NANOCMS
NANO MATERIALS & APPLICATIONS

NANOCMS CO., LTD.

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Tel. +82-41-587-3901~2 Fax +82-41-587-3905
Website : http://www.nanocms.co.kr

Product Data Sheet

00 00, 2018

Product : Invisible Fluorescent Materials : Red/Yellow

Lot. No. : -

Main use : Gravure, flexo, letterpress, offset, screen printing inks

Supply form : Inks

* Testing varnish type : Modified rosin phenol resin

Chemical & Physical properties

(determined on inks)

Product name	Appearance form	Appearance color	Solubility (Water, 20℃)	Grindometer test
Red/Yellow	Inks	Beige to off white	-	max. ≤ 1mil.

Luminescent properties

(determined on film by PL Spectrometer)

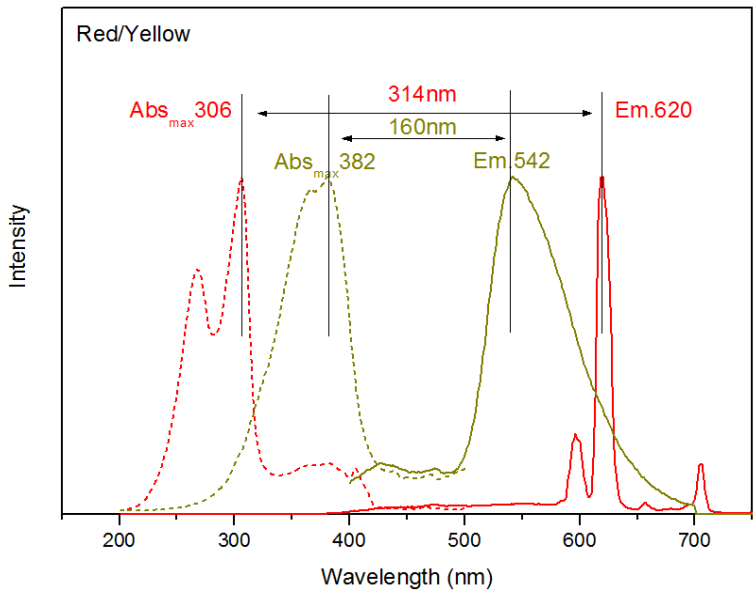
- Film

Product name	Excitation Point (nm)	Color of fluorescence	CIE-chromaticity coordinates	DWL (nm)
Red/Yellow	254 (Abs_{max}306)	Red	x=0.6106 y=0.3357	618 ± 5
	365 (Abs_{max}382)	Yellow	x=0.4077 y=0.4986	545 ± 5

- Excitation & Emission

(determined on film by PL Spectrometer)

Red/Yellow



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Chemical resistance test

(determined on film by Visual Check or Color Difference Meter, PL Spectrometer)

- Test for Appearance Color Fastness – *Gray Scale (Color Staining)*

	Red/Yellow
Gray Scale (1-5)	4-5

* Gray Scale (Color Staining) = 5: dE*0.00, 4.5: dE*3.36, 4: dE*5.40, 3.5: dE*7.14, 3: dE*13.65, 2.5: dE*18.25, 2: dE*23.56, 1.5: dE*29.33, 1: dE* 34.28

- Test for Fluorescence Fastness – *Function Class (Residual Fluorescent Intensity)*

No.	Items	Function Class (1-5)		
		Red/Yellow		
		daylight	under uv light (254nm)	under uv light (365nm)
0	Initial		5	5
1	Ethyl alcohol (30min.)		5	5
2	Ethyl acetate (30min.)		5	5
3	Perchloro Ethylene (30min)		5	5
4	Xylene (30min.)		5	5
5	Gasoline (30min.)		5	5
6	Acetone (30min.)		5	5
7	Toluene (30min.)		5	5
8	Acetic acid (20% Sol,, 30min.)		3	5
9	H_2SO_4 (2% Sol., 30min.)		2	5
10	HCl (5% Sol., 30min.)		2	5
11	NaOH (2% Sol., 30min.)		2	5
12	Soap solution (5% Sol.,80℃,30min.)		2	5
13	NaOCl (5% Sol., 30min.)		4	5
14	Hot water (100℃, 30min.)		5	5
15	Artificial sweat (30min.)		3	5

* Function Class = 5: 100-81%, 4: 80-61%, 3: 60-41%, 2: 40-21%, 1: 20-1%
Above picture may be different from the original.

