

## Operating Parameters - "Activated Black Magic® Plus"

Concentration:	720 gram/liter (6 lb/gallon)
Operating Temperature:	140°C (285°F) Boiling
Dwell Time:	10-30 minutes Carbon Steels 30-60 minutes Tool Steels
Corrosion Resistance: (ASTM B -117)	No top coat - Approximately 2 hr. Dry-to-touch - 20-40 hr. Standard oil - 60-100 hr. Wax - 2-6 hr. Acrylic - 2-8 hr.

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## Coating Characteristics - "Activated Black Magic® Plus"

Formula:	Magnetite Fe <sub>3</sub> O <sub>4</sub>
Structure:	Cubic
Refractive Index:	2.32
Density:	5.1 grams per cubic centimeter
Melting Point:	1597°C
Resistivity:	1.x10 <sup>-4</sup> OHMS/meter at 20°C 1.3x10 <sup>-1</sup> OHMS/meter at 600°C 2.2x10 <sup>-2</sup> OHMS/meter at 1000°C 7.7x10 <sup>-3</sup> OHMS/meter at 1320°C
Heat Capacity:	150 Jouls per mole °C
Linear Coefficient of thermal expansion:	9.3∂ x 10 per °C at 20-300° 18.8∂ x 10 per °C at 300-700°C
Thermal Conductivity:	0.58 watts per meter °C
Hardness (MOHS Scale):	5.5 - 6.5
Micro Hardness MPa:	4677 - 7884 Mili pascals
Film Thickness:	Approx. 5000 angstroms
Specific Heat:	0.67 Kilo jouls per kilogram °K



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