

## ATI Allegheny Ludlum AL 400™ Nickel-Base Alloy, Hot Rolled Plate, UNS N04400

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

### Material Notes:

Moderately to faintly magnetic at room temperature. Allegheny Ludlum AL 400 alloy is a ductile nickel-copper alloy with resistance to a variety of corrosive conditions. The alloy is most frequently applied in a range of environments ranging from mildly oxidizing through neutral and to moderately reducing conditions. An additional application area of the material is in marine environments and other nonoxidizing chloride solutions.. Specific uses include chemical or refining process equipment, pumps, valves, and fittings. The alloy has a long history of use as a corrosion resistant material, dating back to the early twentieth century when it was developed as an attempt to use a high copper content nickel ore. The nickel and copper contents of the ore were in the approximate ratio which is now formally specified for the alloy. As with commercially pure nickel, the AL 400 alloy is low in strength in the annealed condition. For this reason, a variety of tempers are used which have the effect of increasing the strength level of the material. Information provided by Allegheny Ludlum

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_ATI-Allegheny-Ludlum-AL-400-Nickel-Base-Alloy-Hot-Rolled-Plate-UNS-N04400.php](http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-AL-400-Nickel-Base-Alloy-Hot-Rolled-Plate-UNS-N04400.php)

Physical Properties	Metric	English	Comments
Density	8.83 g/cc	0.319 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	70	70	Typical Annealed
Tensile Strength, Ultimate	550 MPa	79800 psi	Typical
Tensile Strength, Yield	310 MPa	45000 psi	Typical
Elongation at Break	30 %	30 %	Typical in 2"
Modulus of Elasticity	180 GPa	26100 ksi	Typical
Charpy Impact	135 - 325 J	99.6 - 240 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	13.9 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	7.72 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 93.0 $^\circ\text{C}$	@Temperature 68.0 - 199 $^\circ\text{F}$	
	15.8 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	8.78 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 315 $^\circ\text{C}$	@Temperature 68.0 - 599 $^\circ\text{F}$	
	16.4 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	9.11 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 538 $^\circ\text{C}$	@Temperature 68.0 - 1000 $^\circ\text{F}$	

Thermal Properties	Metric	English	Comments
Thermal Conductivity	24.1 W/m-K	167 BTU-in/hr-ft <sup>2</sup> -°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.020 %	0.020 %	
Carbon, C	0.10 %	0.10 %	
Copper, Cu	32 %	32 %	
Iron, Fe	1.0 %	1.0 %	
Manganese, Mn	0.50 %	0.50 %	
Nickel, Ni	66 %	66 %	as balance; includes Co
Phosphorous, P	0.0050 %	0.0050 %	
Silicon, Si	0.25 %	0.25 %	
Sulfur, S	0.0050 %	0.0050 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000510 ohm-cm	0.0000510 ohm-cm	

## Contact Songhan Plastic Technology Co.,Ltd.

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