

Crucible Steel 420 and 420F Chromium Steel

Category : Metal , Ferrous Metal , Stainless Steel , T 400 Series Stainless Steel

Material Notes:

Crucible 416 Plus is a hardenable chromium steel which is the general purpose cutlery grade. This grade is magnetic in all conditions.

Information provided by Crucible Specialty Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-420-and-420F-Chromium-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.75 g/cc	7.75 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	180	180	
Tensile Strength, Ultimate	655 MPa	95000 psi	
Tensile Strength, Yield	345 MPa @Strain 0.200 %	50000 psi @Strain 0.200 %	
Elongation at Break	25 %	25 %	in 2"
Reduction of Area	55 %	55 %	
Modulus of Elasticity	200 GPa	29000 ksi	Tension
Shear Modulus	80.7 GPa	11700 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	10.3 $\mu\text{m}/\text{m}\cdot\text{C}$	5.70 $\mu\text{in}/\text{in}\cdot\text{F}$	
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
	10.8 $\mu\text{m}/\text{m}\cdot\text{C}$	6.00 $\mu\text{in}/\text{in}\cdot\text{F}$	
	@Temperature 0.000 - 316 $^{\circ}\text{C}$	@Temperature 32.0 - 600 $^{\circ}\text{F}$	
	12.2 $\mu\text{m}/\text{m}\cdot\text{C}$	6.80 $\mu\text{in}/\text{in}\cdot\text{F}$	
	@Temperature 0.000 - 649 $^{\circ}\text{C}$	@Temperature 32.0 - 1200 $^{\circ}\text{F}$	
Specific Heat Capacity	0.460 J/g- $^{\circ}\text{C}$	0.110 BTU/lb- $^{\circ}\text{F}$	
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
	24.90 W/m-K	172.8 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	

Thermal Properties	Metric @ Temperature 93.3 °C	English @ Temperature 200 °F	Comments
Melting Point	1450 - 1510 °C	2650 - 2750 °F	
Solidus	1450 °C	2650 °F	
Liquidus	1510 °C	2750 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	>= 0.15 %	>= 0.15 %	
Chromium, Cr	12 - 14 %	12 - 14 %	
Iron, Fe	>= 83.78 %	>= 83.78 %	As Remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000548 ohm-cm @ Temperature 23.0 °C	0.0000548 ohm-cm @ Temperature 73.4 °F	

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