Eisvogel®

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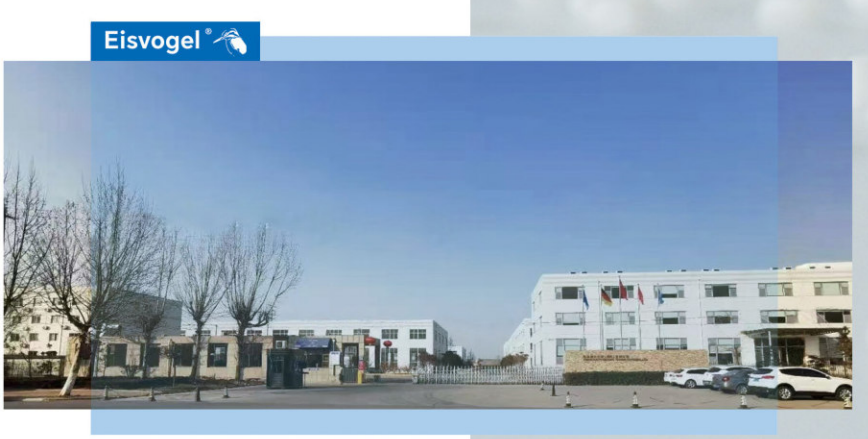
Nano-technology

Functional masterbatches

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



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 32 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®

The functional masterbatch series are all inner addition products. Namely added in the polymeric resins before plasticization, during the plasticization process, the functional additives melt into the polymeric resins to realize the special functions.

Comparing with after finish method, the inner adding method can have easier processing, higher bonding force and longer effect etc. This method has been had a new trend in functional fiber area.

Packing: 25kg/bag, packing bag is a paper and plastic film compound bag, inner with a PE film bag.
Storage: Please see the directions on the package.
Changes to this technical data will occur and new models will be added. Please check our latest information.

Eisvogel 501 & Eisvogel 502 Nano-functional Materials

Nano Functional material is one of the R & D direction of German Keimei Plastifizierung Technik GmbH's plastification technology. It disperses the inorganic materials into matrix polymer material in the form of independent nano particles (nearly spherical particles), and it is supplied as marsterbatch size of Φ3×3mm 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 PP 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.

Range of application:

PP meltblown non-woven fabric, PP spunbond non-woven fabric, PP material of other fibers, etc. 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.

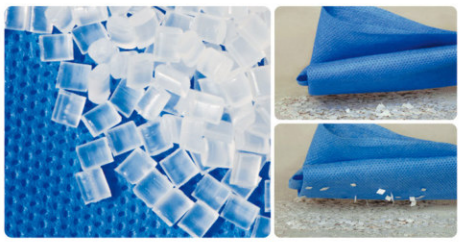
Technical data of Nano-functional masterbatches

Model	Softening point (℃)	Bulk density (g/ml)	△P (bar/g)	Suggested addition Rate (%)	Nano material content (%)
Eisvogel 501	140	0.474	≤0.5	2～3	10
Eisvogel 502	150	0.474	≤0.5	2～3	10

Remarks:
1. The carrier of these products is PP grade for meltblown applications, for addition prior to spinning;
2. White translucent particles ∮ 3 x 3mm ;
3. Appropriate adjustments in spinning parameters may be needed depenidng on circumstances ;
4. Material must be stored in a dry state for use;
5. Package: 25 kg/bag or 500 kg/case.

Antistatic Masterbatches

- Antistatic masterbatches are produced by blending with different inner antistatic agents, the synergistic and complementation effects realize the long term and stable antistatic performance.
- Easy to use by blending with polymeric resins.



Features

- Excellent antistatic performance.
- Long-term antistatic effects.
- Excellent light stability and heat resistance properties.Neither influences the molding nor degrades the physicochemical properties of products.
- Good chemical resistance properties and non-toxic.
- No change to the original color of products.
- Antistatic properties can be adjusted by the added proportion.

