



Nanomed[®] and Nanomed MAX[®] Polyamide Compounds

Foster Nanomed[®] and Nanomed MAX[®] compounds are custom formulated to improve structural performance of medical grade polymers, while minimizing the effect on flexibility, ductility and surface finish. These unique formulations incorporate clay fillers that are less than one nanometer in diameter, with aspect ratios between 300:1 and 1,500:1. At low loading levels Nanomed[®] additives interact at the molecular level to immobilize portions of the polymer chain; this phenomenon creates a reinforcing effect that is ideal for maintaining control of medical devices such as catheter tubes. Foster Nanomed[®] and Nanomed MAX[®] Compounds are suitable for injection molding and extrusion applications. Adding Foster Nanomed MAX[®] into medical grade polyamide 6 resins, including MX-Nylon, enables the material to be used in structural applications commonly comprised of high temperature polymers, as well as multi-layer catheter constructions.

In a study conducted by Foster Corporation, the effect of various loading levels of Nanomed[®] fillers on the physical properties of polyamide polymers was evaluated. In this study Pebax[®] Polyether Block Amide Copolymers, AESNO[®] MED Polyamides, and an MX-Nylon (MXD6) blend were examined. Results concluded that polyamide resins containing Nanomed[®] fillers experience a significant improvement in tensile modulus and flexural modulus compared to unmodified materials.

Table 1. Mechanical properties for polyamide compounds with Foster's Nanomed[®] technology.

RESIN	NANOMED [®] LOADING	STRESS YIELD PSI	STRAIN YIELD %	TENSILE MOD. PSI	FLEXURAL MOD. PSI	NOTCH. IZOD J/M
PEBAX [®] 7233 SA 01 MED	–	4,557	16.2	85,371	70,513	59.8
	LOW	4,772	14.4	106,615	103,797	46.9
	MEDIUM	5,002	12.8	126,964	112,884	45.3
	HIGH	5,274	11.9	168,267	143,442	39.4
RILSAMID [®] AESNO MED	–	5,964	5.5	174,983	150,065	75.8
	LOW	6,171	9.5	193,476	190,128	95.5
	MEDIUM	6,622	5.5	234,313	234,773	93.4
	HIGH	6,720	5.6	250,607	251,141	91.8
MX ME1121 BLEND	–	15,521	5.7	397,634	518,670	26.1
	MEDIUM	15,206	5.1	484,563	564,166	25.6

Figure 1. Flexural modulus of polyamide compounds with Foster's Nanomed® technology.

