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VANDERBILT

Technical Data

40% WOLLASTONITE IN POLYPROPYLENE

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40% WOLLASTONITE IN POLYPROPYLENE**PURPOSE**

To compare reinforcing effects of low aspect ratio, fine ground wollastonite in polypropylene: **VANSIL® W-50** wollastonite, **VANCOTE® W-50AS** treated wollastonite, **VANCOTE W-40AS** treated wollastonite.

FILLER PROPERTIES

Wollastonite	VANSIL W-50	VANCOTE W-50AS	VANCOTE W-40AS
Treatment	None	aminosilane	aminosilane
Median particle size, μm	2.8	2.8	5.6
Average aspect ratio	<5:1	<5:1	<5:1
BET surface area, m^2/g	4	4	3
Particle morphology	short needle and irregular/nodular	short needle and irregular/nodular	short needle and irregular/nodular

COMPOUND

Preblend: 55.9% polypropylene (Pro-fax® 6501: Basell Polyolefins), 42% filler, 2.1% additives (2.0% **VANOX® 1041** antioxidant, 0.1% **VANOX 898** stabilizer: R.T. Vanderbilt Company, Inc.). Compounded in ZSE-40 Leistritz Extruder (250 rpm; 240°C); molded in Boy 50M injection molder.

DATA

	VANSIL W-50	VANCOTE W-50AS	VANCOTE W-40AS
Flexural Modulus, GPa	2.54	2.57	2.73
Flexural Strength, MPa	53.7	54.4	55.0
Izod Impact, J/m	21.9	19.6	23.3
Tensile Strength, Yield, MPa	25.7	26.3	26.4
Tensile Strength, Break, MPa	16.5	17.7	19.9
Yield Elongation, %	4.5	4.4	4.6
Break Elongation, %	57.0	29.0	27.0
Young's Modulus, MPa	1.73	2.52	2.48

RESULTS

- Untreated **VANSIL W-50** wollastonite provided equivalent stiffness (flexural modulus) and 12% greater impact strength than **VANCOTE W-50AS** aminosilane-treated wollastonite.
- Of the three wollastonite products, **VANCOTE W-40AS** aminosilane-treated wollastonite provided the best stiffness and impact strength: 6-7% greater stiffness than **VANCOTE W-50AS** aminosilane-treated wollastonite and untreated **VANSIL W-50** wollastonite; 19% greater impact strength than **VANCOTE W-50AS** aminosilane-treated wollastonite, and 6% greater impact strength than untreated **VANSIL W-50** wollastonite.

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