Applications

- It can be used in nonwovens, carpet fibers, plastic tarpaulins, plastic films, and plastic molding products.

Typical Products & Technical Data

Model	Appearance (mm)	Light Fastness Grade	Heat Resistance (℃)	MI (g/10min)	Suggested Addition Proportation(%)	Water Content (%)	Pressure Rising Value(MPa)	Surface Resistance (Ω)	Applied Material
W103A	Φ3×3	7～8	230	20～60	2～3	≤0.05	≤1.5	$\leq 10^{13}$	PP
FW301	Φ3×3	7～8	230	20～60	2～3	≤0.05	≤1.5	$\leq 10^{13}$	PP, PE
FW302	Φ3×3	7～8	230	20～60	2～3	≤0.05	≤1.5	$\leq 10^{13}$	PP, ABS

Note: 1. The best antistatic effect is reached after one week.
2. The antistatic effect is influenced by environmental conditions such as temperature and relative humidity.

Softening Masterbatches

- Softening masterbatches increase the softening property of PP fibers and PP films. They also decrease brittleness at low temperature. The additives change the crystal morphology and molecular orientation during the PP polymer forming process by winding the PP molecular chains to realize softening property.

Features

- Good compatibility with polymers. Easy to use and good dispersibility obtained only by blending directly with polymers before spinning.
- Excellent softening effect at the suggested addition proportion of the masterbatches.
- Easy adjusted performance by varying the addition proportion in the masterbatch.
- No change to the polymer's original color .No special requirement for the production machine, only needs minor adjustments (mainly the temperature) for the process parameters before use.
- Excellent durability at low temperature for PP products.

Applications

- It can be used in nonwovens, plastic tarpaulins, plastic films, and plastic molding products.

Typical Products & Technical Data

Model	Appearance (mm)	MI (g/10min)	Suggested Addition Proportation(%)	Pressure Rising Value(MPa)	Intenerate temperature(℃)	Characteristic
FW505	Φ3×3	50～100	3～6	≤1.5	130	soft&slippery
FW505A	Φ3×3	30～50	2～4	≤1.5	120	soft
FW515A	Φ3×3	30～50	4～10	≤1.5	120	soft

High-performance Flame-retardant Masterbatches

- Flame retardant masterbatches are mainly produced by many highly active additives. They are used for polyolefin products such as polyethylene and polypropylene. Model numbers W139 and FW401 are appropriate for polypropylene fibers, model FW402 is appropriate for polyolefin film and molding products.

Features

- Achieves V-0 flame-retardancy level with a low addition proportion.
- No change to the original color of products.
- Easy to use, hygienic and low odor.
- The effect of all flame retardant products varies with the addition proportion .

Applications

- It can be used in nonwovens, carpet fibers, plastic tarpaulins, plastic films, and plastic molding products.

Typical Products & Technical Data

Model	Appearance (mm)	Heat Resistance (℃)	MI (g/10min)	Suggested Addition Proportation(%)	Pressure Rising Value(MPa)	Migration resistance grade	Applied Material
W139	Φ3×3	270	120～150	3～4	≤1.5	5	PP
FW401	Φ3×3	270	120～150	3～4	≤1.5	5	PP
FW402	Φ3×3	300	120～150	3～4	≤1.5	5	PP, PE
FW1301*	Φ3×3	250	30～50	3	≤1.5	5	PP, PE

Note: 1、 The models which mark with* are the varieties do not contained halogen, but also have anti-ageing function.
2、 In order to obtain the best flame retardant effect, overheating must be avoided, including exposure to high temperatures for a long time.
3、 It is necessary to pumping out the remains of the flame retardant materials by pure PP after use.

Anti-microbial Masterbatches

- Antimicrobial masterbatches can be used in many polymers such as PP, PE,PA, PET, ABS, PS, etc. They effectively inhibit the growth of bacteria, mildew and algae. Also they're non-toxic.

