

HITHERM™ Thermal Interface Materials

Technical Data Sheet 318

Product Overview

eGRAF® HITHERM™ thermal interface materials are designed for use in applications requiring low contact resistance and high thermal conductivity. The flexible graphite materials can be die-cut and/or laminated with plastics and adhesives.

Part Designation

Every HITHERM™ part number defines the grade and coating options of the material and is constructed based on the following example:

Thermal Interface Material			Coatings		
HT	—	7	10	A	P
Product Name	Series Name	Total Part Thickness (thousands of an inch)	Coating Side 1	Coating Side 2	

Product Series Characteristics^[1]

Characteristic	Pure Graphite		Polymer Enhanced
	700 Series	1200 Series	2500 Series
Nominal Thermal Conductivity ^[2] Through-Plane • In-Plane (W/m-K)	6 • 240	10 • 150	16 • 120
Standard Thickness with Tolerance 0.127 mm (0.005") ± 10% 0.25 mm (0.010") ± 5% 0.51 mm (0.020") ± 5%	HT-705 HT-710 HT-720	HT-1205 HT-1210 HT-1220	HT-2505 HT-2510 -
Standard Width mm • inches	610 • 24	610 • 24	305 • 12
Electrical Resistivity ^[3] In-Plane • Through Thickness (μΩm)	80 • 850	60 • 1230	80 • 1550
Hardness (Shore A)	85		
Coefficient of Thermal Expansion (CTE) In Plane • Through-Plane (ppm/°C)	-0.4 • 27.0		
Flammability Rating (UL)	94V-0		
Operating Temperature (°C)	-40 to +400		-25 to +125
Specific Heat @ 25°C (J/kg-°C)	710		
RoHS Compliant	Yes		

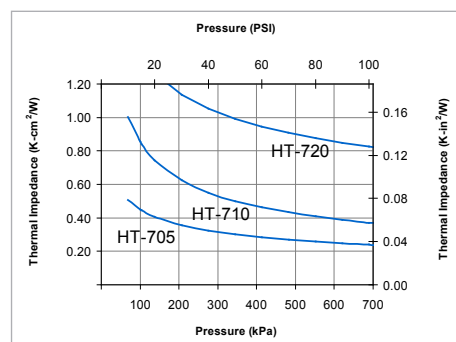
HITHERM™ Coating Options

Characteristic	Adhesive "A" Coating	Plastic "P" Coating
Thickness (mm • inches)	0.004 • 0.00015	0.0014 • 0.000056
Operating Temperature (°C)	-40 to +150	
Thermal Impedance ^[4] per Side (cm ² °C/W @ 110 kPa)	0.16	0.32
Thermal Conductivity (W/m-K)	-	0.155
Dielectric Strength (V)	-	210
Adhesive Strength ^[5] (g/cm ²)	700 Typical 450 Minimum	-

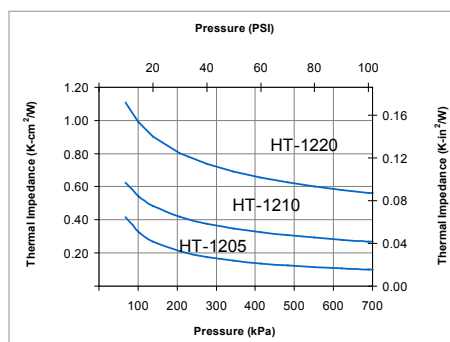
Coatings Designations & Availability	Code	700 Series	1200 Series	2500 Series
No Coatings		✓	✓	✓
Adhesive on single side	A	✓	✓	✓
Plastic on single side	P	✓	✓	
Adhesive Top Plastic Bottom	AP	✓	✓	

Thermal Impedance v. Interface Pressure

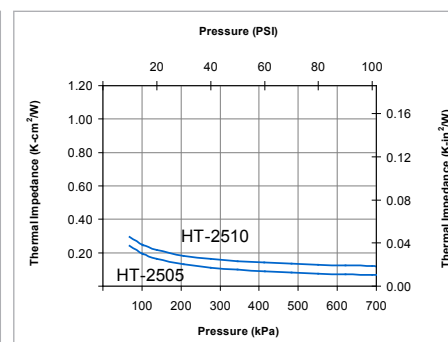
HT-700 Series



HT-1200 Series



HT-2500 Series



Notes:

[1] Properties listed are typical and cannot be used as accept/reject specifications.

[2] In-Plane conductivity at ambient temperature determined using Angstrom's Method.

Through-plane conductivity determined using ASTM D5470 Modified Method.

[3] ASTM C611.4 Point Resistivity Test.

[4] ASTM D5470 Modified (at 110kPa/16 psi/1.1 bar).

Total thermal impedance = thermal impedance of graphite + thermal impedance of coating.

[5] Adhesive Strength is based on a lap shear test (ASTM D3163) with material adhering to a glass plate.

+1 (800) 253-8003 (Toll-Free in USA)
+1 (216) 529-3777 (International)

www.graftech.com | www.egraf.com
egraf@graftech.com

Redefining limits

© 2011 GrafTech International Holdings Inc. This information is based on data believed to be reliable but GrafTech makes no warranties, express or implied, as to its accuracy and assumes no liability arising out of its use. The data listed falls within the normal range of product properties but should not be used to establish specification limits or used alone as the basis of design. GrafTech's liability to purchasers is expressly limited to the terms and conditions of sale. eGRAF®, SPREADERSHIELD™ and HITHERM™ are trademarks of GrafTech International Holdings Inc. eGRAF® thermal management products, materials, and processes are covered by several US patents. For patent information visit www.egraf.com/patents.

4.9.2012