



技術資料表
Technical Data Sheet

塑料配色染色方式簡介

Introduction to plastic color matching and dyeing methods

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Pigment dyeing addition type

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Color masterbatch dyeing addition type

塑料預拌顏料，熱熔配色造粒型式

Plastic ready-mixed pigments, hot-melt color matching granulation type

功能性複合、改質；填充塑料，同時配色，熱熔押出造粒型式

Functional compounding and modification; plastic filling, color matching at the same time, hot melt extrusion granulation type

描述 Description

依客戶之有色樣品件，樣板色板標準顏色，或指定顏色色票號碼 PANTONE NO.、RAL NO.，專業調製顏料混拌塑料，射出配色後樣板對色，打出分光*Lab 值報告。

According to the customer's colored samples, the standard color of the sample swatch, or the specified color swatch number PANTONE NO., RAL NO., professionally prepare pigments and mix plastics, after injection color matching, the sample color is matched, and the spectroscopic *Lab value report is printed.

顏料染色添加型式 Pigment dyeing addition type

顏料的優缺點 Advantages and disadvantages of color powder pigments

■優點：可以小份量生產調配顏料的份數，以最小量的需求訂單，一般是以原料 25KG 裝調配一包顏料，單價成本低，單包顏料價格約 80~250NTD/包之間。

Advantages: The number of copies of the pigment can be produced in small quantities. With the smallest demand order, a pack of toner is generally prepared with 25KG of raw materials. The unit price is low, and the price of a single pack of pigments is about 80-250NTD/pack.

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■缺點：添加顏料不建議使用中央供料系統，或高重視烘乾除濕的塑料，僅適用於客戶產品產能少、顏色差異較廣、色差允許高，或是只是的試模階段，才建議此種顏色調配方式，因為顏料與塑料在預拌過程中，或烘乾加工過程中，損耗顏料比例，造成顏色色差，且容易造成生產線設備的汙染困擾。

Disadvantages: It is not recommended to use a central feeding system for pigments, or to attach great importance to drying and dehumidifying plastics. It is only suitable for customers with low production capacity, wide color differences, high color difference allowed, or only in the trial stage. This kind of color deployment is recommended in this way, because the pigment and plastic are in the pre-mixing process or the drying process, the pigment ratio is lost, resulting in color difference, and it is easy to cause pollution of the production line equipment.

色母粒染色添加型式 Color masterbatch dyeing addition type

取高分散性塑料為基礎，或添加分散添加劑，與高濃縮顏料混練、添加，熱熔押出造粒。利用塑料配方的高分散性與高流動性，充分的、均勻的分散於須被染色之塑料中，此為塑料染色用色母粒子。

Based on high dispersibility plastics, or adding dispersing additives, kneading with highly concentrated pigments, adding them, and hot melt extrusion for granulation. Using the high dispersibility and high fluidity of the plastic formula, it is fully and uniformly dispersed in the plastic to be dyed. This is the color master particle for plastic dyeing.

色母粒分為：Masterbatch is divided into：

a.通用型色母粒：多種塑料可以通用使用，黑色及白色兩種色母粒。

Universal masterbatch: a variety of plastics can be used universally, black and white masterbatch.

b.專用型顏色色母粒：針對塑料種類使用的色母粒，染色成指定的顏色，塑料專用專色。

Special type designated color masterbatch: color masterbatch specially used for plastic types, dyed into designated color.

c.特殊功能添加劑與顏料一併混拌，多功能母粒：例如抗 UV 耐候+染色功能母粒、增韌+染色功能母粒、耐熱提升+染色功能母粒.....等等。

Special functional additives and pigments are mixed together, multi-functional masterbatch: for example, anti-UV weather resistance + dyeing function masterbatch, toughening + dyeing function masterbatch, heat resistance improvement + dyeing function masterbatch...etc.

d.高功能工程塑料用色母粒、高耐溫塑料用色母粒、特殊功用塑料色母粒。

Color masterbatch for high-function engineering plastics, color masterbatch for high temperature-resistant plastics, and color masterbatch for special-purpose plastics.

色母粒的優缺點 Advantages and disadvantages of masterbatch

■優點：使用時不會汙染其他生產設備，塑料跟色母粒混拌均勻，顏色穩定性不錯，最小量 MOQ' 限制數量比較少，亦可設定較高配比的色母粒，讓顏色更穩定。

Advantages: It will not pollute other production equipment when used, the plastic and the color masterbatch are mixed evenly, the color stability is good, the minimum MOQ' limit is relatively small, and a higher proportion of the color masterbatch can be set to make the color more stable.

■缺點：不能使用中央供料系統，因為塑料與色母粒比重有明顯差異，供料系統無法依混拌分佈狀況，準確傳遞供給加工生產，容易造成顏色偏離。

補充：若是顏色穩定要求高，須對分光*Lab 值，DE 色差值限制在 0.5~1 以下，色母粒混拌比例要提高到 10%以上，顏色才能達某程度的穩定。

Disadvantages: The central feeding system cannot be used, because the proportion of plastic and masterbatch is significantly different, and the feeding system cannot accurately transfer the supply to processing and production according to the mixing



distribution, which may easily cause color deviation.

Supplement: If the requirements for color stability are high, the spectroscopic *Lab value and DE color difference must be limited to less than 0.5~1, and the mixing ratio of masterbatch should be increased to more than 10%, so that the color can reach a certain degree of stability.

塑料加工使用色母粒，下列狀況色母粒功能性、分散性不足、顏色穩定性易有異常：

Color masterbatch is used in plastic processing. In the following conditions, the color masterbatch has insufficient functionality, insufficient dispersibility, and color stability is prone to abnormalities：

(1) 顏色鮮豔高、白度 L 值過高。

The color is bright and high, and the whiteness L value is too high.

(2) 塑料黏度高、顏料分散不易。

The plastic viscosity is high and the pigment dispersion is not easy.

(3) 塑料添加白色耐燃劑添加過多、造成塑料顏色白度過高，皆不易達到目標顏色，或是無法染色配色。

Too much white flame retardant is added to the plastic, which causes the plastic color to be too white, and it is difficult to achieve the target color, or it cannot be dyed and matched.

(4) 射出產品、成品細窄、長、薄。

The injection products and finished products are narrow, long and thin.

(5) 塑料押出薄膜、抽絲纖維，色母粒無法分散均勻。

The plastic extrusion film and spinning fiber, the color masterbatch cannot be dispersed evenly.

塑料預拌顏料，熱熔配色押出生產造粒型式 **Plastic ready-mixed pigments, hot-melt color matching extrusion production granulation type**

塑料預拌顏料，熱熔配色造粒型式優缺點 **Advantages and disadvantages of plastic ready-mixed pigments, hot-melt color matching granulation type**

■優點：顏色穩定性佳，方便生產，汙染問題低，可用中央供料系統。另外可同時做塑料的改質、複合、填充。

Advantages: good color stability, easy production, low pollution problems, central feeding system available. In addition, plastic modification can be done at the same time. In addition, plastic modification, compounding and filling can be done at the same time.

■缺點：熱熔配色押出生產必須強調最少數量 MOQ，且有開機損耗，多一次加工費用，跟清機洗車手續與塑料損耗，所以成本較高。

Disadvantages: In the production of color matching extrusion granulation, the minimum number of MOQ must be emphasized, and there are boot losses, one more processing cost, and cleaning procedures and plastic losses, so the cost is higher.