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Light fastness test

(determined on film by Visual Check or Color Difference Meter, PL Spectrometer)

- Test for Color Fastness – *Blue Wool Scale & 20% Change from unexposed strip*

	Red/Yellow
Blue Wool Scale (1-8)	5-6
Gray Scale (Color Staining) (1-5)	3-3.5

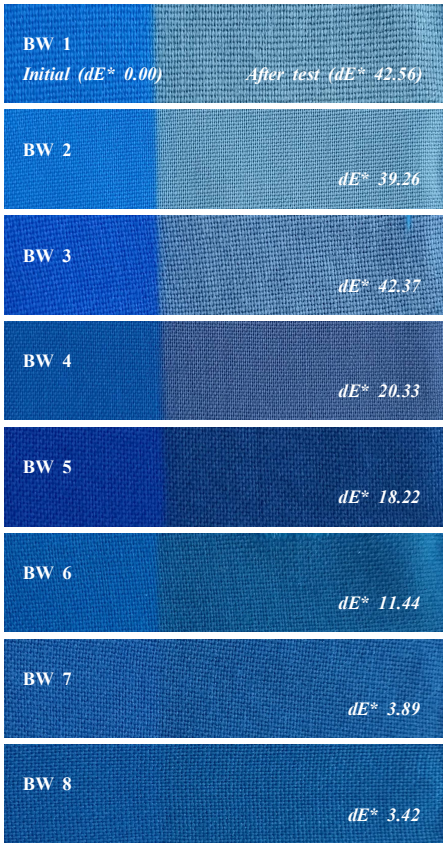
* Gray Scale (Color Staining) = 5: dE*0.00, 4.5: dE*3.36, 4: dE*5.40, 3.5: dE*7.14, 3: dE*13.65, 2.5: dE*18.25, 2: dE*23.56, 1.5: dE*29.33, 1: dE* 34.28

- Test for Fluorescence Fading - *Function Class (Residual Fluorescent Intensity)*

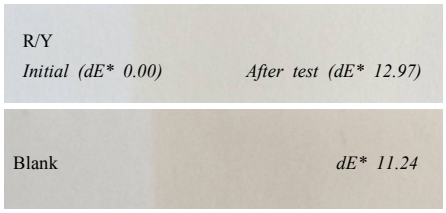
	Red (254nm)	Yellow (365nm)
Function Class (1-5) at each bws	4	3

* Function Class = 5: 100-81%, 4: 80-61%, 3: 60-41%, 2: 40-21%, 1: 20-1%

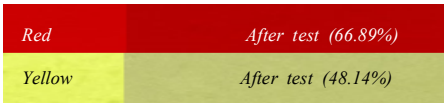
Blue Wool



Test for Color Fastness



Test for Fluorescence Fading
(Residual Fluorescent Intensity)



* 0.89W/m2 at 340nm(NB) uv lamp, Chamber temp. 60℃, Humidity: not controlled
Modified ASTM G154 Cycle 1 by QUV Accelerated Weathering Tester (model: Q-Lab QUV/spray)

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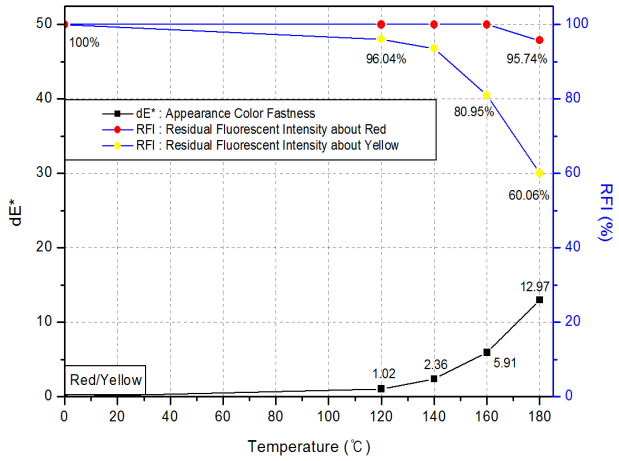
00 00, 2018

