



**SPORIAN<sup>®</sup>**  
**MICROSYSTEMS, INC**

# **SPORAMIC<sup>™</sup>**

**HIGH TEMPERATURE INSULATION**





## **Sporamic™ Insulation**

Sporian has developed state-of-the-art, high-temperature ceramic insulation technology. It is superior to other insulation due to its high thermal radiation suppression ability. This material has a unique combination of thermal and mechanical properties that make it ideal for thermal protection systems. This material has high oxidation and corrosion resistance with low density and high strength. It exhibits vibration resistance, very low moisture absorption, and low friability.



**Excellent thermal radiation suppression**



**Low density**



**High thermal stability**



**High strength**



**Custom shaping**

# THERMAL PROPERTIES

Maximum Use Temperature	(°C)	<b>1600</b>
Specific Heat	(J/(g·K))	<b>0.73</b>
CTE	(ppm/°C, 25-1000°C)	<b>2.6</b>
Emissivity	(1080-1657 nm at 1450°C)	<b>0.98</b>



## SPORAMIC™ CONFIGURATIONS

Characteristics	Sporamic-201	Sporamic-323	Sporamic-745	
Density	(g/cm <sup>3</sup> )	<b>0.23</b>	<b>0.33</b>	<b>0.72</b>
Elastic Modulus	(MPa)	<b>82</b>	<b>199</b>	<b>268</b>
Compressive Strength	(MPa)	<b>1.5</b>	<b>10.2</b>	<b>24.5</b>
Thermal Conductivity	(W/(m·K) at 300°C)	<b>0.11</b>	<b>0.15</b>	<b>0.26</b>

## APPLICATIONS

Sporamic can be easily integrated with ceramic matrix composite (CMC) to form thermal protection systems. Additionally, it does not break down in extreme high temperature applications up to 1600°C, making it useful for hypersonic vehicles, airframes, chemical rockets, and energy generation.

Sporian has differing configurations of ceramic insulation that can be cut and shaped to various performance and specification requirements. Different densities, strengths, and elastic range provide unique foams for your specific application.

### Fabrication Options



**Easily machinable tiles**

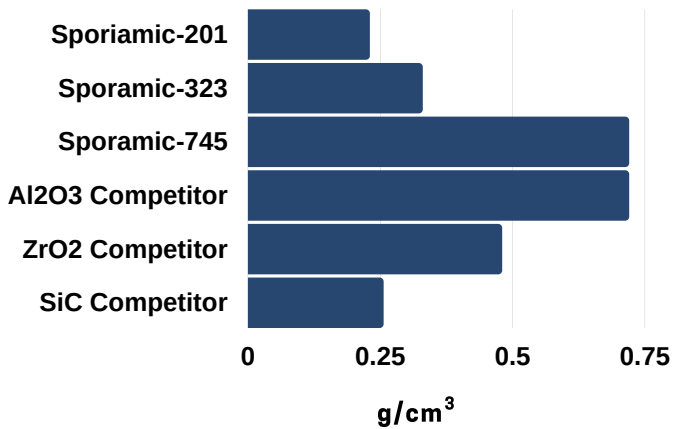


**Custom foam shape that require little machining**

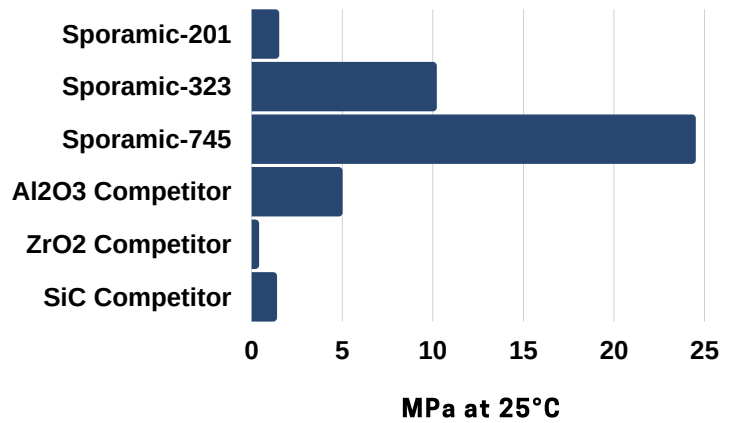


# MATERIALS COMPARISON

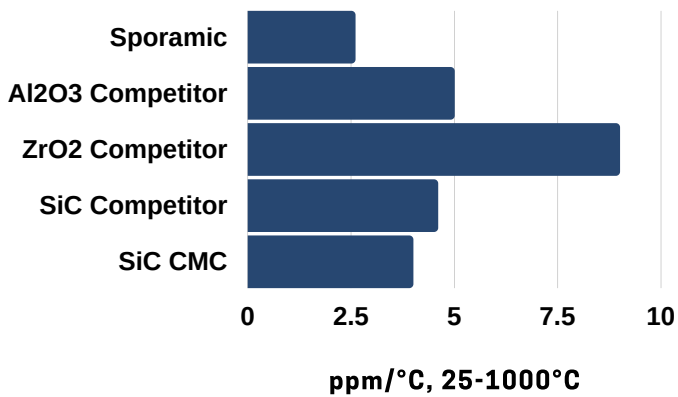
### Density



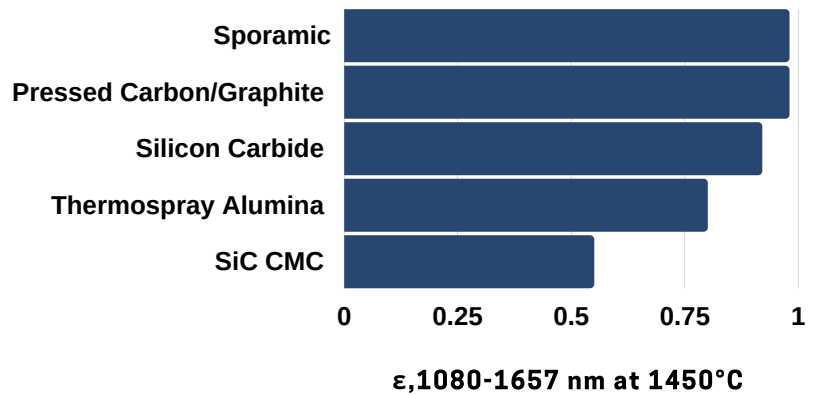
### Compressive Strength



### CTE



### Emissivity



## **CONTACT US**

**SPORIAN MICROSYSTEMS IS READY TO HELP YOU WITH OFF-THE-SHELF OR CUSTOM SOLUTIONS TO MEET YOUR THERMAL INSULATION NEEDS.**

**TEL: 303-516-9075**

**EMAIL: [INFO@SPORIAN.COM](mailto:INFO@SPORIAN.COM)**



**SPORIAN<sup>®</sup>**  
**MICROSYSTEMS, INC**

**515 COURTNEY WAY SUITE B  
LAFAYETTE, CO 80026**

**[WWW.SPORIAN.COM](http://WWW.SPORIAN.COM)**