



Thermally Stable Silicones for Space and Aircraft Applications

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Silicones are highly resilient materials that have been used as adhesives and sealants in aircraft and aerospace applications for decades. Silicones offer thermal stability at high operating temperatures, as high as 300°C depending on the exposure time. Silicones can be incorporated with iron oxide fillers that can impart increased thermal stability at elevated temperatures. These same silicones can also be modified for low outgassing or fuel resistance to handle the rigorous demands of aerospace and aircraft technologies.

In applications such as bonding or encapsulating, NuSil's silicones easily spread onto a variety of substrates such as metals and composites to ensure excellent surface contact. NuSil's silicones have a variety of viscosities available to accommodate processing techniques as well as desired flow onto the substrate.

NuSil has been synthesizing silicone intermediate materials since 1979. Due to our processing and synthesis capabilities, we can manufacture a variety of silicones for thermally harsh environments with reduced contamination risk. NuSil's Controlled Volatility materials (CV-) meet NASA's ASTM E595 outgassing standards of Total Mass Loss (TML) $\leq 1\%$ and Collected Volatile Condensable Materials (CVCM) $\leq 0.1\%$. Our new Ultra Low Outgassing TM silicones, (SCV-) are certified to $\leq 0.1\%$ TML and $\leq 0.01\%$ CVCM.

Iron oxide is used to maintain thermal stability while achieving distinct properties:

- Custom filler packages can be used to reach the desired properties needed for an individual application
- Remains electrically insulating using high purity iron oxide
- Unique filler packages can be optimized to maintain a low density
- Maintains thermal stability at elevated temperatures
- Distinct reddish-brown appearance makes it easy to see where material has been applied

PRODUCT	DUROMETER (TYPE A)	VISCOSITY	COMMENTS
R-2160	20	250,000cP	Tough, Fast Cure
R-2560	55	31,000cP	Fast Cure, RTV
R-2588	65	825,000cP	Tough, RTV Adhesive
CF1-3510	20	70,000cP	Fuel Resistant
CV-2566	55	56,000cP	Flowable
CV2-2566	60	Thixotropic	Non-Slump
CV-2568	50	125,000cP	Long Work Time, Low Density
CV10-2568	40	135,000cP	Fast Cure, Low Density
SCV-2586	45	325,000cP	Fast Cure, Low Density

NuSil is a cutting-edge manufacturer of silicone compounds for healthcare, aerospace, electronics, photonics and other applications that require precise, predictable, cost effective materials performance. ISO 9001:2000 certified since 1994, NuSil operates state-of-the-art laboratories and processing facilities in North America and provides on-site, in-person application engineering support worldwide. NuSil received AS 9100 International Aerospace Standard Certification in 2008.



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For more information, please visit:
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