

Technical Bulletin

SPL-NX FINE GRIND FLUORESCENT PIGMENT DISPERSIONS

DayGlo® SPL-NX Dispersions are based on a unique formaldehyde-free pigment technology. This product offers a bright, sub-micron, high strength, fluorescent pigment particle with good lightfastness properties. The SPL-NX Dispersions are suspended in water and suitable for use in water based inks and coatings.

Available Colors:

SPL-11NX	Aurora Pink*	SPL-18NX	Signal Green*
SPL-13NX	Rocket Red*	SPL-19NX	Horizon Blue* (GS)
SPL-14NX	Fire Orange*	SPL-21NX	Corona Magenta*
SPL-15NX	Blaze Orange*	SPL-25NX	Horizon Blue (RS)
SPL-17NX	Saturn Yellow*	SPL-594NX	Invisible Blue

Typical Physical Properties:

Product Form:	Aqueous Fluorescent Pigment Dispersion
Specific Gravity:	1.0 - 1.1
Particle Size Range:	0.25 - 0.45 microns
Percent Solids:	46 - 50%
pH:	7.5 - 8.5
Brookfield Viscosity:	50 - 300 cps. @ 25°C, (RVT #1, 20 RPM)

Product Description:

The DayGlo SPL-NX Dispersions contain approximately 46% fluorescent pigment dispersed in water and a small percentage of alkali soluble acrylic resin. The SPL-NX Dispersions are V.O.C. (Volatile Organic Compounds) free. They are compatible with a wide range of aqueous systems. Such systems may include the following:

Water Based Flexo Ink	Waterborne Coatings
Water Based Gravure Ink	Paper Coatings

Additives, co-solvents, and binder selection can influence the performance of the SPL-NX Dispersions. The effects of these raw materials should be tested in the final application formula.

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Lightfastness:

SPL-NX Dispersions exhibit good lightfastness for indoor applications. However, their exterior lightfastness is limited. The users should conduct their own tests to determine if the use of SPL-NX Dispersions will meet their lightfastness requirements.

Stability:

It is recommended that SPL-NX Dispersions be protected from freezing. SPL-NX Dispersions are stable to shear and pH. Temperature during manufacturing should be kept below 60°C.

Handling:

SPL-NX Dispersions are liquid products, which offer easy incorporation into aqueous systems with minimal mixing. These products are not compatible with non-aqueous formulations.

The SPL-NX Dispersions should be mixed before use to ensure homogeneity. The pH of the SPL-NX should be adjusted to a minimum of 7.5 before use with other ingredients to avoid shocking the ink or coating system.

These products are for industrial use only. Avoid contact with skin and eyes. Do not swallow. Use appropriate respirator if the product forms mists. See the available Material Safety Data Sheet for more information.

Shipping:

SPL-NX Dispersions are available in 55-gallon poly-lined fiber drums and 5-gallon plastic pails. Tote tanks are available upon special request.

Starting Formulas:

The SPL-NX Dispersions are recommended for use in water-based applications. The following are suggested starting formulas for using the SPL-NX products.

Basic Starting Formulation

	<u>Parts by Weight</u>
DayGlo® SPL-NX Dispersion	70.0
Isopropyl Alcohol.....	2.0
G-Cryl 250 (Acrylic Binder) ¹	14.0
HydriPrint 602 (Acrylic Binder) ²	14.0
Wax, Defoamer, Biocide	<u>As Needed</u>
	100.0

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Packaging Flexo (Coated Paper and Board)

Parts by Weight

DayGlo SPL-NX Dispersion	70.0
Joncryl ECO-2177 ³	22.5
Jonwax 28 ³	3.0
Joncryl 60 ³	5.0
28% Aqueous Ammonia	0.3
Joncryl 646 ³	2.5
Surfynol 104PA ⁴	<u>2.0</u>
	100.0

Initial viscosity equals 29 seconds/#3 Zahn cup. Film formation and ink resolubility are excellent.

Packaging Flexo (Kraft and Bleached Kraft)

Parts by Weight

DayGlo SPL-NX Dispersion	75.0
Joncryl 91 ³	17.0
Jonwax 22 ³	3.0
Water	<u>5.0</u>
	100.0

Initial viscosity equals 31 seconds/#3 Zahn cup. This binder system offers an economical alternative for corrugated packaging.

Packaging Flexo (Film and Foil)

Parts by Weight

DayGlo SPL-NX Dispersion	65.0
Joncryl 2640 ³	25.0
Butyl Cellosolve.....	5.0
Micro Powders MP-411 ⁵	1.0
Dow Corning HV-490 ⁶	1.0
Dow Corning 51 ⁶	1.0
28% Aqueous Ammonia	0.3
Joncryl 646 ³	<u>2.5</u>

100.0

Initial viscosity equals 34 seconds/#3 Zahn cup. Initial adhesion is fair but it improves with aging. Corona surface treatment should be 40+ dynes. Long term viscosity stability is questionable due to the solvent that was used.

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Fluorescent Paper Coating

Parts by Weight

DayGlo SPL-NX Dispersion 25.0

(Adjust pH to 7.5 minimum before adding other ingredients)

Calcium Carbonate 15.0
 Thickener..... As Needed
 Latex Binder23.0
 Water 37.0
 Defoamer, Biocide.....As Needed
 100.0

Binders:

The following binders and binder blends have been found to work well with SPL-NX Dispersions. Testing should be conducted to determine their affects on final application formulas.

G-Cryl 250 ¹ /HydriPrint 602 ²	G-Cryl 250 ¹
HydriPrint 602 ²	Joncryl 50 ³
Joncryl 73 ³	Joncryl 74 ³
Joncryl 73 ³ /Joncryl 142 ³	Joncryl 50 ³ /Joncryl 89 ³
Joncryl 60 ³	Joncryl 61 ³
Joncryl 87 ³	Joncryl 89 ³
Joncryl 73 ³ /Joncryl 142 ³ /Joncryl 89 ³	

Viscosity Control:

Formulations based on SPL-NX Dispersions are designed to be thinned with water only. Formulations may tolerate small quantities of alcohols but levels should be kept below 5%. Testing should be conducted when solvents are used to determine their affects on the final application formulas.

Viscosity can be increased with the use of Joncryl 142 or a similar product. The addition of 5% of Joncryl 142 will increase viscosity approximately 20 seconds/#2 Zahn cup. Testing should be conduct with each thickener to determine their affects on the final application formulas.

- ¹Henkel Corp.
- ²Hydrite Chemical
- ³S.C. Johnson & Son, Inc.
- ⁴Air Products
- ⁵Micro Powders
- ⁶Dow Corning

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