



Preperse Pigment Preparation — Q&A

A COMPLETELY DIFFERENT WAY FOR PLASTIC COLORING.

Question 1: What are the applications of Preperse pigment preparations?

Answer: Preperse pigment preparations are widely used in masterbatch which are applied for fiber, film, cable etc., and allowed for coloring plastics include PP, PE, PVC, EVA, PA.

Question 2: How to mix Preperse pigment preparation with other materials ?

Answer: Regular mixer or low-speed mixer are recommended to blend Preperse pigment preparation with resins. There is no need to use high-speed mixer or other additives as the dispersity of our product has been improved adequately.

Please ensure that the Preperse pigment preparation and resins must be uniformly mixed. In mixing procedure, powdery resins are always acclaimed because they help adequate homogenizing.

Question 3: Is it necessary to add dispersion agents when using Preperse pigment preparations?

Answer: There is no need to put in other dispersing agent during the production.



Question 4: Is high-speed mixer allowed to mix Preperse pigment preparations?

Answer: No. High-speed mixer is never suggested to mix our preparations with resins or other substances.

We suggest to use low-speed mixer according to following reasons. The melting point of Preperse pigment preparations (PE-S/PE-S/PP-S/PVC series) is around 60°C - 80°C. High speed and long-time mixing will result in high temperature that causes agglomeration between different materials since the melt points are different.

Question 5: Is single screw extruder workable when making masterbatch with Preperse pigment preparations?

Answer: Yes, our product has been completely well dispersed and only little shear force is required for manufacturing masterbatch. So single screw extruder is acceptable if meet below requirements.

The single screw extruder must have a L/D ratio higher than 1:25 and equipped with air exhausting unit. The processing temperature must be applicable and controllable. For example, regarding 1st area of the extruder, the temperature must be controlled below 50°C in order to avoid high temperature transfer to the feeding parts then cause agglomeration of materials.

Our experimental data shows, for mono masterbatch produced by single screw extruder, it's better to make pigment content no more than 40%, and lower pigment content contributes to easier pelleting.



Question 6: How to use twin screw extruder when making masterbatch with Preperse pigment preparations?

Answer: Twin screw extruder is recommended when producing filament masterbatch and color masterbatch request excellent dispersity. Please ensure the temperature of feeding parts is below 50°C in case of agglomeration.

Before extruding, low speed mixer is always recommended rather than high speed mixer. No need to mix if weight loss balance auto-feeding system is applied online.

Question 7: What is the recommended processing temperature for Preperse pigment preparation?

Answer: The inlet temperature must be lower than 50°C and the temperature of 1st area must be controlled to a low level that will not transfer to the feeding throat.

The overall processing temperature must converge on the melting point of the resin or just slightly higher 10-20°C than the melting point but cannot be lower than 130°C. Immoderate temperature may cause pelletizing failed due to the strip embrittlement after overheating .

Reference processing temperature: PE 135°C-170°C; PP 160 °C to 180 °C. In order to gain proper shearing power from the fondant, better to try different temperature by 5 °C. Besides, different extruding speed also cause variant shearing power. When use our preparation for the first time, extruding speed and temperature setting should be tuned and judged, fix up parameters for future production when find equilibrium between efficiency and quality .



Question 8: How to conduct material testing and quality control for Preperse pigment preparation?

Answer: The characteristics of the Preperse pigment preparation are different from the dry powder pigment. It contains a certain amount of dispersant that generated to a granular appearance. Therefore, small experimental machinery such as small single screw extruder or twin roll mill are not suggested for testing Preperse pigment preparation without making masterbatch in advance. The screw length is not enough for sufficient thawing. Granular pigment preparations always request thawing time before dispersion.

We suggest customers to make mono masterbatch before running color testing with injection methods. The concentration of mono masterbatch can be 40% at highest, then diluted to appropriate proportions for comparison.

Question 9: Do the pigment content in Preperse pigment preparations factually reach 70% ?

Answer: Yes. While traditional pigment preparation typically have a pigment content from 40% to 60%, most Preperse pigment preparations achieve pigment content over 70%. The receipt does not only ask for special requirements of raw materials, also request technique innovation and equipment invention. By adopting these new technique and equipment, we carried out a large number of experiments, and finally achieved the breakthrough and innovation in content.



