



KINGFISHER 501 & KINGFISHER 502 Nano-Functional Materials

(International patents pending)

The application of nano-technology in polymer materials processing is one of the research directions of KEIMEI Plasticizing Technology. Nano-functional materials are based on organic and inorganic nanoscale materials and a polymer carrier material (matrix). Using KEIMEI's nano-technology, these basic organic or inorganic nanoscale materials are separated into individual nanoscale particles with spherical, strip or other irregular shape and homogeneously dispersed in the matrix. The resulting polymer based nano-functional material is supplied as granules of $\varnothing 3 \times 3$ mm for application convenience. The nanoscale effect will provide a variety of advantageous features, especially in microfiber applications. This technology can also be applied to the pigment dispersion in microfibers.

Benefits in coloration of melt-blown microfibers:

- Enhances the buffer ability of melt materials, effectively buffering the impact of Temperature and material index fluctuations.
- Markedly prolongs the spinneret cleaning cycle by about 50% compared to conventional coloring materials.
- Significantly reduces melt drops and fiber breakages, potentially improving the stability of fiber production.
- Achieves approx. 20% increase in fiber strength.
- Improves the hydrostatic pressure resistance of SMS nonwoven fabrics by approx. 6~25%.
- Improves material elongation behavior, enabling to spin finer fibers.

Application advantages:

- Improved comprehensive performance index of superfine fibers.
- Reduction in nonwoven defect rates.
- Ability to decrease nonwoven gram weights while maintaining fabric properties unchanged.
- Energy savings and reduction in emissions.
- Lower cost of production for nonwovens.
- Significantly improved comprehensive performance of nonwoven fabrics, e.g., hydrostatic pressure resistance value, softness, filterability, air permeability, fabric appearance, etc.
- Enhanced characteristics of the nonwoven product after finishing treatment due to the surface energy of nano materials.

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Technical data of Nano-functional masterbatches

Index Model	Softening Point °C	Bulk density (g/ml)	ΔP bar/g	Suggested addition Rate %	Nano material TiO2 content
Kingfisher 501	140	0.474	≤ 0.5	2~3%	$\leq 10\%$
Kingfisher 502	150	0.479	≤ 0.5	2~3%	$\leq 10\%$

Remarks:

1. The carrier of these products is a PP grade for meltblown applications, for addition prior to spinning.
2. White translucent particles, $\varnothing 3 \times 3$ mm.
3. Appropriate adjustments in spinning parameters may be needed depending on circumstances.
4. Material must be stored in a dry state for use.
5. Package: 25kg/bag or 500kg/case.
6. Changes in specifications reserved, please note our latest information releases in each case.