

SPHERON[®] 6400A carbon black



GENERAL DESCRIPTION

The surface aspect of extruded automotive profile and window channels is a key performance parameter. Class A automotive surface applications demand a very low level of particles that could cause visible surface imperfections leading to rejects or "scrap." In response to this market requirement, Cabot has developed a family of SPHERON carbon blacks, identified by the suffix A, to address carbon black related extruded surface imperfections.



The SPHERON[®] A carbon black series are produced via a special process resulting in a very low amount of impurities or "grit." The reduced level of impurities can be measured via a test developed by Cabot known as the "MDP" test (Macro Defect Predictor). The MDP test is a Mesh sieve residue test that is more sensitive and less destructive than the traditional ASTM grit test. Compared to the ASTM grit test, the MDP test better reflects the performance of the SPHERON[®] A products in Class A extruded surface applications. All products within the SPHERON[®] A product family have good pellet properties and high product consistency.

Furthermore, some products within the SPHERON[®] A carbon black series have a unique morphology, which considerably improves the speed of dispersion and ease of mixing compared to standard ASTM N500, N600 and N700 series carbon blacks. The cleanliness and morphology features together drastically reduce the extruded surface defects normally associated with carbon black.

SPHERON[®] 6400A carbon black combines the cleanliness of SPHERON[®] A series with an optimized morphology. The cleanliness and morphology features together drastically reduce visual imperfections on the surfaces of extruded rubber parts normally associated with carbon black.

PERFORMANCE FEATURES

SPHERON[®] 6400A carbon black disperses more easily and quickly than ASTM N500, 600 and 700 carbon blacks, and is therefore particularly of interest for the production of low viscosity compounds and low hardness articles. The ability to compound with higher loading at equal viscosity or hardness compared to ASTM N500 type carbon blacks facilitates improved processing and extrusion in polymer-rich compounds such as sponge profiles. Rubber reinforcement properties of SPHERON[®] 6400A carbon black are lower than those of ASTM N500 and N600 carbon blacks, but still much higher than lamp or medium-thermal carbon blacks.

SPHERON[®] 6400A carbon black exhibits high compound electrical resistivity levels making it well-suited for avoiding contact corrosion problems between weather stripping and aluminum car body parts. SPHERON[®] 6400A carbon black enables manufacturers to fulfil high electrical resistivity specifications without the need for high white filler levels that can be detrimental for the processing and physical properties of rubber compounds.

TYPICAL APPLICATIONS

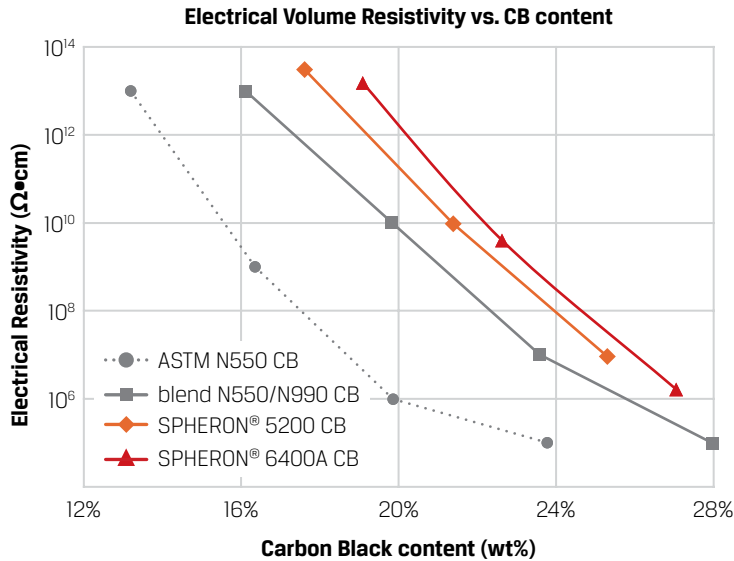
- ◆ Class A automotive weather stripping in contact with aluminum and magnesium metal
- ◆ Automotive coolant and industrial/consumer hoses
- ◆ Applications with high electrical resistivity specifications

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TECHNICAL DATA

1) SPHERON® 6400A carbon black (CB) morphology and high cleanliness can lead to good rubber reinforcement and high electrical resistivity, with reduced visible imperfections on the surfaces of extruded rubber parts:

a) Percolation curves (EPDM 100 phr, White Filler: variable phr to maintain ~75 Shore, Oil 35 phr)



b) Smoother extrusion with SPHERON® 6400A CB at ~75 Shore, 10⁸ Ω•cm (EPDM 100 phr, Oil 35 phr)

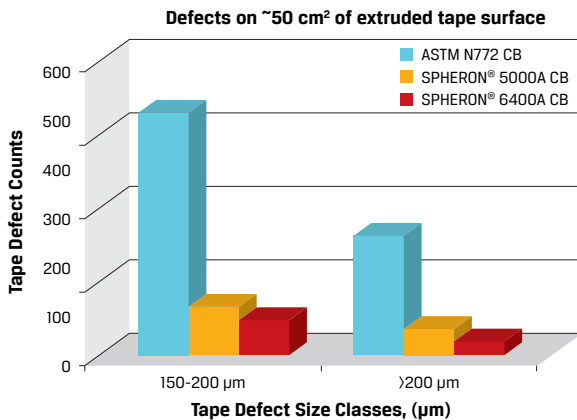


ASTM N550 CB: 53 phr (17wt%), White Filler 115 phr, Density: 1,330 g/liter



SPHERON® 6400A CB: 76 phr (24wt%), White Filler 90 phr, Density 1,300 g/liter

2) SPHERON® 6400A carbon black offers better dispersion and comparable rubber properties to ASTM N772 and SPHERON® 5000A carbon blacks:



Test Formulation: 100 EPDM phr, 75 Oil, S-cure system	SPHERON® 6400A CB	SPHERON® 5000A CB	ASTM N772 CB
CB loading (phr)	150	130	160

PROCESSING PROPERTIES

Mooney Viscosity

ML (1+4) @100°C (MU)	61	61	53
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PHYSICAL PROPERTIES

Hardness

Shore A (3 sec.)	63	63	63
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Tensile Properties

Tensile Strength (MPa)	10.5	12.2	12.2
Elongation @ Break (%)	422	423	438
100% Modulus (MPa)	3.7	3.9	3.0

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