Eisvogel™

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Nano-technology

Color masterbatch

Mono-color masterbatch/ SPC
Custom-made color masterbatch

Keimei Plastifizierung Technik (Yantai) Co., Ltd.
www.keimeinano.com

Eisvogel™

Company profile

Keimei Plastifizierung Technik (Yantai) Co., Ltd., specializes in the manufacturing of Eisvogel nanotechnology products, and promots the application technology of Eisvogel nanomaterials. The main products are masterbatches made from color pigments and functional additives.

The plant covers 80,000㎡, has more than 50 production lines and a capacity of 20,000 tons per year. The Eisvogel nano-grade masterbatches are typically applied to micro fiber' s coloration and endow various functionality. The base polymers of the micro fiber are normally PP, PA and PET, application fields such as melt-spin Spunbond & Meltblown nonwoven, carpet fiber, textile fiber, etc.

Keimei Plastifizierung Technik (Yantai) Co., Ltd. is the new company name after the merger with the former company,Yantai Huada Nano Materials Co., Ltd., which was established in 1993. HUADA had more than 20 years of manufacturing experience of masterbatches, had a strong technical team and R & D capabilities, and had an established market recognition, built over a long period time. Their products were mainly used in the field of nonwovens and carpet fibers for domestic and global markets and it had established a good corporate reputation over the years. The recent acquisition by Keimei Plastifizierung Technik GmbH in Germany enables new manufacturing technologies for nano materials to be implemented into the production capabilities of the new company. It also represents an important strategic move in the world market for KEIMEI, by now having a large production base in Asia. By expanding the production capabilities and having a manufacturing facility in close proximity to Asia-Pacific customers allows for faster service and greater efficiencies in technical support.

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Eisvogel™ Nano-technology

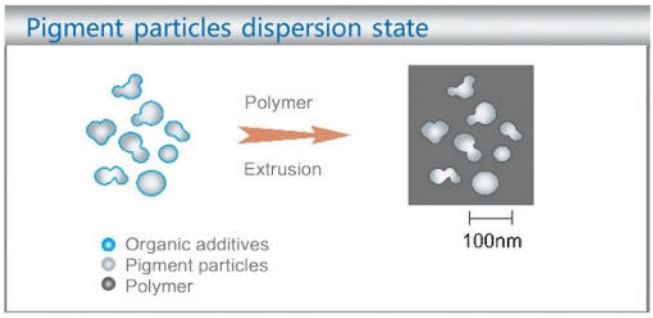
The development and promotion of Eisvogel nano-technology from Germany timely matches the demands of developing superfine fibers, enabling the uniform and stable coloration of superfine fibers.

The Core of Eisvogel™ Nano-technology

Nano grade particles are round in nature. How to make each particle remain and exist independently and still maintain the Nano state when using the nano particles applied to final application environment is a big technology challenge in the industry today.

The core of Eisvogel nanotechnology is that it ensures each pigment particle is coated and isolated in its original appearance and size, and prohibiting the agglomeration in the process of product realization. The original shape and size of nano particles is well protected in the chosen polymer.

As illustrated in the figure below, the surface of Nano-grade primary pigment particles are coated to reduce the acting force between particles which are agglomerated, in order to protect the primary particle size and shape.



Pigment shapes shown in the following pictures (the appearance shape will be different by pigment content) can be powder form or granular form.
The coated pigments can be used for many polymeric materials, such as PP, PET, PA, PLA, etc.

Use as basic material for making Nano-grade mono masterbatch/ SPC with different polymers as carriers.

Eisvogel™ Mono-color Masterbatches/ SPC

Compounding with carrier resin
Relieve the remaining acting force between the Nano particles, allow the primary particles to be fully dispersed in carrier.

The original shape and size of nano pigment particles is protected in the chosen polymer.

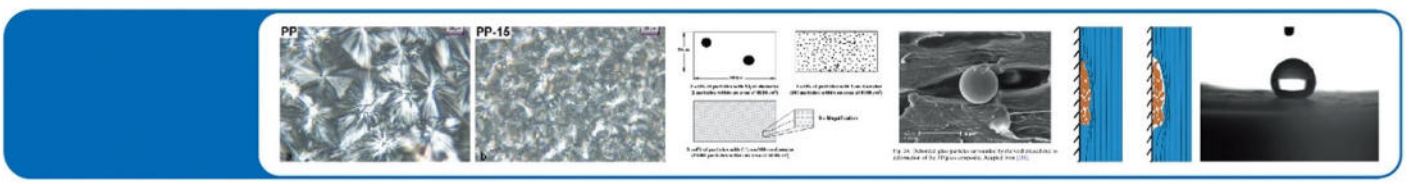
In this process, on the basis that nanoparticles' surface was coated, through the screw high shear mixing of pigments and polymer, the shear force completes the nanoparticles' infusion with polymers and enables the nanoparticles to be uniformly distributed in polymer with their primary shape and size, to finally achieve the purpose of dispersion, and the nano particles can achieve the most stable state in this way, thereby laying the foundation for the manufacture of Nano grade custom-made color Masterbatches.

Performances of polymer materials by Eisvogel™ Technology

Since the pigment particles in masterbatches which are manufactured by Eisvogel technology are Nano-grade, they can confer polymer materials many Nano properties, which are specifically performed in following aspects. Taking PP meltblown microfiber processing for example:

- 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 the ability to spin finer 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.

Additional and deeper application results of Eisvogel technology need to be and will be continually explored. We will keep posted on all timely developments.



Keimei
Plastifizierung Technik

Eisvogel™ Custom-made color Masterbatches

On the basis of evenly dispersed nano-grade mono-color masterbatches, the manufacturing of custom-made color masterbatches have been guaranteed on technical aspects and quality aspect.
After determining the formulation according to the color matching theory of three primary colors, the manufacturing is simply made by compound different mono-color masterbatches and granulated.

In this process, the focus is on the color accuracy and color difference control.

A strong technical team.
Mature and effective ISO9001 quality management system.
Advanced automated production system from Germany.
Complete and professional lab testing equipments.
Over 50 production lines ensure the high supply capacity.

• Polymeric fibers POY, FDY, CF.

• BCF Carpet fibers.

• Spunbond & meltblown nonwovens.

• Various kinds of plastic products.

Eisvogel products can be applied to PP, PE, PET and PA polymers, typically are used for coloring fine denier fibers and Spunmelt nonwovens, etc.

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