

Carbon Black Solutions

For Styrenic Polymers



CABOT

Mold Flow

UV Protection

Color Performance

Impact Properties

Surface Appearance

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The aim of this brochure is to assist polymer producers and master batch and compound makers with their choice of the best value carbon blacks for key styrenics molding applications. Cabot's BLACK PEARLS and VULCAN carbon blacks offer an excellent range of black color tones, superior appearance effects and UV protection of styrenic polymers, such as ABS, ASA, and SAN polystyrene. These performance attributes hold high value in styrenic molding and extrusion applications such as transportation, electronics, appliances, and pipe. Please note the data contained in this technical bulletin are based on 0.5 percent black dosage in medium impact ABS.

Styrenic Application	Grade Recommendation	Performance Attributes
Automotive	BLACK PEARLS 4840 BLACK PEARLS 800	¥High color ¥Superior UV resistance ¥Black Pearls 800 offers better dilutability for masterbatch applications
Appliance Telecom Electronics	BLACK PEARLS 4840 BLACK PEARLS 800 BLACK PEARLS 4610 VULCAN 9A32	¥For high color applications, Black Pearls 4840 and Black Pearls 800 provide the best performance. ¥Utility end users will find better value with Black Pearls 4610 or Vulcan 9A32.
Pipe Manufacturing	VULCAN 9A32	¥Standard for cost effective ultra violet protection of polymers. ¥Offers good hiding power for overcoloring in recycling.

In all these markets, black color contributes to the value of the finished molded part.
Cabot has carefully designed its styrenic molding product range to arrive at optimal cost-performance balance, by carefully selecting the following carbon black properties.

Styrenic Performance Attributes	Carbon Black Properties		
	Particle Size	Particle Shape	Product Purity
Better Surface Appearance	●	●	
Better Color (Visual Inspection, L*,b)	●	●	
Impact Retention	●	●	●
Improved Flow & Masterbatch Dilutability	●	●	
Superior UV Protection	●	●	

● - Indicates a strong carbon black effect on styrenic polymers



Product Performance
Selection Guide

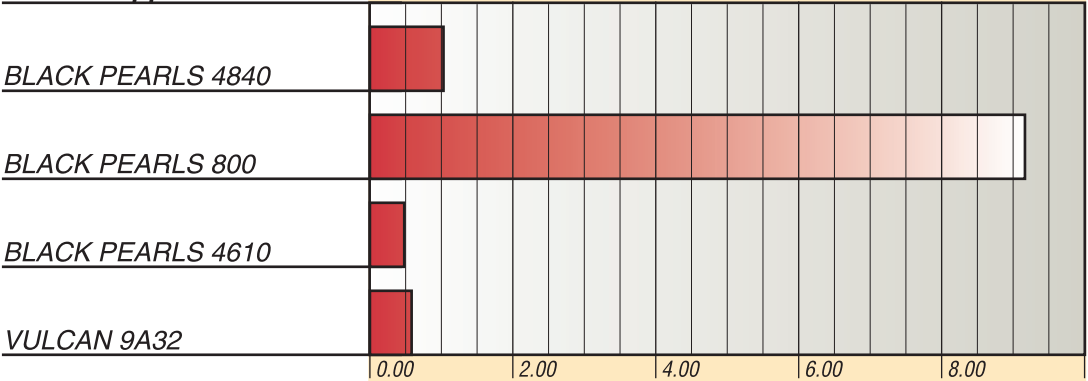
To extract the most value from the carbon black in an styrenic compound, the attributes must be weighed relative to the application requirements, to select the carbon black offering the optimal performance. The following data are offered for this purpose:

Styrenic Performance Versus . . .	Black Pearls 4840	Black Pearls 800	Black Pearls 4610	Vulcan 9A32
BLACK PEARLS 4840	X			
BLACK PEARLS 800	• Better Flow, • Comparable Color	X		
BLACK PEARLS 4610	• Better Impact • Higher Flow in Master Batch	• Better Impact • Higher Flow in Master Batch	X	
VULCAN 9A32	• Better impact • Higher Flow in Master Batch	• Better impact	• Comparable Impact • Lower Flow in Master Batch	X

Relative performance - assuming equal dosage in comparison

The above comparison is based on 0.5 percent carbon black dosage in medium impact ABS compounds. More detailed technical data are presented below. BP4840 is used as the standard for relative comparison of performance of the different carbon black grades.

