



BIRLA CARBON

PRODUCTS FOR IMPROVED
ANTI-VIBRATION RUBBER COMPOUND
PERFORMANCE

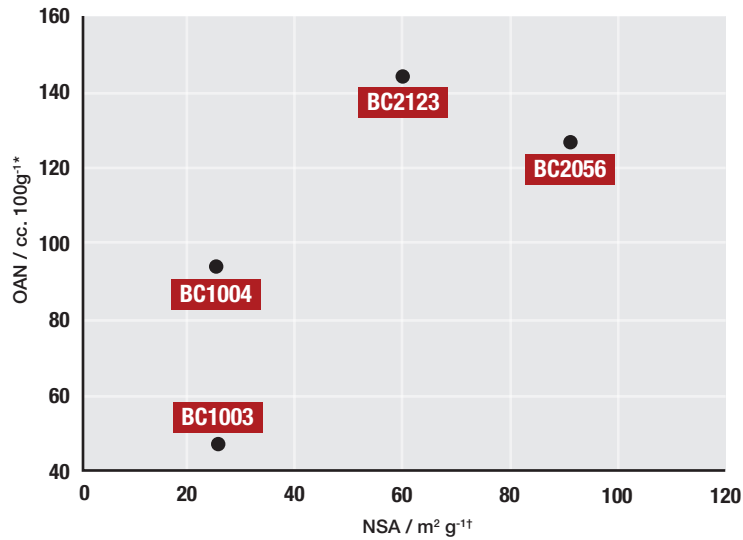
ADITYA BIRLA



BIRLA CARBON

To address demands for improved NVH (noise, vibration and harshness) and durability performance of rubber compounds, Birla Carbon has developed new approaches and solutions for various anti-vibration rubber applications requiring low spring rates and maximum durability performance.





* OAN is oil absorption number
† NSA is nitrogen specific surface area

High-Severity Applications

In higher severity applications such as automotive bushings, Birla Carbon™ 2056 and Birla Carbon™ 2123 offer substantial improvements in rubber compound spring rate (K_d/K_s) versus ASTM N300 and N200 series carbon blacks while maintaining compound stiffness, durability and tensile strength.

BIRLA CARBON™ 2123 vs. N330 in a natural rubber formulation (compounded to equal hardness)

	Control	BC2123
Tensile Strength	100	103
Elongation	100	97
K_d/K_s 60 °C* (15 Hz, 0.2% dynamic strain amplitude)	100	125
K_d/K_s 60 °C* (15 Hz, 2% dynamic strain amplitude)	100	125
Tensile fatigue life at 100% strain	100	103

*Higher values indicate improved performance.

High-Frequency Applications

For higher frequency applications such as automotive engine mounts, Birla Carbon recommends lower surface area, medium structure products Birla Carbon™ 1003, Birla Carbon™ 1004 and Birla Carbon™ 1029 for minimized spring rates and extended compound durability. These products can be implemented as cost effective alternates to thermal blacks for anti-vibration applications.

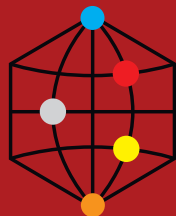
BIRLA CARBON™ 1004 vs. N990/N660 blend in a natural rubber formulation (compounded to equal hardness)

	Control	BC1004
Tensile Strength	100	105
Elongation	100	100
K_d/K_s 60 °C* (15 Hz, 0.2% dynamic strain amplitude)	100	102
K_d/K_s 60 °C* (15 Hz, 2% dynamic strain amplitude)	100	102
Elongation	100	108
Tensile fatigue life at 100% strain	100	118

*Higher values indicate improved performance.

About Birla Carbon

Birla Carbon is one of the world's largest manufacturers and suppliers of high quality carbon black and a flagship business of the Aditya Birla Group. Our contemporary research infrastructure and state-of-the-art technology centers provide carbon black solutions to leading companies in the rubber and specialty applications sectors worldwide.



**SHARE THE
STRENGTH**

As an ardent practitioner of sustainable development, Birla Carbon's Sustainable Operational Excellence (SOE) strategy focuses on employee safety, environmental stewardship, efficient use of carbon sources and a key focus on conducting operations in a socially and ethically responsible manner. In 2018, Birla Carbon was awarded a Gold level rating for sustainable practices for the third consecutive year by EcoVadis.

Birla Carbon's Purpose, **Share the Strength**, is about balanced and shared leadership, working at the product level to innovate cutting edge solutions, through collaboration with its people, customers and communities and backed by knowledge built over a century.

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