Features

- Employ inorganic antimicrobial agents, can be used in food packaging.
- Broad spectra antimicrobial agents retard the growth of many bacteria, mildew and algae on product surface.
- High heat resistance up to 600℃.
- Long-term antimicrobial property.
- Easy to use, add in by blending with chips.

Applications

- It can be used in nonwovens, carpet fibers, plastic tarpaulins, plastic films, and plastic molding products.

Typical Products & Technical Data

Model	Appearance (mm)	Water content (%)	MI (g/10min)	Suggested Addition Proportation(%)	Pressure Rising Value(MPa)	Ag content in ash by weight(%)	Applied Material
FW601	Φ3×3	＜0.1	15～30	3～5	≤1.5	＞3.0	PP
FW603	Φ3×3	＜0.1	15～30	3～5	≤1.5	＞3.0	PP, PE

Note: 1. Adding 4% antimicrobial masterbatches, the effect reach 99+% after the antimicrobial products touch the colon bacillus and staphylococcus aureus after 24 hours.
2. In order to avoid unexpected factors in the process, a pilot experiment is highly recommended before mass production.

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Anti-ageing Masterbatches

- Anti-ageing masterbatches mainly provide long-term anti-light ageing, anti-heat ageing and anti-weathering ageing properties for PP products.

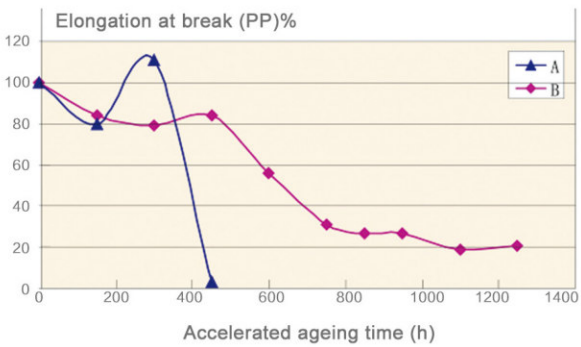
Features

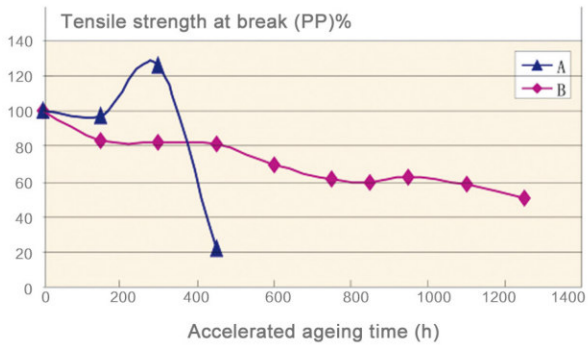
- Highly efficient UV absorbing with wide wavelengths.
- Synergic effects by absorption and shielding make highly remarkable anti-light performance on PP.
- The anti-oxidation content can effectively protect against various environmental conditions caused by climate, temperature etc.
- High stability provides long term anti-ageing properties.
- Providing with chips morphology, easy to compound and desperse in ploymer.

Applications

- It can be used in nonwovens, chemical carpet fibers, plastic tarpaulins, plastic films, and plastic molding products.

SMF1807 Effect Graph(Applied to market since 1993)





- Note: A: 840d/120f PP fibers B: 840d/120f PP fibers with 3% SMF1807

Typical Products & Technical Data

Model	Appearance (mm)	Heat Resistance (℃)	MI (g/10min)	Suggested Addition Proportation(%)	Water Content (%)	※T50 (year)	Applied Material
SMF1807	Φ3×3	260	30~50	3	≤0.05	≤1.5	PP
FW101	Φ3×3	260	30~50	3	≤0.05	≤1.5	PP
FW102	Φ3×3	260	30~50	3	≤0.05	≤1.5	PP
FW103	Φ3×3	260	30~50	3	≤0.05	1.5(PP),2(PE)	PP,PE

Note: ※T50 : Time for 50% of tensile strength reduction in the natural environment.