ATI Allegheny Ludlum Stainless Steel AL 904L™ Alloy (UNS N08904)

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel

Material Notes:

Allegheny Ludlum AL 904 L™ Alloy (UNS N08904) is an austenitic stainless steel alloy designed for a middles to high level of corrosion resistance. The alloy is produced to low carbon levels for use in the welded condition as in welded vessels and other large and complex fabrications.The high nickel (25%) and molybdenum (4.5%) contents of the AL 904L alloy provide good resistance to chloride stress corrosion cracking, although not total resistance as judged by the extremely severe laboratory test, boiling magnesium chloride.The N08904 alloy has been incorporated in ASTM and ASME specifications, and is widely and readily available in a variety of product forms, welding electrodes, and fittings. The AL 904L Alloy has performed well in a variety of service environments such as utility scrubbers, acid and fertilizer production. Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:
http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Stainless-Steel-AL-904L-Alloy-UNS-N08904.php

Physical Properties	Metric	English	Comments
Density	7.90 g/cc	0.285 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	150	150	Typical
Hardness, Rockwell B	70 - 90	70 - 90	79 Is Typical
Tensile Strength, Ultimate	>= 490 MPa	>= 71100 psi	Minimum
	605 MPa	87700 psi	Typical
Tensile Strength, Yield	>= 220 MPa	>= 31900 psi	Minimum
	270 MPa	39200 psi	Typical
Elongation at Break	>= 36 %	>= 36 %	Minimum
	50 %	50 %	Typical
Reduction of Area	55 %	55 %	
Modulus of Elasticity	190 GPa	27600 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	15.3 µm/m-°C @Temperature 20.0 - 100 °C	8.50 µin/in-°F @Temperature 68.0 - 212 °F	
	16.5 µm/m-°C @Temperature 20.0 -	9.17 µin/in-°F @Temperature 68.0 -	

Thermal Properties	Metric	English	Comments
	400 °C	752 °F	
	18.2 µm/m-°C @Temperature 20.0 - 800 °C	10.1 µin/in-°F @Temperature 68.0 - 1470 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	typical of N08904
Thermal Conductivity	11.5 W/m-K @Temperature 20.0 °C	79.8 BTU-in/hr-ft²-°F @Temperature 68.0 °F	
	12.9 W/m-K @Temperature 100 °C	89.5 BTU-in/hr-ft²-°F @Temperature 212 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.020 %	<= 0.020 %	
Chromium, Cr	19 - 23 %	19 - 23 %	
Copper, Cu	1.0 - 2.0 %	1.0 - 2.0 %	
Iron, Fe	47 %	47 %	as balance
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	4.0 - 5.0 %	4.0 - 5.0 %	
Nickel, Ni	23 - 28 %	23 - 28 %	
Phosphorous, P	<= 0.045 %	<= 0.045 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.035 %	<= 0.035 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000952 ohm-cm	0.0000952 ohm-cm	
Magnetic Permeability	<= 1.02	<= 1.02	

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