

## Crucible Steel 440A Chromium Steel

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

### Material Notes:

Crucible 440A is a hardenable chromium steel which is the toughest of the high chromium cutlery grades. This grade is magnetic at all times. Information provided by Crucible Specialty Metals.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Crucible-Steel-440A-Chromium-Steel.php](http://www.lookpolymers.com/polymer_Crucible-Steel-440A-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	215	215	
Hardness, Rockwell C	44	44	tempering temperature-1000°F
	57	57	as quenched
	57	57	tempering temperature- 212°F
Tensile Strength, Ultimate	724 MPa	105000 psi	
Tensile Strength, Yield	414 MPa	60000 psi	
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	20 %	20 %	in 2"
Reduction of Area	45 %	45 %	
Modulus of Elasticity	200 GPa	29000 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 -17.8 - 93.3 °C	@Temperature 0.000 - 200 °F	
	10.8 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.00 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature -17.8 - 316 °C	@Temperature 0.000 - 600 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	24.2 W/m-K	168 BTU-in/hr-ft <sup>2</sup> -°F	

Thermal Properties	Metric @ Temperature 93.3 °C	English @ Temperature 200 °F	Comments
Melting Point	1370 - 1510 °C	2500 - 2750 °F	
Solidus	1370 °C	2500 °F	
Liquidus	1510 °C	2750 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.60 - 0.75 %	0.60 - 0.75 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	>= 78.43 %	>= 78.43 %	As Remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	<= 0.75 %	<= 0.75 %	
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	0.00005994 ohm-cm @Temperature 23.0 °C	0.00005994 ohm-cm @Temperature 73.4 °F	

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