Question 10: Is it possible to make the pigment content higher than 70% in pigment preparations?

Answer: Yes. We can achieve 85% concentration of some organic pigments into preparations. Customer may send us inquiry and requirement for more specific information.

Question 11: What are the advantages of the ultra-high concentration of Preperse pigment preparations?

Answer: High proportion of active ingredients(pigment content), means relatively less additives, that helps eliminate the influence of other materials in masterbatch. From the perspective of final products, it helps lower the reduction of mechanical properties.

High content pigment in Preperse pigment preparations also contribute to make high-concentration masterbatch. For example, it's easy to produce even 50% pigment concentrated mono masterbatch for polypropylene filament application.

Question 12: What are the extra advantages when using Preperse pigment preparations in masterbatch production?

Answer: 1. Compared with powder pigments, Preperse pigment preparation often show better color shade and strength, which increased by 5%-25%; 2. It's in granular type and dust-free, helps reduce the pollution to space and equipment and contribute to a clean working environment; 3. No staining on machine, which helps quick color switching; 4. Good fluidity, suitable for all kinds of feeding models, can also use automatic feeding and automatic metering, conveying process without bridge or blockage.



Question 13: How to use Preperse pigment preparations for small batch production and improve production flexibility?

Answer: For small batch production of masterbatches, single screw extruder is recommended for making masterbatch (please check Question 5, see the requirements). Preperse pigment preparations maximize the dispersibility of pigment powders, so it can be dispersed easily and stably with such small shear force machine.

For machinery choosing, mixing technique and temperature setting, please refer to the above-mentioned.

Question 14: How many Preperse pigments preparations are available now?

Answer: We have finished pre-dispersing most regular organic pigments, so we have a full color spectrum covered. The heat resistance are distribute from 200°C to 300°C, light fastness and weather fastness from moderate to excellent, Preperse pigment preparations meet different requirements from final applications.

All available products are listed in our product catalogue.

Question 15: What are the advisements for storing the Preperse pigment preparations?

Answer:

Avoid damp and compressional deformation in storage and transportation.

Possibly use up at one time after unpacking, or please seal tightly to avoid exposure to air.

The storage should be deposited in the desiccation with environment temperature no more than 40°C.



Question 16: Are Preperse pigment preparations compliant with regulations of food contact?

Answer: The raw materials of Preperse pigment preparations are requested to meet the compliance with food contact regulations such as AP89-1, SVHC and other corresponding regulation.

If necessary, we can offer the test report for reference.

Question 17: How to use Preperse Pigment preparations for filament masterbatch manufacturing?

Answer: Regarding filament masterbatch, twin-screw extruder is used for making these high-concentration mono masterbatch (40%-50% pigment content), which requires FPV below 1.0 bar/g, based on test conditions: 60g involved pigment amount, 8% pigment to resin, and 1400 mesh number.

Question 18: Can Preperse pigment preparations be used directly in end products by extrusion and injection molding?

Answer: Yes. They can be used for injection molding and extrusion directly, but request conditions from Question 1-8. Once with conformance to the mention requirements, using Preperse pigment preparations always presents better dispersibility than powdery pigments. It can take the place of color masterbatch, which means processing procedure reduced (no mixing and SPC making procedure), and also help save raw materials and improve production efficiency.



Question 19: Is it economical to use Preperse pigment preparations?

Answer: Most of our Preperse pigment preparations can improve color strength in a range of 10-25%. Considering working efficiency improvement and labor cost saving, with our large-scaled production with innovative techniques, price is equivalent to powder pigment, even cheaper than some of them. Moreover, dispersibility cannot be measured by price in some specific applications especially filament and film.

Preperse pigment preparation is used as a replacement of mono masterbatch. Masterbatch producers can customize colors by formulating Preperse pigment preparation without manufacturing mono masterbatch. Thus, stock cost of mono masterbatch will be reduced and producing procedure will be simplified.

Customer can gain extra benefit of freight saving from using Preperse pigment preparation, because the bulk density is approximately 3 times higher than powdery pigment. Therefore, buyers pay less freight when shipping same quantity of pigment because of space saving.





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