



# 410 Series

## Colours:

Brightener 22  
Yellow 31  
Rose 35  
Magenta 37

## Features and Benefits:

- Excellent compatibility in Flexographic and Gravure Inks.
- Dissolves in a combination of in strong polar solvents such as alcohols and esters.
- Compatible with nitro-cellulose, ethyl-cellulose and certain acrylic and polyamide resins.
- Limited lightfastness in exterior exposure.
- Conforms to international H & S standards including EN-71 Part 3, RoHS & REACH.

Sterling Colour 410 Series is a aminotriazine, sulphonamide, formaldehyde, solvent soluble thermoplastic copolymer available in a range of three high strength toners and a clear brightener / extender. The 410 series are recommended for indoor use only.

## 410 Series in Inks

The Sterling Colour 410 Series are especially formulated for use in Flexographic and Gravure ink formulations and give excellent printability, transparency and colour.

The addition of Brightener 22 to the formulation will improve the overall colour purity and brightness. As well as maintaining excellent colour strength, the use of Brightener 22 can also reduce the overall cost of the ink.

The Sterling Colour 410 Series can also be blended with white to produce extremely bright pastel colours.

Fluorescent Flexographic and Gravure inks are printed at very low film weights and therefore have limited lightfastness. It is recommended that these inks be printed onto products designed for indoor applications.

The Sterling Colour 410 Series are completely soluble in various polar solvents commonly used in the Flexographic industry. Using the 410 series in a mixture of alcohol and ester solvents results in a solution of sub - micron particle size, so requiring no need for any further milling.

The Sterling Colour 410 Series can be easily blended to provide a range of fluorescent shades. Other shades may be obtained by blending with pastes of conventional pigments and dyes.

The following tables indicate starting point blends to achieve standard Sterling Colour fluorescent shades.

Red 2	
Magenta 37	67.5
Rose 35	7.5
Yellow 31	25.0

Red 3	
Magenta 37	42.8
Rose 35	6.0
Yellow 31	41.7
Brightener 22	9.5

Orange 4	
Magenta 37	15.5
Rose 35	15.0
Yellow 31	67.8
Brightener 22	1.7

Orange 5	
Magenta 37	9.5
Rose 35	13.1
Yellow 31	67.9
Brightener 22	9.5

Orange 6	
Magenta 37	4.8
Rose 35	7.2
Yellow 31	84.5
Brightener 22	3.5

Magenta 10	
Magenta 37	75.0
Brightener 22	25.0

## Regulatory Information

### Compliance with Swiss packaging inks Ordinance:

All ingredients used in the manufacture of Sterling Colour 410 Series are included in Annex 1 (list 1 and 2) and Annex 6 of the above regulation or are shown in the subsequent addendum within Letter 153.

### Resolution AP (89) 1 - Colorants for Plastics in Contact with Food:

In certain conditions migration of the dye from the resin may occur. It is necessary that the end user conducts their own tests on the final product to determine if migration will occur.

### Heavy Metal Content

Analysis of the total amount of heavy metals on typical batches of Sterling Colour 410 Series show that these are below the allowable limits given in Resolution AP (89) 1.

	Antimony	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
ppm found	<5	<10	<20	<5	<5	<5	<5	<5
ppm AP(89)1 limit	500	100	100	100	1000	100	50	100

### Aromatic Amines

Analysis of the total primary unsulphonated aromatic amine content in batches typical of Sterling Colour 410 Series is less than 100 mg/kg. This is below the limit of 500 mg/kg (ppm) in AP (89) 1. Benzidine (CAS 92-87-5), beta-naphthylamine (CAS 91-59-8) and 4-Aminobiphenyl (CAS 92-67-1) are not present in Sterling Colour 410 Series.

### Polychlorinated biphenyl (PCB)

PCB's are not present in Sterling Colour 410 Series or are below the detection limit of 0.2 mg/kg (ppm) in AP (89) 1.

Other materials such as Sulphonated Aromatic Amines, Carbon Black and Inorganic Cadmium pigments are not present in Sterling Colour 410 Series.

### Azo Dyes:

The Sterling Colour 410 Series does not contain any Azo dyes or colorants or any of the other amine derivatives as listed.

<u>CAS No.</u>	<u>Compound</u>	<u>CAS No.</u>	<u>Compound</u>
60-09-3 4	amino azobenzene	101-80-4	4,4'Oxydianiline
90-04-0	o-anisidine	106-47-8	p-Chloraniline
91-59-8	2-Naphthylamine	108-44-1	m-Toluidine
91-94-1	3,3'-Dichlorobenzidine	119-90-4	3,3'-Dimethoxybenzidine
92-67-1	4-Aminodiphenyl	119-93-7	3,3'Dimethylbenzidine
92-87-5	Benzidine	120-71-8	2-Methoxy-5-methylaniline (p-Cresidine)
95-53-4	4-Chlor-o-toluidine	137-17-7	2,4,5-Trimethylaniline
95-80-7	4-Methyl-1,3-phenylenediamine (2,4-Toluenediamine)	139-65-1	4,4'Thiodianiline
97-56-3	o-Aminoazotoluene	615-05-4	4-Methoxy-m-phenylenediamine (2,4-Diaminoanisole)
99-55-8	2-Amino-4-nitrotoluene	838-88-0	3,3'-Dimethyl-4,4' diaminodiphenylmethane
101-14-4	4,4'Methylen-bis-(2-chloranilin)		
101-77-9	4,4'-Diaminodiphenylmethane		

### EuPIA Exclusion List:

The Sterling Colour 410 Series does not match any of the criteria that would lead to exclusion for use as raw materials, as listed in the EuPIA 'Exclusion List for Printing Inks and Related Products' (6th revision October 2009).

## Other Information

Starting formulations to use our 410 Series are available upon request.

<b>Product Specification</b>			
<b>Property</b>	<b>Unit</b>	<b>Value</b>	<b>Test method</b>
Soluble Colour Strength		As standard	AG
Softening Point	°C	85 - 115	AM
<b>Typical Properties</b>			
pH (5% aq. slurry)		6 – 7 @ 20°C	
Decomposition		195°C	
Particle size	microns	Random	
Specific Gravity		~1.38 @ 20°C	

*Copies of test methods available on request*

Sterling Colour is fully compliant with current environmental regulations. Individual Safety Data Sheets prepared in accordance with Regulation (EC) No. 1907/2006 (REACH) are available for each shade in the 410 Series range. Please request these from your distributor or our customer services' department.

You can also keep regularly updated on any Health, Safety and other regulatory information about our products by contacting [EHS@danecolor.com](mailto:EHS@danecolor.com)

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The Sterling Colour guarantee is limited to the consistent quality of its products. Technical information, advice, verbal and written suggestions and test results are offered for guidance without responsibility. No warranty of merchantability for a particular purpose is made.

Users are responsible for testing our products and suggestions to ensure that they are suitable for the intended purpose and application prior to use.

