



# POLARITE™ 102A IN POLYAMIDES

Inorganic fillers have been used to modify the properties of polyamides for several years and glass fibre reinforced products are extensively used.

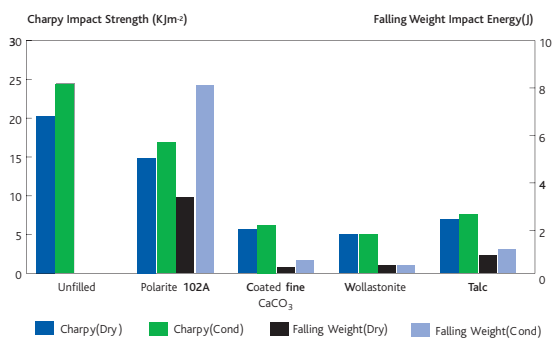
The use of glass fibres, while offering many benefits, does give a problem of anisotropy caused by fibre orientation during processing. This can lead to variable physical properties, shrinkage and warpage, particularly in large, thin sectioned mouldings.

Particulate mineral fillers are introduced to minimise warpage but still maintain rigidity. The aminosilane coated calcined clay imparts, to a composite, good dimensional stability and rigidity but also good impact strength due to the coupling of filler to polymer.

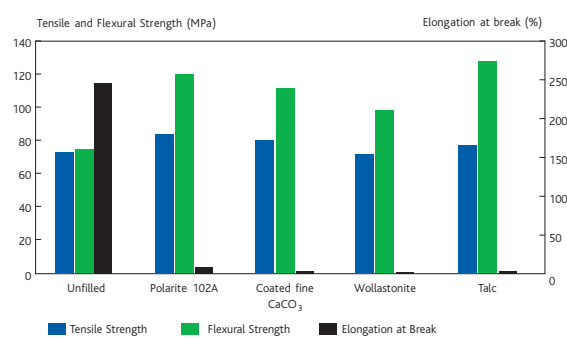
**Polarite™ 102A**, combining shape, chemical inertness and ability to couple, gives better overall properties to a polyamide than other particulate fillers. Composite rigidity is the same for uncoated calcined clay, coated calcium carbonate, wollastonite and talc, as shown in Figure 2, but the improvements it gives in terms of impact are clearly given in Figure 1.

Typical properties of **Polarite™ 102A** in Nylon 6, at 30 wt% loading are given in Table 1 in comparison with the unfilled plastic (both in "dry" and "wet" conditioned states).

**FIGURE 1: EFFECT OF MINERALS ON PROPERTIES OF POLYAMIDE 6**



**FIGURE 2: EFFECTS OF MINERALS ON PROPERTIES OF POLYAMIDE 6**



**TABLE 1:**

	Dry		Wet	
	Unfilled	Polarite™ 102A	Unfilled	Polarite™ 102A
Tensile Strength (MPa)	87.5	92.1	53.5	49.7
Flexural Modulus (Gpa)	1.90	2.76	0.86	0.95
<b>Impact Strength</b>				
Charpy notched (KJm <sup>-2</sup> )	15.7	12.3	19.4	28.1
Falling weight (J)	14.7	7.0	38.9	32.9

