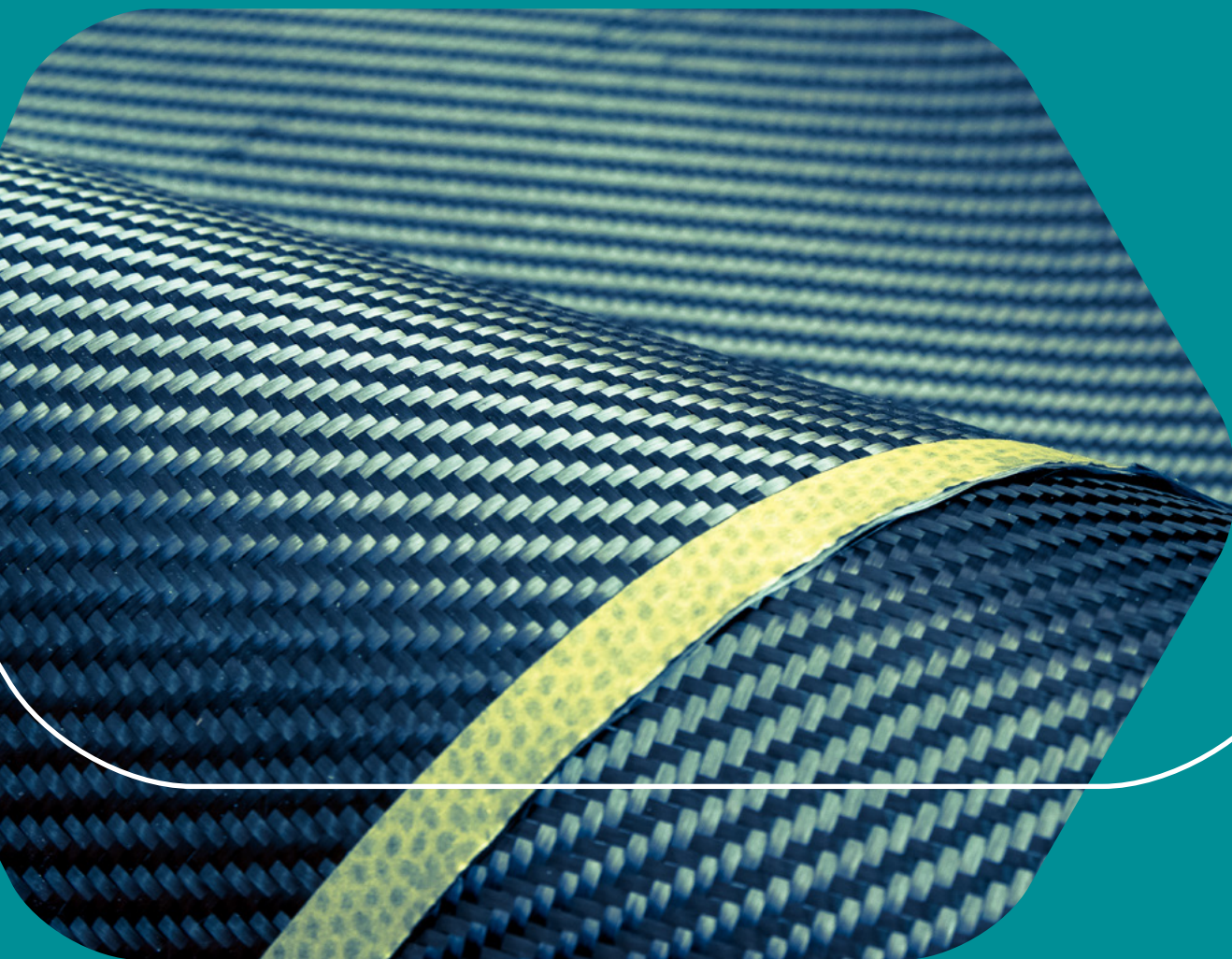



Creating Material Change



Mechanical Masterbatch Technical Data Sheet



Innovation underpins everything we do
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Mechanical Masterbatch

Haydale's nanomaterial enhanced mechanical masterbatch is a highly loaded mixture of a bespoke nanomaterial in epoxy resin, designed to deliver improvements to mechanical performance using nanomaterial reinforcement for use in high performance laminates.

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

- Flexural strength up to 24%
- Impact strength up to 54%

Product code:	MB00004
Physical form:	Liquid
Appearance:	Black/Grey
Product status:	Commercial
Resin chemistry:	Epoxy
Market Sectors:	Structural Composites, High Performance Composites, High Impact Applications

MB00004 Properties

Property Tested	Testing Conditions	Method Standard	Units	Value
Density	RT	ISO 1675	g/cm ³	1.1-1.2
Equilibrium Viscosity	50°C	ASTM D7271	mPa.s	700-800
Glass Transition Temperature (T _g)	DMA 10°C/min*	ASTM E1640	°C	115-125
Damping Coefficient (Tan Delta Max)			N/A (°C)	0.7-0.8 (134-136)
Flexural Strength	2 mm/min*	ISO 178	MPa	85-95
Flexural Modulus			MPa	2500-2800
Flexural Elongation			%	3.8-4.4
Fracture Energy (G _{1c})	Bend Notch*	ISO 13586	J/m ²	200-220
Fracture Toughness (K _{1c})			MPa√m	0.9-1.0
Impact Strength	Izod Unnotched*	ISO 180	KJ/m ²	8-13
Coefficient of thermal expansion (CTE)	TMA 5°C/min*	ISO 11359	10 ⁻⁶ /K	-30-40°C: 58 60-130°C: 81

*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.

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