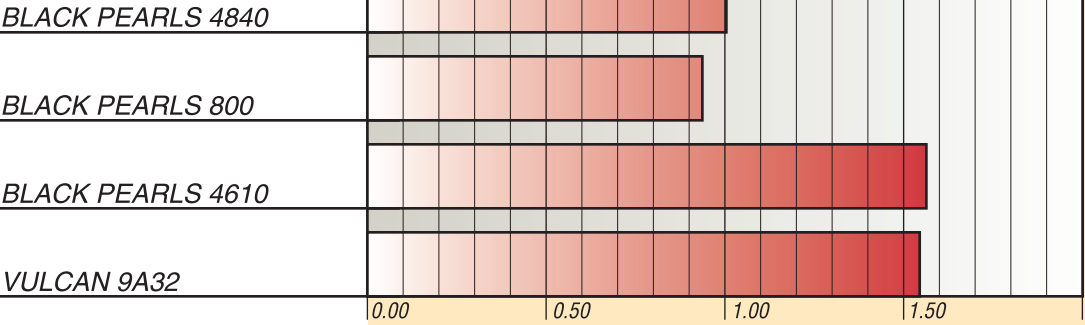
Surface Appearance



A lower value represents better styrenic surface Properties.

Relative defects Versus Black Pearl 4840

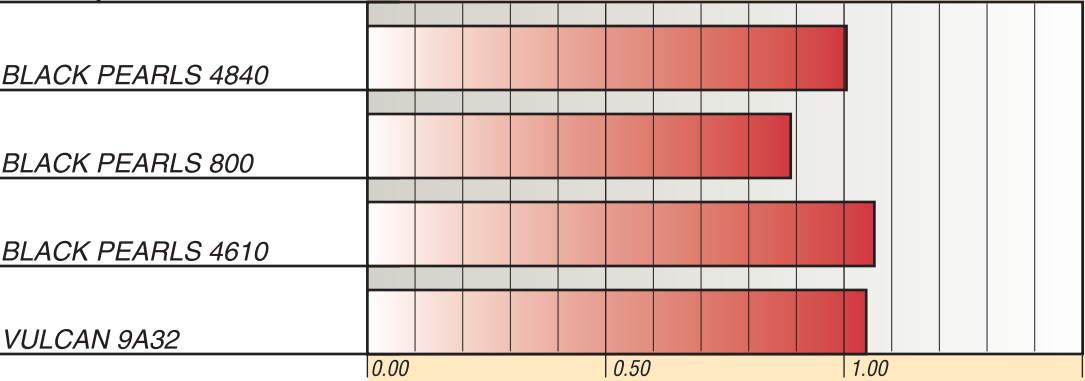
Color Performance



A lower value represents better styrenic color performance.

Relative L* Value Versus Black Pearls 4840

Izod Impact Performance



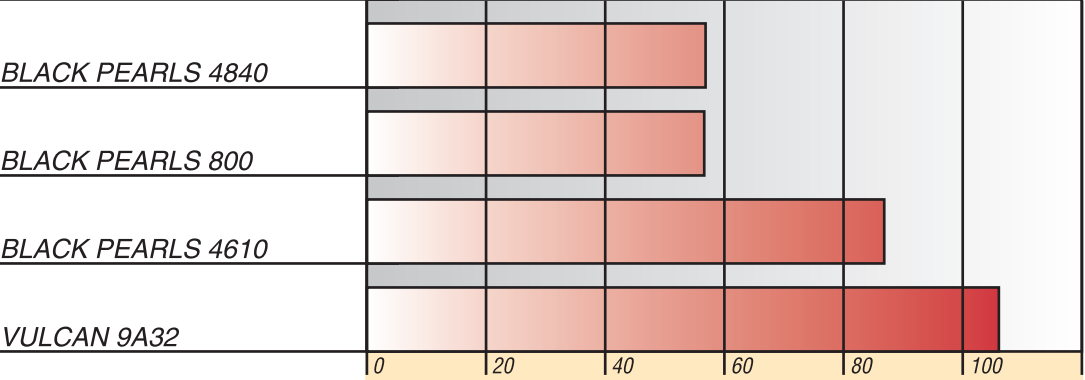
A higher value represents better styrenic izod impact performance.

Relative Izod Versus Black Pearls 4840

Product Performance
Selection Guide

Cabot researchers have developed a model that makes use of carbon black particle size and shape to predict their UV performance. A lower relative UV value means more carbon black is available to absorb incident light and reduce the negative effects of UV radiation on ABS. Relative values less than 120 predict excellent UV resistance at black dosages between 0.5 and 2.5 percent (more severe UV applications for styrenics require higher black dosages)

Ultra Violet
Performance Predictor



A lower value represents better ultraviolet performance.

Relative UV Value

Thank you for your interest in the Cabot product line. Cabot has designed Black Pearls 800, 4610, and 4840, and Vulcan 9A32 carbon black product range to offer polymer producers and masterbatch and compound makers the best balance of color and appearance, property retention and processing for styrenics molding and extrusion applications. This technical brochure is designed to allow you to select the carbon black that will deliver the best value to your application. This brochure is the first in a series designed to focus on molding polymers and specific applications. For further details on the Cabot product line, please call the Cabot representative closest to you (please refer to the Cabot contact list that follows).

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