

TECHNICAL BRIEF

# CARBON BLACKS FOR EXTREME DURABILITY AND REDUCED ENERGY CONSUMPTION

INDUSTRIAL RUBBER PRODUCT APPLICATIONS

## OVERVIEW

Many industrial rubber product applications such as rubber mill liners, rubber conveyor belts and rubber tracks operate under severe conditions that lead to significant wear and tear. Improved durability of the rubber components may provide a distinct total cost advantage. These rubber parts also contribute significantly to the energy consumption of total equipment. Cabot products have demonstrated their performance for higher durability and reduced energy consumption over the years in rubber applications. In tires, for example, certain Cabot products have been shown in truck tire treads to strongly increase abrasion resistance, improving mileage by 20-30 percent, depending on the specific solution selected. Cabot solutions can help with reducing truck tire rolling resistance and associated vehicle fuel consumption. While the use conditions for rubber mill liners, rubber conveyor belts and rubber tracks are not the same as truck tires, some of the same basic principles for improving durability and reducing hysteresis can be applied to advance performance in non-tire rubber applications.



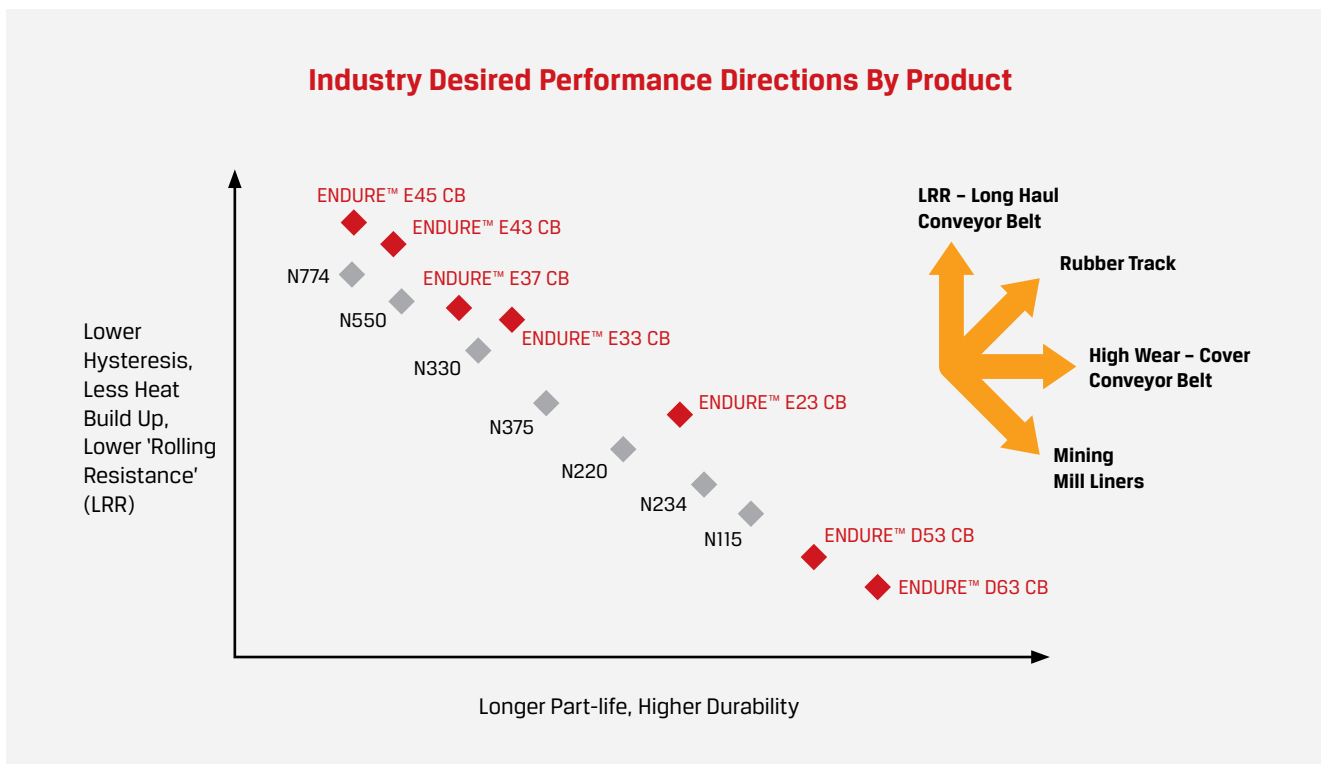
# SOLUTIONS FOR LONGER PART LIFE AND REDUCED ENERGY CONSUMPTION

## ENHANCED DURABILITY → LONGER PART LIFE → REDUCED TOTAL COST

Rubber mill liners, rubber conveyor belts and rubber tracks exhibit a longer part life when durability is enhanced through improving wear, cut/chip/chunk resistance and tear resistance or reducing heat buildup. The longer part life can greatly reduce costly equipment downtime, increasing throughput and enhancing end user profitability. Cabot products can enhance rubber part life and durability by optimizing the balance between heat buildup and reinforcement.