Thermal stability test

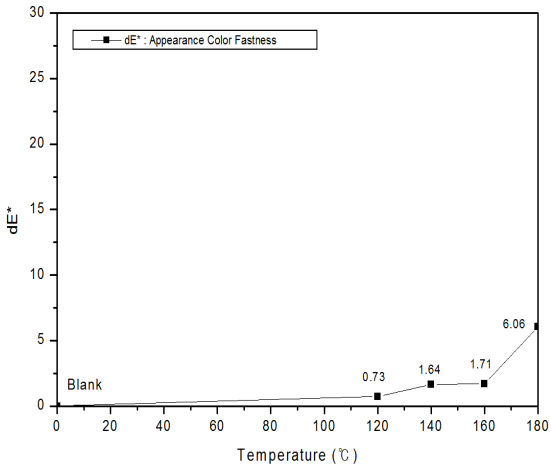
(determined on film by Visual Check or Color Difference Meter, PL Spectrometer)

- Test for Appearance Color Fastness & Residual Fluorescent Intensity

Red/Yellow



Blank



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Humidity test

(determined on film by Visual Check or Color Difference Meter, PL Spectrometer)

- Test for Appearance Color Fastness at 100hr – *Gray Scale (Color Staining)*

Product name	Red/Yellow
Gray Scale (Color Staining) (1-5) at 100hr	3-3.5

* Gray Scale (Color Staining) = 5: dE*0.00, 4.5: dE*3.36, 4: dE*5.40, 3.5: dE*7.14, 3: dE*13.65, 2.5: dE*18.25, 2: dE*23.56, 1.5: dE*29.33, 1: dE* 34.28

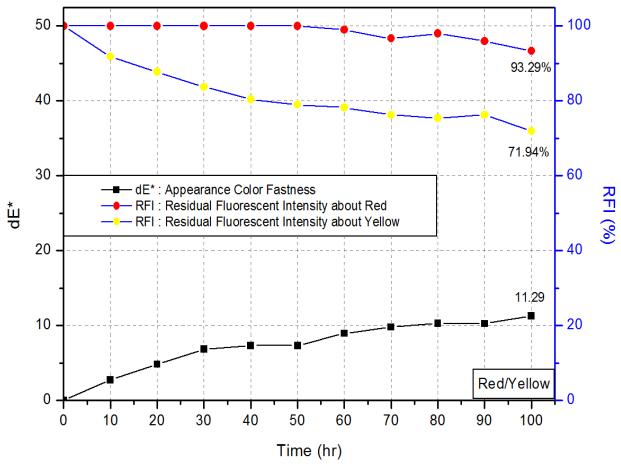
- Test for Fluorescence Fading at 100hr - *Function Class (Residual Fluorescent Intensity)*

	Red (254nm)	Yellow (365nm)
Function Class (1-5) at each bws	5	4

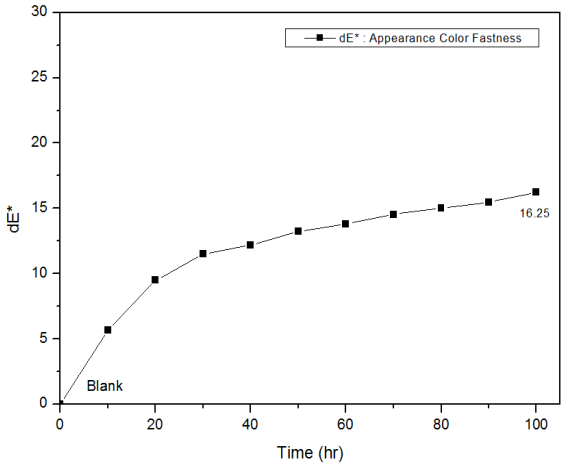
* Function Class = 5: 100-81%, 4: 80-61%, 3: 60-41%, 2: 40-21%, 1: 20-1%

- Test for Appearance Color Fastness & Residual Fluorescent Intensity

Red/Yellow



Blank



* Temperature 80℃, Relative humidity 80% (model: Jeio Tech, TH-G-180)

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