

NPS (色膏) Color 中文說明

本公司 NPS Color 之特性茲介紹如下：

1. 黃色系列

(A) 無機顏料

①NPS Yellow 140N、142N、4A302N、4A231N 此四色為鉻黃(Chrome Yellow)色材，成份為 PbCrO_4 、 PbSO_4 、 PbO 含鉛金屬(八大重金屬)遇硫則另產生 PbS 而變黑。因為鉛是被管制的一種重金屬，故不適用於無毒加工製品。

②NPS Yellow 4A371N：為不含八大重金屬之鉍釩顏料(Bismut Vanadate)適用於無毒加工製品。

(B) 有機顏料

①NPS Yellow 143N、144N：此二色為雙偶氮色料(Disazo Yellow)無毒、著色力高，但微量添加會有移行現象。

②NPS Yellow 4A128N、4A129N：此二色為高級色料(Disazo-condensation)加工時無釋出 DCB 之疑慮，耐移行性佳，適於微量添加。

2. 橙色系列

①NPS Orange 345N：成份為 PbCrO_4 、 PbMoO_4 、 PbSO_4 其物性與鉻黃色料相似，不適用加硫及無毒製品加工。

3. 紅色系列

(A) 一般級色料

①NPS Red 440N、443N、445N、447N、543AN：以上為一般色料，價格便宜，但皆需考慮其耐熱、耐候、耐移行性，適於高著色量及室內製品使用。

(B) 中高級色料

① NPS Red 540AN、449N、442EN、4A200N、4A439N 以上為中高級色料，其耐光、耐熱性佳，適於淺色系調色。Red 540AN 微量添加會有移行現象。

4. 棕色系列

- ① NPS Brown 547AN、4A237N：為無機色料，耐候、耐熱佳，成份 Fe_2O_3 於 PVC 中加工溫度不宜過高(180℃ 以上)易產生氧化鐵 FeCl_3 而促進 PVC 裂解。

5. 紫色系列

- ① NPS Violet 641N、643N：高級顏料耐熱、耐候性佳，唯有色移行之現象，調色上應注意。
- ② NPS Violet 4A445N：高級顏料耐熱、耐候性佳，耐移行性優，價格稍高。

6. 藍色系列

(A) 無機顏料

- ① NPS Blue 645N：群青(Ultramarine Blue)屬鍛燒顏料，耐熱、耐候佳，唯耐酸性差，著色力低，加工上應注意。

(B) 有機顏料

- ① NPS Blue 649N、744N：屬 Phthalocyanine Blue，前者 Blue 649N 為 α 型，後者 Blue 744N 為 β 型， β 型較 α 型安定，故應考慮加工過程中之耐熱因素，選擇用之。

7. 綠色系列

- ① NPS Green 842N：屬 Phthalocyanine Green，耐熱耐候性均優。

8. 白色系列

- ① NPS White 849N、4A116N、4A335N：屬二氧化鈦(R-Type)，而 White 4A335N 為調色之雪白色。

9. 黑色系列

- ① NPS Black 846AN、945N、949N、4A322N，為碳黑顏料，一般調灰色製品使用 BK 945N，底料黑用 BK 846AN；發泡品要求黑度使用 BK 4A322N。

10. 螢光系列

- ① NPS Yellow 4A089N、Orange 4311N、Pink 346N、Green 4312N：此為染料顏料化之色料，耐熱性、耐候性、耐移行性皆不佳。

INTRODUCTION TO NPS

NPS is a paste-form colorant for PVC paste. The followings are the specialties of the basic colors.

1. Yellow

(A) Inorganic Pigments :

- 1) NPS Yellow 140N, NPS Yellow 142N, NPS Yellow 4A302N, and NPS Yellow 4A231N are all made of chrome yellow. Because Chrome Yellow is composed of $\text{PbCrO}_4 \cdot \text{PbSO}_4$; $\text{PbCrO}_4 \cdot \text{PbO}$ and has content of Lead, it will produce PbS and become dark in shade when it come in contact with Sulfur. So, special attention must be paid in the downstream processing. Because Lead is a kind of heavy metal under strict restriction, it is unsuitable for the application in non-toxic products.
- 2) NPS Yellow 4A371N: This product is made of Bismut Vanadate, an unique pigment without content of heavy metals. It is suitable for non-toxic products.

(B) Organic pigments :

- 1) NPS Yellow 143N and Yellow 144 N : The above items are made of Disazo Yellow pigment with high tinting strength. With tiny dosage, it may make slight migration.
- 2) NPS Yellow 4A128N 、 4A129N: The above items are made of Disazo-condensation pigment with no release of DCB. Even with tiny dosage , it has good migration resistance.

2. Orange

- 1) NPS orange 345 N: It is made of Molybdate Orange. Its physical properties are similar to those made of Chrome Yellow. It is not suitable to the applications that may have contact with sulfur. It is not applicable to products with the requirements of non-Toxic materials.

3. Red

(A) General-grade :

- 1) NPS Red 440N, Red 443N, Red 445N, Red 447N, and Red 543AN:
The items of general-grade are cheaper, but the weather resistance is poor. They are suitable for high dosage application and indoor products.

