

# LOW VISCOSITY CARBON BLACKS IN HIGH SOLIDS POLYESTER ENAMEL



## Application description

Polyester resins offer coatings formulators a balance of color performance, exterior durability, flexibility and low cost. As a result, polyester resins tend to be selected for applications where both cost and durability are concerns.

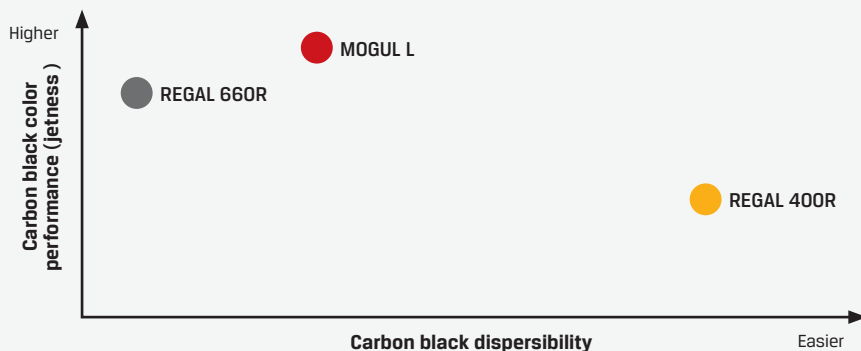
Low viscosity carbon blacks are frequently selected for use in polyester systems, especially where thin films are desired. In many cases, these carbon blacks are easier to disperse than standard untreated carbon blacks and are selected when dispersability is a key performance requirement.

## CABOT PRODUCT OFFERING

Carbon black product	Jetness	Typical surface area (N <sub>2</sub> SA) m <sup>2</sup> /gram	Typical structure (OAN/DBP) cc/100 grams	Typical tint strength ASTM D-3265	Product characteristics
<b>MOGUL® L</b>	Higher	138	62	130	Excellent color and dispersability in coatings formulations.
<b>REGAL® 400R</b>	Lower	96	71	115	Good stability and tinting strength. Easier to disperse than <b>MOGUL L</b> 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.

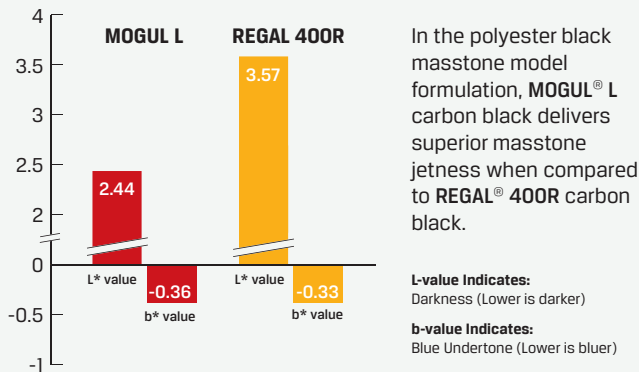
## PRODUCT PERFORMANCE



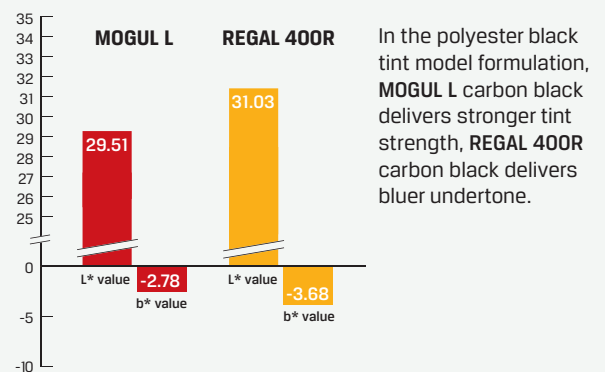
Formulators must manage a tradeoff between the color performance and the dispersability of carbon black in formulation. Our **MOGUL L** product is a higher color carbon black than the **REGAL 400R** product, but **REGAL 400R** carbon black is easier to disperse. Another multipurpose product is included in this chart for comparison purposes.

PRODUCT PERFORMANCE

Masstone jetness of carbon black products



Tinting strength of carbon black products



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

MODEL FORMULATION

Masstone black polyester formulation

Black millbase		
Product name	Description	Amount (%)
Setal® 26-1035 (90% N.V.)	Resin	40.00
DisperBYK® 2000 (40% N.V.)	Dispersant	7.50
Xylene	Solvent	16.25
Butyl acetate	Solvent	16.25
Carbon black	Pigment	20.00
<b>Total</b>		<b>100.00</b>

- Premix all compounds at 4000 RPM in high speed disperser for 10 minutes to wet out
- Recirculate in horizontal mill for 20 minutes using 1.0 mm zirconium media at 10.0 m/s tip speed

Letdown		
Product name	Description	Amount (%)
Setal 26-1035 (90% N.V.)	Resin	49.00
Cyme® 325 (80% N.V.)	Resin	20.00
Butyl acetate	Solvent	31.00
<b>Total</b>		<b>100.00</b>

- Mix together for 15 minutes under good agitation

Polyester black masstone finish formulation		
Component	Description	Amount (%)
Millbase	Vehicle	8.60
Letdown	Amino resin	91.40
<b>Total</b>		<b>100.00</b>

- Stir together at high speed for 10 minutes
- Dilute with Aromatic 100 fluid to 35-40 seconds in No.4 Ford cup
- Spray onto cold roll steel, flash off for 20 minutes
- Cure at 140 °C for another 20 minutes

Tinted black polyester formulation

White millbase		
Product name	Description	Amount (%)
Titanium dioxide	Pigment	20.00
Setal 26-1035 (90% N.V.)	Resin	80.00
<b>Total</b>		<b>100.00</b>

- Mix together for 15 minutes under good agitation

Finish tint formulation	
Component	Amount (%)
Black millbase	10.00
White millbase	90.00
<b>Total</b>	<b>100.00</b>

- Stir together at high speed for 10 minutes
- Dilute with Aromatic 100 fluid to 35-40 seconds in No.4 Ford cup
- Spray onto cold roll steel, flash off for 20 minutes
- Cure at 140 °C for another 20 minutes

