

ATI Allegheny Ludlum 440A Martensitic Stainless Steel

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

Material Notes:

Characteristics: superior wear resistance, hardenable, excellent corrosion resistance. Applications: cutlery, dental and surgical instruments, nozzles, valve parts, hardened steel ball and seats for oil well pumps, separating screens and strainers, springs, shears, and wear surfaces.

Information provided by Allegheny Ludlum

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-440A-Martensitic-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	7.72 g/cc	0.279 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	95	95	
Hardness, Rockwell C	31	31	Hardened+Tempered 1200°F
	41	41	Hardened+Tempered 1000°F
	50	50	Hardened+Tempered 550°F
	52	52	Hardened+Tempered 900°F
	53	53	Hardened+Tempered 600°F
	53	53	Hardened+Tempered 800°F
	54	54	Hardened+Tempered 400°F
Tensile Strength, Ultimate	717 MPa	104000 psi	Annealed
	933 MPa	135000 psi	Hardened 1900°F, Tempered 1200°F
	1224 MPa	177500 psi	Hardened 1900°F, Tempered 1000°F
	1858 MPa	269500 psi	Hardened 1900°F, Tempered 900°F
	1879 MPa	272500 psi	Hardened 1900°F, Tempered 550°F
	1881 MPa	272800 psi	Hardened 1900°F, Tempered 800°F
	1883 MPa	273100 psi	Hardened 1900°F, Tempered 600°F
	2022 MPa	293300 psi	Hardened 1900°F, Tempered 400°F
Tensile Strength, Yield	727 MPa	105000 psi	Hardened 1900°F, Tempered 1200°F
	1013 MPa	146900 psi	Hardened 1900°F, Tempered 1000°F

Mechanical Properties	Metric μPa	English psi	Comments
	1518 MPa	220200 psi	Hardened 1900°F, Tempered 550°F
	1531 MPa	222100 psi	Hardened 1900°F, Tempered 600°F
	1579 MPa	229000 psi	Hardened 1900°F, Tempered 400°F
	1610 MPa	234000 psi	Hardened 1900°F, Tempered 800°F
	427 MPa	61900 psi	Annealed
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	20 %	20 %	Annealed

Thermal Properties	Metric	English	Comments
CTE, linear	15.0 $\mu\text{m}/\text{m}\cdot\text{°C}$	8.33 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	16.8 $\mu\text{m}/\text{m}\cdot\text{°C}$	9.33 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
Thermal Conductivity	24.2 W/m-K	168 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
Melting Point	1399 - 1510 °C	2550 - 2750 °F	
Solidus	1399 °C	2550 °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	77.9 - 83.4 %	77.9 - 83.4 %	as balance
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	<= 0.75 %	<= 0.75 %	
Nickel, Ni	<= 0.50 %	<= 0.50 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	

Component Elements Properties	Metric	English	Comments
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000620 ohm-cm	0.0000620 ohm-cm	

Descriptive Properties	Value	Comments
Corrosion Rate mils per year	0.35 (5% Phosphoric Acid at 49°C)	Hardened martensitic grades were tested after tempering at 204°C
	2.31 (5% Acetic Acid at 49°C)	Hardened martensitic grades were tested after tempering at 204°C
Pitting Potential, Volts vs. Sat. Calomel Electrode	0.598	100 ppm Chloride solution at 24°C, pH5. Samples had ground surface. Hardened martensitic grades were tested after tempering at 204°C.

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China