

Creating Material Change



Thermal Masterbatch Technical Data Sheet



Innovation underpins everything we do

T: +44(0)1269 842946 **E:** info@haydale.com

www.haydale.com **in** Haydale Ltd.

Thermal Masterbatch

Haydale's HDPlas nanomaterial enhanced thermal masterbatch is a highly loaded mixture of a bespoke nanomaterial in epoxy resin. It is ideal for demanding applications, such as high-performance laminates, including composite tooling and advanced thermal management structures.

The thermal masterbatch provides the following improvements in performance at the recommended dilution ratio:

- Thermal conductivity up to 64%.
- Thermal diffusivity up to 58%.

Product code:	MB00016
Physical form:	Viscous Liquid
Appearance:	Black / Dark Grey
Product status:	Commercial
Resin chemistry:	Epoxy
Market Sectors:	Aviation, Automotive, Industrial, Space

MB00016 Properties

Property Tested	Testing Conditions	Method Standard	Units	Value
Thermal Conductivity	21°C*	ISO 22007 - hot disk method	W/mK	0.4
Thermal Diffusivity			mm ² /s	0.3
Specific Heat Capacity			MJ/m ³ K	1.3
Glass Transition Temperature	DMA 2°C/min*	ASTM E1640	°C	210.3
Loss Modulus			°C	253.1
Tan Delta Max			°C	262.1
Coefficient of Thermal Expansion (CTE)	TMA 5°C/min*	ASTM E831	µm/(m.°C)	-40°C-0°C: 39
				0°C-40°C: 43
				40°C-80°C: 48
				80°C-120°C: 52
				120°C-160°C: 56
160°C-180°C: 60				
Density	RT	ISO 1675	g/cm ³	1.17-1.19
Equilibrium Viscosity	25°C	ASTM D7271	Pa.s	1000-1200

*Physical properties were determined using cast resin samples, where the masterbatch was diluted with further resin and curative to our recommended application loading for this system, for further details of this procedure please contact Haydale. Processing recommendations will be supplied on purchase.

The properties reported herein are typical of the product, but do not reflect normal testing variance and so should not be used for product specification purposes. Values are rounded.

For bespoke formulation into alternative resin types, please contact Haydale.

Contact us: **T: +44(0)1269 842946 E: info@haydale.com**



The content supplied in this sheet ("Information") supersedes all previous versions supplied. Version 1, August 2023

The Information should be used solely as guidance for the safe handling, storage, processing and/or use of the Product and is only typical of the methods described. The Haydale Group (Haydale Group means Haydale Limited, as a subsidiary of Haydale Graphene Industries plc., and any subsidiary or holding company from time to time and any subsidiary from time to time of any holding company of Haydale Limited) gives no express or implied warranty or guarantee or representation as to the behaviour of the Product described herein during any handling or storage or processing or use of the Product. To the extent permissible by law the Haydale Group shall under no circumstances whatever be liable whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any damage, including loss of profit, or any indirect or consequential loss arising under or in connection with any handling or storage or processing or use of the Product.