

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 ⁻³	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 ⁻¹	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^{1/2} _____

Design Strength and Material Reliability Curve Values

Ratio of compressive to tensile strength (R_{tc}) _____ Ratio of flexural to tensile strength (R_{tf}) _____ $S_{c95\%}$ ksi _____ $m_{95\%}$ _____
 S_0 MPa _____ $S_{c095\%}$ ksi _____ $m_{095\%}$ _____
 $S_g(10^{-4})$ ksi _____ $S_g(10^{-3})$ MPa _____ $S_g(10^{-2})$ ksi _____ $S_g(5 \times 10^{-2})$ ksi _____

Graphite Oxidation – Effect

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.