

TINTING CARBON BLACKS IN SOLVENT-BASED LONG CHAIN ALKYD COATINGS


FURNITURE COATINGS

ARCHITECTURAL COATINGS

LIGHT INDUSTRIAL COATINGS

Application description

Long chain alkyd resins are frequently used in architectural and industrial coatings because of their relatively low cost and excellent resistance to wear and tear. Long chain alkyd resins are well-suited to high traffic areas including doors, walls and trim inside a home. They also are commonly used for exterior decorative applications, including fences, lamp posts, mailboxes and other metal applications.

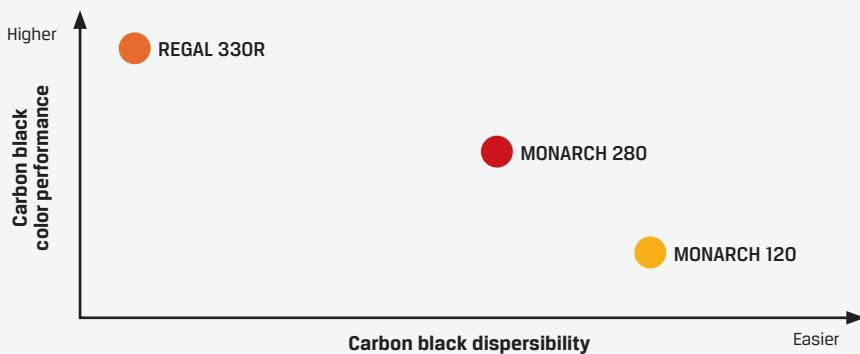
Tinting carbon blacks are used in long chain alkyd systems to allow formulators to create the wide range of colors that designers, specifiers and consumers demand. Tinting carbon blacks demonstrate good stability, blue undertone and tint strength. They are often easier to disperse than other carbon blacks and they demonstrate good compatibility with TiO₂.

CABOT PRODUCT OFFERING

Carbon black product	Typical surface area (N ₂ SA) m ² /gram	Typical structure (OAN/DBP) cc/100 grams	Typical tint strength ASTM D-3265	Product characteristics
MONARCH® 280	42	137	60	Excellent blue undertone and high tint strength with TiO ₂
MONARCH 120	25	72	58	Good tint strength and blue undertone, easier to disperse than MONARCH 280 carbon black

The data in the table above are typical test values intended as guidance only, and are not product specifications. Product specifications are available from your Cabot representative.

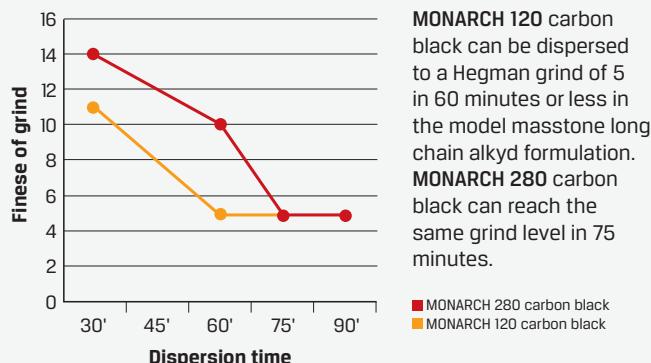
PRODUCT PERFORMANCE



Tinting carbon blacks are generally evaluated based on their color performance in tinting systems and on how easily they can be incorporated into a formulation. Our MONARCH 120 carbon black is very easy to process, but MONARCH 280 carbon black demonstrates higher tint strength and better blue undertone. REGAL 330R carbon black may also be used in applications where higher tint strength is required, although the product can be more difficult to disperse.

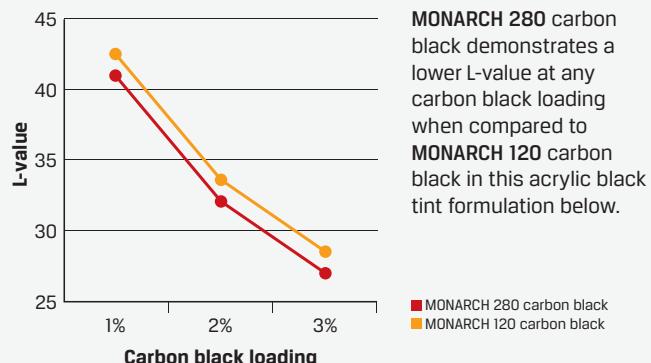
PRODUCT PERFORMANCE

Ease of dispersion - carbon blacks



MONARCH 120 carbon black can be dispersed to a Hegman grind of 5 in 60 minutes or less in the model masstone long chain alkyd formulation. MONARCH 280 carbon black can reach the same grind level in 75 minutes.

Tinting strength - carbon blacks



MONARCH 280 carbon black demonstrates a lower L-value at any carbon black loading when compared to MONARCH 120 carbon black in this acrylic black tint formulation below.

NOTE: The product performance results above were obtained using the model formulations that follow. Only the carbon black was changed.

MODEL FORMULATIONS

Alkyd black masstone formulation

Alkyd black millbase

Product name	Description	Amount (%)
Uralac® AD14W75	Resin	41.87
Aromatic 100	Solvent	16.42
Methoxy propyl acetate	Solvent	16.42
Efka® 4047	Dispersant	10.29
Carbon black	Pigment	15.00
Total		100.00

- ♦ Mix at 6000 RPM in high speed disperser for 30 minutes

Alkyd black letdown

Product name	Description	Amount (%)
Uralac AD14W75	Resin	85.00
White mineral spirits	Solvent	10.10
Calcium (10% active ingredient)	Drier	1.28
Cobalt (10% active ingredient)	Drier	0.32
Zirconium (12% active ingredient)	Drier	2.70
Exskin™ (2% active ingredient)	Anti-skin	0.6
Total		100.00

Alkyd black finish formulation

Component	Amount (%)
Alkyd black millbase	16.33
Letdown	83.67
Total	100.00

- ♦ Stir together at 300 RPM for 10 minutes
- ♦ Dilute with Aromatic 100 solvent to 35-40 seconds in No.4 Ford cup.
- ♦ Spray onto cold roll steel, air dry for 7 days

Alkyd black tint formulation

Alkyd white tint millbase

Product name	Description	Amount (%)
Uralac AD14W75	Resin	28.56
Aromatic 100	Solvent	4.81
Methoxy propyl acetate	Solvent	4.82
Efka 4047	Dispersant	1.81
Ti-Pure® R-960	Titanium dioxide	60.00
Total		100.00

- ♦ Mix at 6000 RPM in high speed disperser for 30 minutes

Alkyd white tint letdown

Product name	Description	Amount (%)
Uralac AD14W75	Resin	85.00
White mineral spirits	Solvent	10.10
Calcium (10% active ingredient)	Drier	1.28
Cobalt (10% active ingredient)	Drier	0.32
Zirconium (12% active ingredient)	Drier	2.70
Exskin (2% active ingredient)	Anti-skin	0.6
Total		100.00

Alkyd white tint base finish formulation

Component	Amount (%)
Alkyd white tint millbase	40.67
Alkyd white tint letdown	59.33
Total	100.00

Alkyd black tint formulation

Alkyd black finish formulation	Amount (%)
Alkyd white tint base finish formulation	90.00
Total	100.00

- ♦ Stir together at 300 RPM for 10 minutes
- ♦ Dilute with Aromatic 100 to 35-40 seconds in No.4 Ford cup