(B) Medium and High grade :

- 1) NPS Red 540AN, Red 449N, Red 442EN, Red 4A200N, and Bordeaux 4A439N:
The light fastness and heat resistance of the medium and high grades are excellent. They are applicable to match the light colors. But, Red 540AN will cause migration with tiny dosage.

4. Brown group :

- 1) NPS Brown 547AN and Brown 4A237N: Inorganic Brown pigments are composed of Fe_2O_3 and their weather and heat resistance are excellent. When processing temperature exceeds 180°C , Ferric Oxide will easily produce FeCl_3 and cause the degradation of PVC.

5. Violet

- 1) NPS Violet 641N and Violet 643N: The above items are made of the high-grade Violet pigments with good heat resistance and light fastness. Due to slight migration problem of violet pigments, it should be careful for color matching
- 2) NPS Violet 4A445N: The above item is made of the high-grade Violet pigments with good heat resistance, light fastness, and migration resistance, but it is more expensive.

6. Blue group :

(A) Inorganic pigment :

- 1) NPS Blue 645N: It is made of Ultramarine Blue. The heat resistance and light fastness are good but the color strength is low and acid resistance is poor.

(B) Organic pigments :

- 1) NPS Blue 649N (α type) and Blue 744N (β type): α type phthalocyanine Blue is unstable in high temperature, therefore the factor of heat resistance must be noted during processing.

7. Green group :

- 1) NPS Green 842N: Phthalocyanine Green with properties similar to Phthalocyanine Blue. It has excellent heat resistance and light fastness and is suitable for matching bright green colors.

8. White group :

- 1) NPS White 849N, White 4A116N, and White 4A335N: The above products are R-type TiO_2 . NPS White 4A335 is suitable for matching snow-white color.

9. Black series :

- 1) NPS Black 846AN, Black 945N, Black 949N, and Black 4A332N: Generally, NPS Black 945N is for matching gray color. NPS Black 846AN is for base matrix and NPS Black 4A332N is for foam products with good blackness.

10. Fluorescent group :

- 1) NPS Yellow 4A089N, Orange 4311N, Pink 346N, and Green 4312N: The above fluorescent products are pigment dyes. The light fastness, heat and migration resistances are all poor.

NPS Color

A. Introduction:

This is paste colors processed from pigments, resin and plasticizer. It shows excellent qualities such as stability, easy dispersion. Therefore it is an ideal coloring for PVC paste.

B. Characteristics:

- 1) Long half life
- 2) Easy color matching
- 3) Stability
- 4) Excellent dispersion
- 5) Easy metering
- 6) Non-dusting

C. Data of color sheet:

PVC compound		Foaming compound	
PVC	100	PVC	100
Plasticizer	80	Plasticizer	90
Stabilizer	2.5	Stabilizer	2.5
Epoxy	1.0	Foaming Agent	3.0
		Filler	2.0

1) Full shade

	Color	White	Black	Fluorescent
PVC compound	100	100	100	100
NPS	2.0	4.0	1.0	4.0
Foaming compound	100	100	100	100
NPS	5.0	10.0	2.5	10.0

2) Tint shade

	Color	White	Black	Fluorescent
PVC compound	100	100	100	100
NPS	2.0	4.0	1.0	4.0
White 4A116N	4.0	---	4.0	4.0
Black 846AN	---	0.16	---	---

3) Sheeting Data

(a) General:

Coating Thickness : 0.6mm

Drying Temperature : 150°C

(b) Foaming:

Coating Thickness : 0.35mm

Drying Temperature : 120°C×3min

Foamed Temperature : 210°C×1min

D. Test Method:

1) Light fastness

The test sheet is carried out for a specified Period in a Fade-O-Meter. Assessments were made using the 1 to 8 blue scale so as to the degree of their fading and discoloration.

Grade	Blue scale	Fade-O-Meter Full exposure
8	Outstanding	400 hours
7	Excellent	200 hours
6	Very good	100 hours
5	Good	50 hours
4	Fair	25 hours
3	Moderate	12 hours
2	Poor	6 hours
1	Very poor	3 hours

2) Migration Test


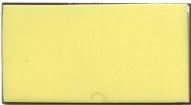
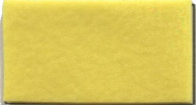


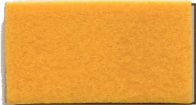


















The test sheet is sandwiched between two white sheets and placed for 24 hours under a load of about 100 g/cm² and kept at a constant temperature of 80°C. The fastness of migration was judged by the extend of staining of the white sheet and assessed on 1 to 5 scale. Rating 5 denotes a pure white.

Rating	Staining of white sheet	Migration resistance
5	No staining	Very good
4	Trace	Good
3	Weak	Fair
2	Appreciable	Moderate
1	Heavy	Poor

3) Heat resistance





















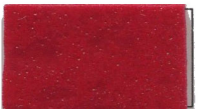



Test color sheet was left in a gear-oven for 30 minutes at 180°C±2°C. The change of shade is assessed on a 1 to 5 scale.

