

## Materion BrushCAST<sup>®</sup> 21C High Strength Casting Alloy (Solution Annealed & Aged)

Category : Metal , Nonferrous Metal , Copper Alloy , Copper Casting Alloy

### Material Notes:

Pouring Temperature: 1010-1120<sup>°</sup>C Heat treatment required for max strength (Annealing): 760-790<sup>°</sup>C/water quench Heat treatment required for max strength (Hardening): 760-790<sup>°</sup>C/water quench Description: The unique combination of physical and mechanical properties of copper beryllium casting alloys provide a dynamic range of metallurgical alternatives to meet specific performance requirements. The inherent strength, hardness, conductivity, and castability of these materials make them ideal for applications which require a high performance engineered material solution. Advancements in component casting technology and proprietary material production technology pioneered by Brush Wellman have resulted in BrushCAST<sup>®</sup> alloys being a cost effective design choice. BrushCAST<sup>®</sup> high strength casting alloys provide peak strength and hardness greater than many steels, but with thermal conductivity similar to that of aluminum and up to five times that of steel. Additionally, these alloys offer good electrical conductivity, excellent wear and galling resistance, and the highest accuracy in replicating fine detail in cast components. Information supplied by Brush Wellman Engineered Materials. Brush Engineered Materials Inc. changed its name to Materion Corporation in March 2011.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Materion-BrushCAST-21C-High-Strength-Casting-Alloy-Solution-Annealed-Aged.php](http://www.lookpolymers.com/polymer_Materion-BrushCAST-21C-High-Strength-Casting-Alloy-Solution-Annealed-Aged.php)

Physical Properties	Metric	English	Comments
Density	8.30 g/cc	0.300 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	38 - 43	38 - 43	
Tensile Strength, Ultimate	1030 - 1210 MPa	150000 - 175000 psi	
Tensile Strength, Yield	827 - 1030 MPa @Strain 0.200 %	120000 - 150000 psi @Strain 0.200 %	
Elongation at Break	1 - 3 %	1 - 3 %	
Modulus of Elasticity	131 GPa	19000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	18.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature 21.1 - 204 $\text{Å}^\circ\text{C}$	10.0 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature 70.0 - 400 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	96.8 W/m-K	672 BTU-in/hr-ft <sup>2</sup> · $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Beryllium, Be	1.9 - 2.15 %	1.9 - 2.15 %	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.20 - 0.35 %	0.20 - 0.35 %	
Cobalt, Co	1.0 - 1.2 %	1.0 - 1.2 %	
Copper, Cu	96.5 %	96.5 %	as balance

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000688 - 0.00000956 ohm-cm	0.00000688 - 0.00000956 ohm-cm	Conductivity is 18-25% IACS

## Contact Songhan Plastic Technology Co.,Ltd.

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