

ATI Allegheny Ludlum AL 276™ Nickel-Base Alloy, UNS N10276

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

AL 276 alloy is a nickel-chromium-iron-tungsten alloy which is among the most corrosion resistant of alloys currently available. The AL 276 alloy is widely used in the severest environments encountered in the chemical and petrochemical processing, flue gas desulfurization, pulp and paper and other specialized fields. Design of the alloy allows a high level of corrosion resistance to be retained even in the welded condition. This alloy also has good high temperature strength and moderate oxidation resistance although the alloy will eventually form embrittling high temperature precipitates. It has been available for several years and has been used in ASME Boiler and Pressure Vessel related construction. The alloy is readily fabricated by welding using techniques similar to those used for austenitic stainless steels and other nickel base alloys. Precautions are advisable during fabrication because raising the low carbon and silicon contents of the material may adversely affect important properties. Information provided by Allegheny Ludlum

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-AL-276-Nickel-Base-Alloy-UNS-N10276.php

Physical Properties	Metric	English	Comments
Density	8.90 g/cc	0.322 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	<= 100	<= 100	
Tensile Strength, Ultimate	>= 690 MPa	>= 100000 psi	
Tensile Strength, Yield	>= 283 MPa @Strain 0.200 %	>= 41000 psi @Strain 0.200 %	
Elongation at Break	>= 40 %	>= 40 %	in 2"
Modulus of Elasticity	205 GPa	29700 ksi	
Charpy Impact	325 J	240 ft-lb	10 mm sample from annealed plate

Thermal Properties	Metric	English	Comments
CTE, linear	11.2 μm/m-°C @Temperature 20.0 - 93.0 °C	6.22 μin/in-°F @Temperature 68.0 - 199 °F	
	12.8 μm/m-°C @Temperature 20.0 - 315 °C	7.11 μin/in-°F @Temperature 68.0 - 599 °F	
	13.4 μm/m-°C @Temperature 20.0 - 538 °C	7.44 μin/in-°F @Temperature 68.0 - 1000 °F	

Thermal Properties	Metric	English	Comments
Specific Heat Capacity	0.425 J/g-°C	0.102 BTU/lb-°F	
Thermal Conductivity	10.2 W/m-K	70.8 BTU-in/hr-ft ² -°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.0040 %	0.0040 %	
Chromium, Cr	15.5 %	15.5 %	
Cobalt, Co	0.10 %	0.10 %	
Iron, Fe	6.0 %	6.0 %	
Manganese, Mn	0.15 %	0.15 %	
Molybdenum, Mo	16 %	16 %	
Nickel, Ni	59 %	59 %	as balance
Phosphorous, P	0.0050 %	0.0050 %	
Silicon, Si	0.030 %	0.030 %	
Sulfur, S	0.0020 %	0.0020 %	
Tungsten, W	3.5 %	3.5 %	
Vanadium, V	0.15 %	0.15 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000130 ohm-cm	0.000130 ohm-cm	
Magnetic Permeability	1.02	1.02	

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