

**FORM MDS-2 MATERIAL DATA SHEET (U.S. CUSTOMARY UNITS)**

**Grade Designation**

Material Grade \_\_\_\_\_ Material spec. ID \_\_\_\_\_ ASTM spec. \_\_\_\_\_

Max. grain size (in.) \_\_\_\_\_ Designation \_\_\_\_\_

**Temperature-Dependent Parameters**

Property	Units	Orientation	68°F	392°F	752°F	1,112°F	1,472°F	1,832°F [Note (1)]
Bulk density	lb•ft <sup>-3</sup>	WG, AG	_____	_____	_____	_____	_____	_____
Strength – tensile	ksi	WG, AG	_____	_____	_____	_____	_____	_____
Strength – flexural (4-point)	ksi	WG, AG	_____	_____	_____	_____	_____	_____
Strength – compressive	ksi	WG, AG	_____	_____	_____	_____	_____	_____
Elastic modulus (dynamic)	ksi	WG, AG	_____	_____	_____	_____	_____	_____
Elastic modulus (static)	ksi	WG, AG	_____	_____	_____	_____	_____	_____
Coefficient of thermal expansion	°F <sup>-1</sup>	WG, AG	_____	_____	_____	_____	_____	_____
Thermal conductivity	Btu/(hr•ft•°F)	WG, AG	_____	_____	_____	_____	_____	_____

**Temperature-Independent Parameters**

Poisson's ratio \_\_\_\_\_ Anisotropy factor \_\_\_\_\_ Critical stress intensity factor  $K_{IC}$  ksi•in<sup>1/2</sup> \_\_\_\_\_

**Design Strength and Material Reliability Curve Values**

Ratio of compressive to tensile strength ( $R_{tc}$ ) \_\_\_\_\_ Ratio of flexural to tensile strength ( $R_{tf}$ ) \_\_\_\_\_  $S_{c0.05}$  ksi \_\_\_\_\_  $m_{0.05}$  \_\_\_\_\_  
 $S'$  MPa \_\_\_\_\_  $S'_{c0.05}$  ksi \_\_\_\_\_  $m'_{0.05}$  \_\_\_\_\_  
 $S_g(10^{-4})$  ksi \_\_\_\_\_  $S_g(10^{-3})$  MPa \_\_\_\_\_  $S_g(10^{-2})$  ksi \_\_\_\_\_  $S_g(5 \times 10^{-2})$  ksi \_\_\_\_\_

**Property Degradation Versus Weight Loss % in Uniformly Oxidized Graphite**

Property	Units	2%	4%	6%	8%	10%
Strength [.]	_____	_____	_____	_____	_____	_____
Elastic modulus (dynamic) [.]	_____	_____	_____	_____	_____	_____
Thermal conductivity [.]	_____	_____	_____	_____	_____	_____

**Irradiated Graphite**

Property	Units	WG	AG
Dimensional change [.]	_____	_____	_____
Creep coefficient [.]	_____	_____	_____
Coefficient of thermal expansion [.]	_____	_____	_____
Strength [.]	_____	_____	_____
Elastic modulus [.]	_____	_____	_____
Thermal conductivity [.]	_____	_____	_____

**GENERAL NOTES:**

- (a) WG, AG refers to the with- and against-grain direction of the material.
- (b) [.] indicates a dimensionless quantity.

**NOTE:**

(1) If the maximum intended use temperature exceeds 1,832°F, then the temperature dependent data shall be extended to cover the property values at the maximum intended use temperature.