

ATI Allegheny Ludlum ALFA-II™ Stainless Steel Type 406

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

Material Notes:

Characteristics:superior oxidation resistance for the temperature range 1600°F-over 2200°F, high electrical resistivity, high resistance to sulfidation, high resistance to carburization. Applications:automotive exhaust system components, furnace parts, heat exchangers, recuperator parts, kiln lining, refractory reinforcement fibers.Information provided by Allegheny Ludlum

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-ALFA-II-Stainless-Steel-Type-406.php

Physical Properties	Metric	English	Comments
Density	7.34 g/cc	0.265 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	89	89	
Tensile Strength, Ultimate	554 MPa	80400 psi	
Tensile Strength, Yield	412 MPa	59800 psi	
Elongation at Break	28 %	28 %	in 2"

Thermal Properties	Metric	English	Comments
CTE, linear	11.3 µm/m-°C	6.28 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	12.2 µm/m-°C	6.78 µin/in-°F	
	@Temperature 20.0 - 500 °C	@Temperature 68.0 - 932 °F	
	14.2 µm/m-°C	7.89 µin/in-°F	
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	4.0 %	4.0 %	
Carbon, C	0.025 %	0.025 %	
Chromium, Cr	13 %	13 %	
Iron, Fe	82.76 %	82.76 %	As Remainder
Manganese, Mn	0.035 %	0.035 %	

Component Elements Properties	Metric	English	Comments
Silicon, Si	0.30 %	0.30 %	
Titanium, Ti	0.40 %	0.40 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000120 ohm-cm	0.000120 ohm-cm	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	0.000120 ohm-cm	0.000120 ohm-cm	
	@Temperature 204 °C	@Temperature 399 °F	
	0.000125 ohm-cm	0.000125 ohm-cm	
	@Temperature 427 °C	@Temperature 801 °F	
	0.000134 ohm-cm	0.000134 ohm-cm	
	@Temperature 649 °C	@Temperature 1200 °F	

Descriptive Properties	Value	Comments
Anodic Polarization	Ep=0.28 volts vs. saturated calomel electrode, Er=-0.17 volts vs. saturated calomel electrode	1000 ppm Cl-(NaCl) pH5
	IC=2.0mA/cm2	1 Normal H2SO4
Corrosion Rate mils per year	0.04	20% Acetic Acid
	1.85	20% Phosphoric Acid
	1803.1	10% Sodium Bisulfate
	3549.9	10% Sulfamic Acid
	399.24	10% Oxalic Acid
	8.64	65% Nitric Acid
Crevice Corrosion-Average Weight Loss, g/cm2	0.0336 (21.1°C, 72 Hours, Plain)	10% Ferric Chloride Rubber Band Test
	0.327 (21.1°C, 72 Hours, Welded)	10% Ferric Chloride Rubber Band Test
Stress Corrosion Cracking Resistance	No cracks (Plain and Welded)	33% Lithium Chloride(500 hours), 42% Magnesium Chloride(200 hours), 26% Sodium Chloride(1000 hours), 50% Sodium Hydroxide(200 hours)

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