Rating	Shade of test samples	Heat resistance
5	Unchanged	Very good
4	Trace changed	Good
3	Slightly changed	Fair
2	Considerably changed	Moderate
1	Severely changed	Poor

				Light Fastness		Heat Resistance	Migration	Chemical Resistance		
Full	Tint	Foamed	NPS Color	Full	Tint			3N HCL	10% NaOH	10% Na ₂ S ₂ O ₃
			Yellow 140N PY-34 青 黄	5-6	5-6	3-4	5	4	3	1
			Yellow 142N PY-34 銘 黄	6-7	6-7	4-5	5	4	3	1
			Yellow 4A302N PY-34 銘 黄	6-7	6-7	4-5	5	4	3	1
			Yellow 4A231N PY-34 銘 黄	6-7	6-7	4-5	5	4	3	1
			Yellow 4A371N PY-184 鈹 鈦 無 機 黄	8	7-8	5	5	3	5	4
			Yellow 143N PY-83 特 黄	7	6-7	5	4-5	5	5	5
			Yellow 144N PY-81 檸 檬 黄	7	6-7	5	4-5	5	5	5
			Yellow 4A128N PY-110 特 濃 黄	8	8	5	5	5	5	5

























以上所列物性數據為典型試驗數據，不做產品規格及保證。尤其著色量低於 0.1%時客戶必須自行測試所需物性。

The above data and results are based on controlled or lab work and must be confirmed by Buyer by testing for the intended conditions of use.

				Light Fastness		Heat Resistance	Migration	Chemical Resistance		
Full	Tint	Foamed	NPS Color	Full	Tint			3N HCL	10% NaOH	10% Na ₂ S ₂ O ₃
			Yellow 4A129N PY-128 特檸檬黃	8	7-8	5	5	5	5	5
			Orange 345N PO-21 鉬紅	6	5	4-5	4	4	3	1
			Red 440N Pr-53:1 朱紅	3	3	3-4	4	4-5	3-4	5
			Red 443N PR-48:3 洋紅	6	4	3-4	4	5	3-4	5
			Red 445N PR-48:1 清紅	5	3-4	4	4-5	5	3-4	5
			Red 447N PR-48:2 大紅	5-6	4	3-4	4-5	5	3	5
			Red 543AN PR-57:1 牡丹紅	5	4	3-4	4	4-5	4	5
			Red 540AN PR-37 橙紅	7	7	4	4	5	5	5
























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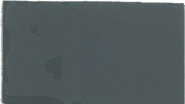





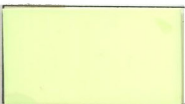










				Light Fastness		Heat Resistance	Migration	Chemical Resistance		
Full	Tint	Foamed	NPS Color	Full	Tint			3N HCL	10% NaOH	10% Na ₂ S ₂ O ₃
			Red 449N PR-185 鮮紅	7-8	7	5	5	5	5	5
			Red 442EN PY-19 耐熱紅	7-8	7	5	5	5	5	5
			Red 4A200N PR-122 特紫紅	7-8	7	5	5	5	5	5
			Bordeaux 4A439N PV-32	7-8	7	5	5	5	5	5
			Brown 547AN PBr-6 黃棕	7-8	6-7	4	5	5	5	5
			Brown 4A237N PBr-6 黃棕	7-8	6-7	4	5	5	5	5
			Violet 641N PV-23 原紫	7-8	6-7	4-5	2	5	5	5
			Violet 643N PV-23 原紫	7-8	6-7	4-5	2	5	5	5

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Full	Tint	Foamed	NPS Color	Full	Tint			3N HCL	10% NaOH	10% Na ₂ S ₂ O ₈
			Violet 4A445N PV-37 特紫	7-8	7	5	5	5	5	5
			Blue 645N PB-29 群青	7	7	5	5	2	5	5
			Blue 649N PB-15:1 紅藍	8	7	4-5	4-5	5	5	5
			Blue 744N PB-15:3 翠藍	8	7-8	5	5	5	5	5
			Green 842N PG-7 原綠	8	7-8	5	5	5	5	5
			White 849N PW-6 一般白	6	6	5	5	5	5	5
			White 4A116N PW-6 特白	6	6	5	5	5	5	5
			White 4A335N PW-6 雪白	6	6	5	5	5	5	5

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Full	Tint	Foamed	NPS Color	Full	Tint			3N HCL	10% NaOH	10% Na ₂ S ₂ O ₃
			Black 846AN PBk-7 中貼黑	8	7	5	5	5	5	5
			Black 945N PBk-7 調色黑	8	7	5	5	5	5	5
			Black 949N PBk-7 鏡面黑	8	7	5	5	5	5	5
			Black 4A322N PBk-7 特黑	8	7	5	5	5	5	5
			Yellow 4A089N 螢光黃	3	3	3	3	4	5	4
			Yellow 4311N 螢光橙	3	3	3	3	4	5	4
			Pink 346N PR-173 桃紅	3	3	3	3	4	5	4
			Green 4312N 螢光綠	3	3	3	3	4	4	4

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