

## ATI Allegheny Ludlum 309H Austenitic Stainless Steel

Category : Metal , Ferrous Metal , Stainless Steel , T 300 Series Stainless Steel

### Material Notes:

Characteristics: comparable corrosion resistance, superior resistance to oxidation, and the retention of a larger fraction of room temperature strength than common austenitic alloys. Good creep deformation resistance. Applications: Heat treatment industry-conveyor belts, rollers, burner parts, refractory supports, retorts linings, oven linings, fans, tube hangers, baskets, and trays. Chemical process industry- containers for hot concentrated acids, ammonia, and sulfur dioxide. Food processing industry- used in contact with hot acetic and citric acid. Information provided by Allegheny Ludlum

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_ATI-Allegheny-Ludlum-309H-Austenitic-Stainless-Steel.php](http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-309H-Austenitic-Stainless-Steel.php)

Physical Properties	Metric	English	Comments
Density	8.03 g/cc	0.290 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Creep Strength	24.0 MPa	3480 psi	1% creep
	@Temperature 788 °C, Time 3.60e+7 sec	@Temperature 1450 °F, Time 10000 hour	
Rupture Strength	83.0 MPa	12000 psi	1% creep
	@Temperature 593 °C, Time 3.60e+7 sec	@Temperature 1100 °F, Time 10000 hour	
Modulus of Elasticity	17.0 MPa	2470 psi	
	@Temperature 899 °C, Time 3.60e+7 sec	@Temperature 1650 °F, Time 10000 hour	
Poissons Ratio	83.0 MPa	12000 psi	calculated
	@Temperature 677 °C, Time 3.60e+7 sec	@Temperature 1250 °F, Time 10000 hour	
Shear Modulus	200 GPa	29000 ksi	
	0.30	0.30	
	77.0 GPa	11200 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	15.6 µm/m-°C	8.67 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	17.6 µm/m-°C	9.78 µin/in-°F	

Thermal Properties	Metric @Temperature 20.0 - 300 °C	English @Temperature 68.0 - 539 °F	Comments
	19.4 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	10.8 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	
Specific Heat Capacity	0.502 J/g-°C	0.120 BTU/lb-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
Thermal Conductivity	15.6 W/m-K	108 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	18.7 W/m-K	130 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 20.0 - 500 °C	@Temperature 68.0 - 932 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.040 - 0.10 %	0.040 - 0.10 %	
Chromium, Cr	22 - 24 %	22 - 24 %	
Iron, Fe	58.075 - 63.135 %	58.075 - 63.135 %	As Remainder
Manganese, Mn	2.0 %	2.0 %	
Nickel, Ni	12 - 15 %	12 - 15 %	
Phosphorous, P	0.045 %	0.045 %	
Silicon, Si	0.75 %	0.75 %	
Sulfur, S	0.030 %	0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000780 ohm-cm	0.0000780 ohm-cm	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	0.0001148 ohm-cm	0.0001148 ohm-cm	
	@Temperature 1200 °C	@Temperature 2190 °F	
Magnetic Permeability	1.02	1.02	at 200H

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