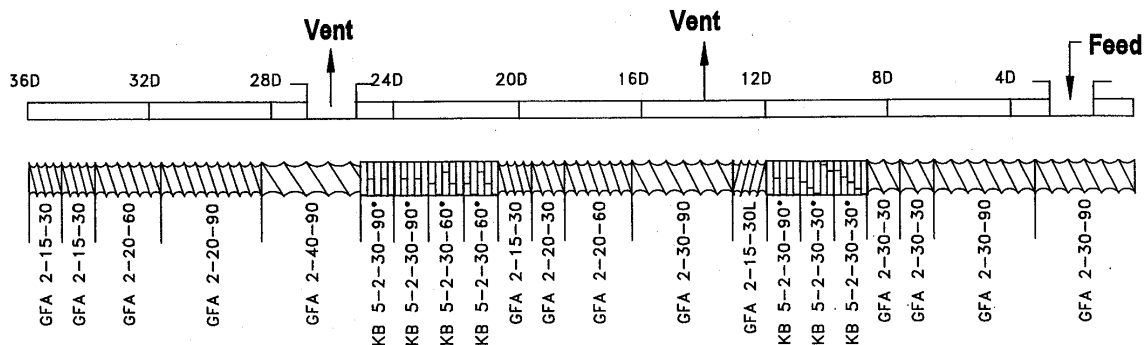


Lit. N-608 (10/04) Guidelines & Setup Parameters For Nylon 6 Nanocomposites

Nanomer® nanoclays are surface modified montmorillonite minerals intended for use in extrusion compounded plastics. When properly dispersed, Nanomer® products create a nanocomposite with enhanced barrier and mechanical properties. Tech Data sheet N-605 contains detailed information on the grade appropriate for nylon 6.

Nanomer nanoclays disperse when sufficiently sheared in the melt phase. Twin screw compounders, mixers such as high shearing continuous mixers or internal mixers are recommended for this processing. Nanocor suggests the following screw configuration and compounding parameters as a guide to achieving optimal performance.

**FIGURE 1
SCREW ELEMENTS**



**CONFIGURATION
FOR NANOCLAY DISPERSION**

<u>ZONE</u>	<u>TEMPERATURE (°C)</u>	<u>FUNCTION</u>
4D	Unheated	Conveying
8D	220	Conveying
12D	230	Melting / Dispersion
16D	240	Atmospheric Venting
20D	240	Conveying
24D	240	Kneading/Dispersion
28D	240	Vacuum Devolatilization (26in. Hg)
32D	240	Conveying
36D	240	Conveying and Building Pressure
Die	240	Strand Pelletizing

EXTRUSION SET-UP PARAMETERS

Materials Preconditioning

- * Nylon pellets dried to < 0.2% moisture
- * Nanomer powder dried 4 hours @ 80° C

Equipment Set-up

- * Recommended L/D = 36:1
- * Recommended Screw Speed = 400 rpm

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Materials Feed

- * Nylon and Nanoclay co-fed into compounder throat
- * Nylon and Nanoclay fed with calibrated volumetric feeders

Nanocomposite films may be cast using high shearing single screw or twin screw compounders. Screw elements can be identical to those used for compounding the nanocomposite, but temperatures are higher.

CONFIGURATION FOR NANOCOMPOSITE FILMS

<u>ZONE</u>	<u>TEMPERATURE (°C)</u>	<u>FUNCTION</u>
4D	Unheated	Conveying
8D	220	Conveying
12D	230	Melting / Dispersion
16D	240	Atmospheric Venting
20D	240	Conveying
24D	240	Kneading/Dispersion
28D	240	Vacuum Devolatilization (26in. Hg)
32D	250	Conveying
36D	260	Conveying and Building Pressure
Die	265	12 in. Wide Film Die
Chill Roll	140	Cooling Extruded Film Unoriented Mono-layer

FILM SET-UP PARAMETERS

Materials Preconditioning

- * Nanocomposite pellets dried to < 0.1% moisture

Equipment Set-up

- * Recommended L/D = 36:1
- * Recommended Screw Speed = 150 rpm

Materials Feed

- * Nanocomposite fed by calibrated volumetric feeder
- * Nanocomposite fed into compounder throat

For more information on how Nanomer® nanoclays can work for you, contact Nanocor's Technical Service Group.

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