



## TECHNICAL NOTE 1702: PRODUCT NOMENCLATURE



### **Introduction**

As ELG Carbon Fibre expands its range of recycled carbon fibre products, it has become evident that a structured product nomenclature is needed to standardise product names and descriptions. This will provide clarity in the ordering process.





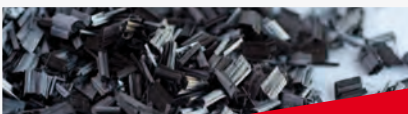


**Product Name Structure**

The general structure of all ELG Carbon Fibre product names is as follows:

CARBISO™	PRODUCT TYPE	POLYMER (WHERE USED)	CARBON FIBRE CLASSIFICATION	DIMENSION	
CARBISO™	TM	PA6/70	IM56P	200 1000	would therefore refer to
	A non-woven mat of recycled carbon fibre	70% polyamide 6 fibres	With the carbon fibres being of intermediate modulus with a tensile strength between 5-6 GPa recovered from prepreg waste	With a weight per unit area of 200 gsm and a width of 1000 mm	
	1	2	3	4	

**1. Product Types**

The product types are:

<b>M</b>	Carbon fibre nonwoven mat	
<b>TM</b>	Thermoplastic nonwoven mat	
<b>C</b>	Random chopped recycled carbon fibre	
<b>CT</b>	Standard chopped tow	
<b>CT+</b>	Oversized chopped tow	
<b>MB</b>	Carbon fibre masterbatch	
<b>MF</b>	Milled recycled carbon fibre	



## 2. Polymer Type & Content

**NB** - Products **M**, **C**, **CT** & **MF** do not include polymer so this category is skipped for those names.

**TM** products contain thermoplastic polymer fibres. The code states the type of polymer and the amount as a percentage by weight. Conventional polymer acronyms are used, so:

- **CARBISO™ TM PP/60** is a hybrid mat with 60% polypropylene fibres.
- **CARBISO™ TM PA6/70** is 70% polyamide 6 fibres.
- **CARBISO™ TM PA66/60** is 60% polyamide 66 fibres.
- **CARBISO™ TM PET/60** is 60% polyethylene terephthalate fibres.
- **CARBISO™ TM PPS/65** is 65% polyphenylene sulphide fibres.

**MB** follows the same pattern with the polymer type described and then the amount by weight. Thus:

- **CARBISO™ MB PA66/60** is a masterbatch with 60% polyamide 66.

## 3. Fibre Classification

The fibre designation is a code which describes the modulus, strength and source of the carbon fibre used in the product. This was explained in ELG Technical Note 1701.

Modulus (GPa)		Strength (GPa)		Source	
<b>SM</b>	Standard: to 270	<b>23</b>	UTS between 2 & 3 GPa	<b>D</b>	Dry fibre, still with sizing
<b>IM</b>	Intermediate: 270 < E < 330	<b>34</b>	UTS between 3 & 4 GPa	<b>R</b>	Desized dry fibres
<b>HM</b>	High: 330 < E < 460	<b>45</b>	UTS between 4 & 5 GPa	<b>P</b>	Fibres recovered from pre-preg
<b>UM</b>	Ultra-high: over 460	<b>56</b>	UTS between 5 & 6 GPa	<b>L</b>	Fibres from cured waste
		<b>67</b>	UTS between 6 & 7 GPa		

Table 1: The ELG carbon fibre classification system.

## 4. Dimensions

The final section of the product name describes the dimension(s) of the material. This varies with the type of product.

### Mat Format Products

For **M** and **TM** mats the key attributes are weight per unit area (g/m<sup>2</sup> or gsm) and width, expressed in millimetres. Therefore:

- **CARBISO™ M SM34D-300-1250** is a 100% recycled non-woven carbon fibre mat (made from standard modulus fibre with a strength of 3-4 GPa, recovered from dry waste) at 300 gsm & 1250 mm wide.
- **CARBISO™ TM PA66/60-IM56P-200-1000** is a recycled non-woven carbon fibre mat with 60% polyamide 66 fibres using intermediate modulus fibres with a strength of 5-6 GPa, recovered from pyrolysed pre-preg, with a weight of 200 gsm and produced at 1000 mm wide.



### Chopped and Milled Products

For **chopped fibre** the key dimension is the average fibre length. The nominal mean value is expressed in millimetres, thus:

- **CARBISO™ C SM34L-60** is recycled standard modulus carbon fibre with a strength of 3-4 GPa recovered from pyrolysed laminate, chopped to a nominal mean length of 60 mm.

For **chopped tows**, again the key dimension is length but the distribution of lengths will be much tighter around the mean. The tow count (3k, 12k, 50k etc. follows the length). Only dry fibres can be used for CT products. The commonest codes will be:

- **CARBISO™ CT SM34D-6-50** - Chopped tow using standard modulus fibre with a strength of 3-4 GPa (dry fibre) and cut to a nominal length of 6 mm based on 50k tow.
- **CARBISO™ CT+ 6 SM34D-6-24** - Oversized chopped tow using standard modulus fibre with a strength of 3-4 GPa (dry fibre) oversized with 6% sizing agent (by weight) and cut to a nominal length of 6 mm based on 24k tow.

For **milled fibre**, as with chopped fibre, the important dimension is average fibre length. The nominal mean value is expressed in micrometres, thus:

- **CARBISO™ MF SM34P-100** is recycled standard modulus carbon fibre with a strength of 3-4 GPa recovered from pyrolysed pre-preg, milled to a nominal mean length of 100  $\mu\text{m}$ .

### Pellets

- **CARBISO™ MB** Masterbatch product will be supplied as equiaxed beads of material around 3 mm in diameter so there is no code after the fibre classification to state material dimension.

### Disclaimer

The information presented in this document is provided in good faith, but no warranty is given or is to be implied regarding its accuracy or relevance to any particular application. Users must satisfy themselves regarding the suitability and safety of their use of the information and products in the application concerned.

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