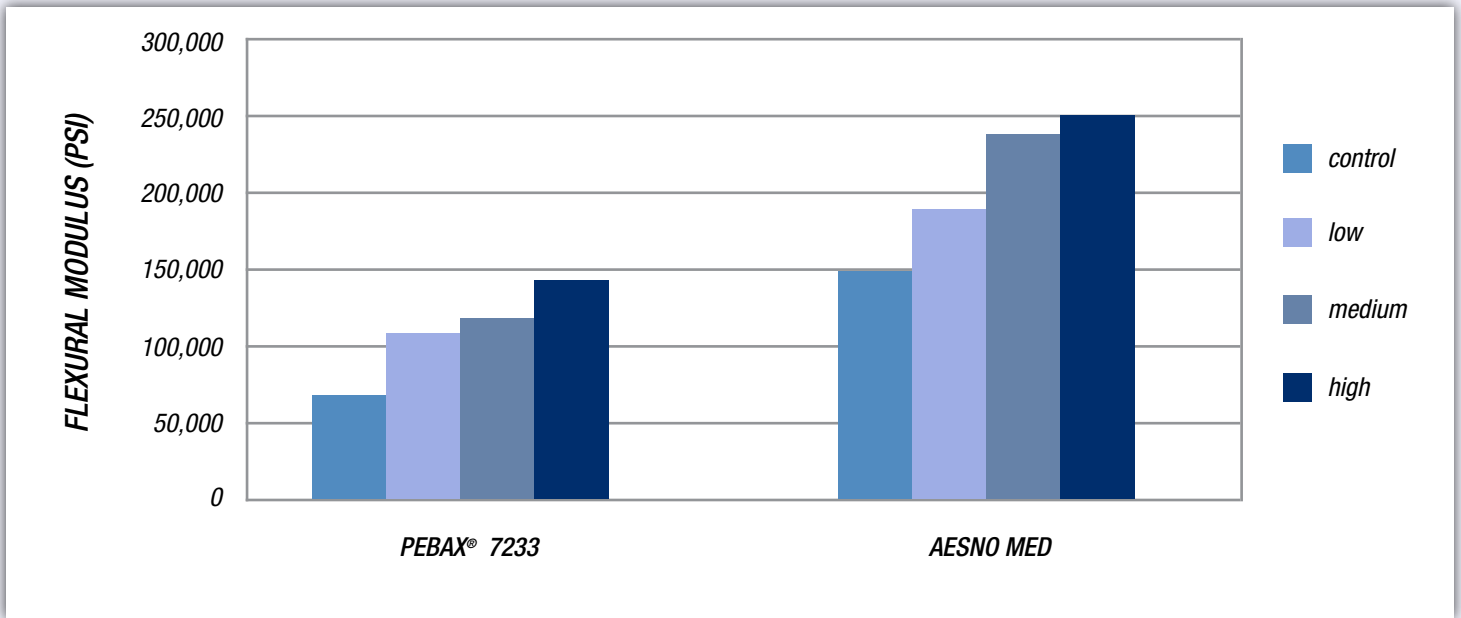
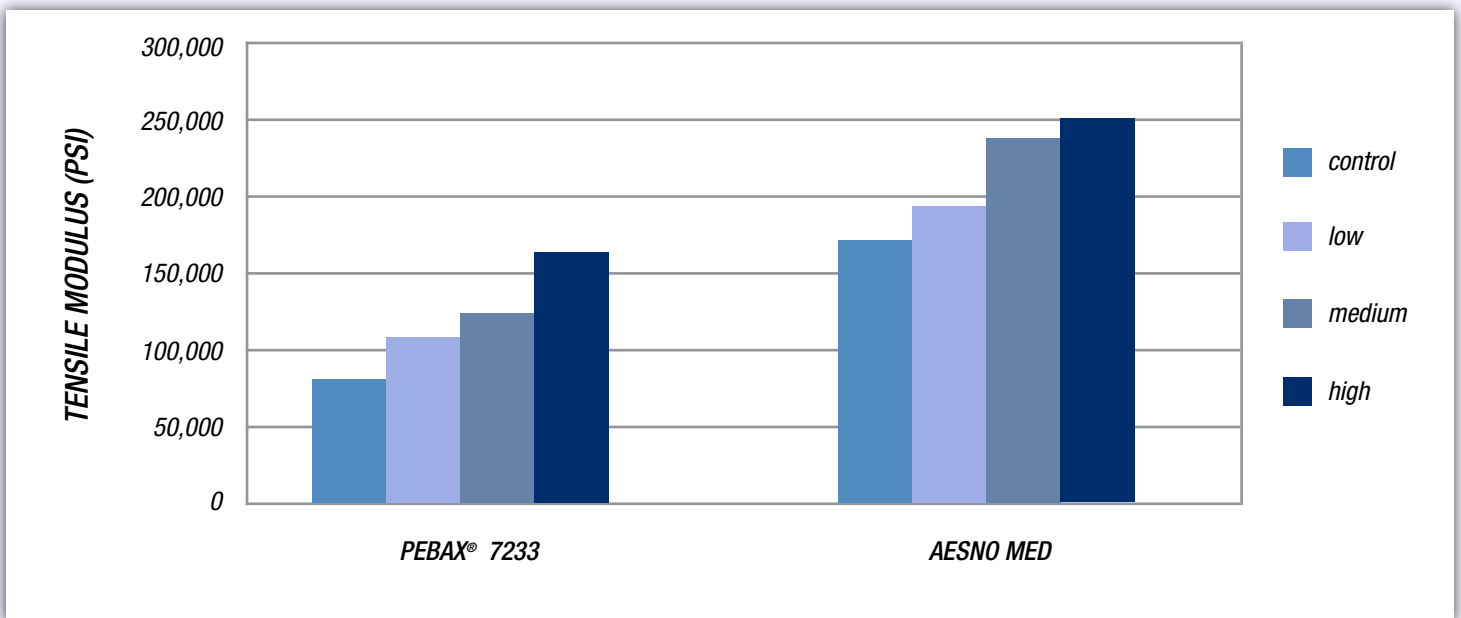


Figure 2. Tensile modulus of polyamide compounds with Foster's Nanomed® technology.



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