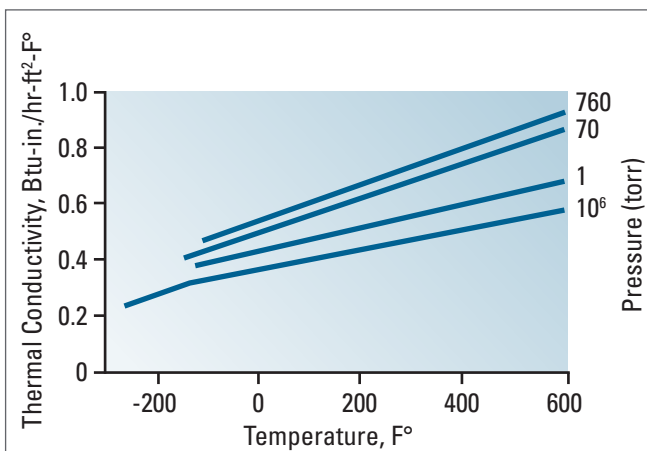
**RF Signal Attenuation for SLA-220**



**One-Way Transmission Loss for SLA-220 Under Radiant Heating**



**Modulus of Elasticity of SLA-220**



**Thermal Conductivity of SLA-220**

**RF Transparency**

Dielectric Constant at 1 MHz	1.65
Loss Tangent at 1 MHz	2.4x10 <sup>3</sup>
Transmission Loss at 4GHz During Radiant Heating	0.65 dB max One-way loss
Transmission loss for Charred SLA-220 at 10 <sup>4</sup> MH <sup>2</sup>	See table above Two-way loss

**Lockheed Martin Space Systems**  
Thermal Protection Products  
P.O. Box 29304, New Orleans, LA 70189

Technical Support: (504) 257-0138  
Customer Service: (504) 257-1386  
FAX: (504) 257-4406