## REDUCED ROLLING RESISTANCE → REDUCED POWER CONSUMPTION → REDUCED ENERGY/OPERATING COST

Apart from less heat buildup, a reduced hysteresis also means lower 'rolling resistance'. Long haul conveyor belts is an example of a high durability application, where this can be of interest. A lower 'rolling resistance' of long haul conveyor belts can result in decreased power consumption in moving the belt, representing a significant energy and operating cost saving. Cabot products can help reduce energy costs in the operation of the conveyor belt by optimizing the balance between hysteresis and reinforcement.



# PRODUCT SELECTION: ENDURE™ CARBON BLACKS

	APPLICATION	Conveyor Belt			Rubber Track		Mining
	PART	Top Cover	Bottom Cover		Tread	Base	Various Liners
	CURRENT CARBON BLACK	ASTM N200s	ASTM N300s	ASTM N550, N600s, N700s	ASTM N300, N200s	ASTM N300s	ASTM N200s
CABOT SOLUTION	ENDURE™ D63 CB	☆					☆
	ENDURE™ D53 CB						
	ENDURE™ E23 CB						
	ENDURE™ E33 CB						
	ENDURE™ E37 CB						
	ENDURE™ E43 CB						
	ENDURE™ E45 CB			☆			

■ best combination of wear and tear with improved hysteresis    
 ■ improved resistance to wear and tear    
 ☆ ultimate wear and tear  
■ better hysteresis, with good wear and tear    
 ☆ lowest hysteresis

## ENDURE™ E45 carbon black

A carbon black exhibiting good stiffness and very low heat build up in rubber. The product of choice for rubber applications requiring less hysteresis than that offered by standard ASTM semi reinforcing carbon blacks.

## ENDURE™ E43 carbon black

A carbon black demonstrating a significant reduction in hysteresis in rubber compounds at an abrasion resistance similar to that of semi reinforcing ASTM carbon blacks. It is a little more reinforcing in rubber than ENDURE™ carbon black E45.

## ENDURE™ E37 carbon black

A carbon black that provides low hysteresis and is relatively easy to disperse with fast incorporation and good dispersion. It offers reinforcement similar to compounds made with ASTM N300 series carbon blacks but with a considerable reduction in hysteresis and significantly greater durability than ASTM N500 series carbon blacks.

## ENDURE™ E33 carbon black

A carbon black with good abrasion resistance and low hysteresis that is relatively easy to disperse with fast incorporation and good dispersion. Offers reinforcement similar to compounds made with ASTM N300 series carbon blacks but with a considerable reduction in hysteresis.

## ENDURE™ E23 carbon black

A carbon black that offers improvements in wear over ASTM N300 series carbon blacks with comparable levels of hysteresis. Dispersion and recommended mixing protocols are similar to ASTM N200's series carbon blacks.

## ENDURE™ D53 carbon black

The next step after ASTM N234, N110 and N115 type carbon black in resistance to abrasion in natural and synthetic rubber compounds. Specific mixing conditions are recommended to achieve the desired dispersion.

## ENDURE™ D63 carbon black

A carbon black with the highest reinforcement and abrasion resistance, tear and cut/chip/chunk resistance of the series. Specific mixing conditions are recommended to achieve the required dispersion.



# ABOUT CABOT CORPORATION

Cabot Corporation (NYSE: CBT) is a global specialty chemicals and performance materials company, headquartered in Boston, Massachusetts. We are a leading provider of rubber and specialty carbons, activated carbon, inkjet colorants, cesium formate drilling fluids, fumed silica and aerogel.

For more information on our carbon black products for industrial rubber product applications, please visit our website at [cabotcorp.com/industrialrubberproducts](http://cabotcorp.com/industrialrubberproducts) or by contacting our sales offices in the appropriate region:

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