



Technical Bulletin

A & AX PIGMENTS

DayGlo® A-series and AX-series pigments are thermoplastic, fluorescent pigments which are recommended for a wide range of applications where resistance to strong solvents is not needed.

They perform well in a system based on aliphatic and some aromatic hydrocarbons. They are also usable in water systems where prolonged shelf life is not required. The A-series and AX-series pigments are used in such applications as paper coatings, vinyl coated fabric, A-type gravure inks, paints, screen inks, vinyl plastisols and organosols and plastics with melt temperatures less than 380°F (193°C).

A-series pigments provide the brightest fluorescent color available. AX-series pigments are much stronger than the A-series pigments and usually represent a better money value.

Available Colors:

| Colors* | A-series | AX-series |
|-----------------|----------|-----------|
| Aurora Pink® | A-11 | AX-11-5 |
| Neon Red™ | --- | AX-12-5 |
| Rocket Red™ | A-13-N | AX-13-5 |
| Fire Orange™ | A-14-N | AX-14-N |
| Blaze Orange™ | A-15-N | AX-15-N |
| Arc Yellow™ | --- | AX-16-N |
| Saturn Yellow® | A-17-N | AX-17-N |
| Signal Green™ | A-18-N | AX-18-N |
| Horizon Blue™ | A-19 | --- |
| Corona Magenta™ | A-21 | AX-21 |

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Typical Physical Properties:

| | |
|------------------------|-----------------|
| Specific Gravity: | 1.36 |
| Average Particle Size: | 4.5-5.0 microns |
| Softening Point: | 110°C min. |
| Decomposition Point: | 195°C |

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Solubility:

The A-series and AX-series pigments show the following typical solubilities in the listed solvents and plasticizers:

| ALCOHOLS | | PLASTICIZERS | |
|----------------------------|----|------------------------|----|
| Ethyl Alcohol | PS | Butyl Benzyl Phthalate | PS |
| 3-Heptanol | NS | Dibutyl Phthalate | PS |
| Isopropyl Alcohol | NS | Diocetyl Adipate | NS |
| Methyl Alcohol | PS | Diocetyl Phthalate | NS |
| Tetrahydrofurfuryl Alcohol | S | Diocetyl Sebacate | NS |
| GLYCOLS | | KETONES | |
| Diethylene Glycol | PS | Acetone | S |
| Ethylene Glycol | NS | Cyclohexanone | S |
| Glycerine | NS | Diisobutyl Ketone | NS |
| Hexylene Glycol | NS | Ethyl Amyl Ketone | NS |
| Propylene Glycol | NS | Isophorone | S |
| ESTERS | | Methyl Isobutyl Ketone | S |
| Butyl Acetate | PS | HALOGENATED SOLVENTS | |
| DPM Acetate | PS | Methylene Chloride | S |
| Ethyl Acetate | S | Tetrachloroethylene | PS |
| Isoamyl Acetate | NS | Trichloroethylene | PS |
| Isopropyl Acetate | PS | AROMATICS | |
| PM Acetate | S | Toluene | NS |
| GLYCOL-ETHERS | | Xylene | NS |
| Butyl Ether | PS | ALIPHATICS | |
| Ethyl Ether | S | Heptane | NS |
| Isobutyl | PS | Lactol Spirits | NS |
| Methyl Carbitol | S | Mineral Spirits | NS |
| Methyl Ether | S | VM&P Naptha | NS |

KEY: NS -- Not Soluble PS -- Partly Soluble S -- Soluble

NOTE: The above information is offered as a recommendation only. The suitability of DayGlo A-Series and AX-Series pigments should be determined by evaluation in your specific application.

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Typical Formulations:

Acrylic Aerosol Concentrate (parts by weight)

| | |
|-------------|--|
| 45.5 | Paraloid F-10 ¹ or Elvacite 2044 ² |
| 35.0 | DayGlo A or AX pigments. |
| <u>19.5</u> | Lactol Spirits |
| 100.0 | |

Prepare with high speed mixing. Thin with Lactol Spirits. To can, use 65% of the thinned aerosol concentrate and 35% of a propellant, such as A-70 (propane/isobutene blend). Paraloid F-10 is 40% solids in Mineral Thinner/Amsco F and Elvacite 2044 should be dissolved in Minerals Spirits at 40% resin solids.

Alkyd Brushing Paint (parts by weight) (high speed mix)

| | |
|-------------|--|
| 40.00 | Beckosol 11-081 ³ (50% in VM&P Naphtha) |
| 0.40 | Cyasorb UV-24 ⁴ |
| 50.50 | DayGlo A or AX pigments. |
| 0.08 | 12% Cobalt Hex Chem ⁵ |
| 0.20 | Skino #2 ⁵ |
| 0.20 | Cab-O-Sil ⁶ |
| <u>8.62</u> | Mineral Spirits |
| 100.0 | |

Water Dispersion (parts by weight)

Part A

| | |
|-------------|------------------------------|
| 56.00 | Water |
| 1.23 | Methocel K4MS ⁷ |
| 0.20 | Dowcil 75 ⁷ |
| 40.00 | Water |
| 2.56 | Tamol 731 (25%) ¹ |
| <u>0.01</u> | Triethanolamine |
| 100.00 | |

Part B

| | |
|------------|---------------------------|
| 49.4 | Part A |
| 50.0 | DayGlo A or AX pigments. |
| <u>0.6</u> | Hodag PX-110 ⁸ |
| 100.0 | |

Add the materials in the order listed and completely disperse before making the next addition. Use a high-speed dissolver to achieve proper dispersion.

A-Type Gravure Ink (parts by weight) (high speed mix)

| | |
|-------------|------------------------------|
| 30.0 | Paraloid NAD-10 ¹ |
| 50.0 | DayGlo A or AX pigments. |
| <u>20.0</u> | Heptane |
| 100.0 | |

Add the materials in the order listed and completely disperse before making the next addition. Use a high-speed dissolver to achieve proper dispersion.

PVC & Phthalate Free Plastisol Ink (parts by weight)

| | |
|-------------|------------------------------|
| 47.9 | 168 Plasticizer ⁹ |
| 0.7 | Bykoplant-1000 ¹⁰ |
| 40.5 | Dianal LP-3202 ¹¹ |
| 0.9 | Ti-Pure R-101 ¹² |
| <u>10.0</u> | DayGlo A or AX pigments. |
| 100.0 | |

Mix the 168 Plasticizer and Bykoplant-1000. Disperse Dianal LP-3202 into the mixture using a high speed disperser. Disperse the Ti-Pure R-101 using a high speed disperser or a 3-roll mill. Disperse the A or AX Pigments using a high speed disperser.

Prints cured 150°C for 3 minutes.

¹Rohm and Haas Co

²Lucite International

³Reichhold Chemical Inc.

⁴Cytec

⁵OM Group

⁶Cabot Corp.

⁷Dow Chemical

⁸Lambent Technologies

⁹Eastman Chemical

¹⁰Byk-Chemie

¹¹Mitsubishi Rayon Co.

¹²DuPont

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Lightfastness:

The higher the pigment concentration, the better the lightfastness. Plasticizers, stabilizers, and other additives can influence the lightfastness of fluorescent pigment. The following table gives the recommended percentage of pigment for optimum color and light stability with respect to film thickness:

| <u>Wet Film Thickness (mils)</u> | <u>% Pigment</u> |
|----------------------------------|------------------|
| 3 - 5 (75 -125 microns) | 20 – 35 |
| 10 (250 microns) | 10 – 20 |
| 20 (500 microns) | 7 – 15 |
| 40 (1,000 microns) and over | 2 – 8 |

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