

## SPHERON<sup>®</sup> 6000 carbon black



### GENERAL DESCRIPTION

Engineered for performance, our SPHERON<sup>®</sup> products were developed as part of Cabot's ongoing commitment to address market needs and promote solutions for future product design and processing challenges.

SPHERON<sup>®</sup> 6000 carbon black has a very low surface area with a medium-high structure level. The special carbon black morphology allows an excellent dispersion level with a relatively high carbon black loading. SPHERON<sup>®</sup> 6000 carbon black has been developed to provide improved performance for a wide range of hose, extrusion, and moulded applications.

### PERFORMANCE FEATURES

SPHERON<sup>®</sup> 6000 carbon black combines superior dispersion, high loading, excellent extrusion characteristics, high green strength, and very low conductivity. That makes SPHERON<sup>®</sup> 6000 carbon black a very good choice for a wide range of rubber applications such as hoses, extrusion profiles, automotive belt and anti-vibration systems.



Customers experiencing dispersion problems using ASTM N600 or N700 series carbon blacks will find special value by selecting SPHERON<sup>®</sup> 6000 carbon black. SPHERON<sup>®</sup> 6000 carbon black disperses more easily and quickly than most conventional grades, thereby shortening mix cycle times and reducing mixing passes. Its high electrical resistivity and excellent extrusion characteristics make SPHERON<sup>®</sup> 6000 carbon black particularly well suited for improving the resistance of radiator hose compounds to electrochemical degradation and avoiding corrosion problems in applications in contact with aluminum and magnesium metal parts such as automotive weather stripping.

SPHERON<sup>®</sup> 6000 carbon black gives very smooth surfaces and good elasticity in extruded profiles making it an excellent choice for low-viscosity sponge and low hardness applications.

SPHERON<sup>®</sup> 6000 carbon black also demonstrates low tan delta, making it a recommended product for rubber applications requiring very low hysteresis, such as automotive engine mounts and drive belts.



### TYPICAL APPLICATIONS

- ◆ Automotive coolant, hydraulic and industrial/consumer hoses
- ◆ Automotive weather stripping, door seals and extruded profiles
- ◆ Anti-vibration and automotive belt application

# SPHERON® 6000 carbon black

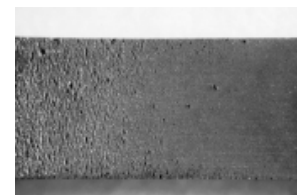
## TECHNICAL DATA

1) SPHERON® 6000 carbon black can reduce the risk of electrical chemical degradation (ECD) in radiator/coolant hoses. The three photos are taken from rubber dumbbell sample surfaces after 168 hours submergence in a 50/50 cooling liquid/water blend at 80°C with an applied voltage of 10 Volt. The ASTM N550 and N683 carbon black based compounds exhibited more ECD with larger loss in tensile strength and elongation properties than SPHERON® 6000 carbon black (test formulation: 100 EPDM phr, 40 phr Oil, peroxide cure system)

	SPHERON® 6000 CB	ASTM N550 CB	ASTM N683 CB
<b>CB loading (phr)</b>	105	82	82
<b>Hardness</b>			
Shore A	63	65	64
<b>INITIAL PROPERTIES</b>			
Tensile Strength (MPa)	12.7	15.0	14.4
Elongation @ Break, (%)	340	360	370
Electrical Resistivity, (Ω•cm)	400,000	40,000	80,000
<b>PROPERTIES AFTER 168 HR ECD TEST</b>			
Tensile Strength (MPa)	13.0	11.4	11.0
Elongation @ Break (%)	340	280	290
<b>CHANGE AFTER 168 HR ECD TEST</b>			
Tensile Strength (%)	+ 2	-24	-24
Elongation @ Break (%)	0	-22	-22



ASTM N683 CB, 82 phr



ASTM N550 CB, 82 phr



SPHERON® 6000 CB, 105 phr

➔ No cracks  
with SPHERON®  
6000 CB

	SPHERON® 6000 CB	ASTM N660 CB	ASTM N772 CB	ASTM N550 CB	SPHERON® 5000 CB
<b>CB loading (phr)</b>	150	130	160	120	130
<b>PROCESSING PROPERTIES</b>					
– Viscosity @100°C –					
ML (1+4) @100°C (MU)	59	54	53	60	61
<b>PHYSICAL PROPERTIES</b>					
<b>Hardness</b>					
Shore A ( 3 sec.)	63	62	63	63	63
<b>Tensile Properties</b>					
Tensile Strength (MPa)	11.3	13.4	12.2	13.5	12.2
100% Modulus (MPa)	3.7	3.2	3.0	3.6	3.9
Elongation @ Break (%)	440	439	438	404	423
<b>Dispersion rating</b> (more stars is better)	★★★★★	★★	★★	★★★	★★★★★

2) SPHERON® 6000 carbon black offers good properties with excellent dispersibility (test formulation: 100 EPDM phr, 75 phr Oil, S-cure system and carbon blacks at equal hardness loadings)

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