

## ATI Allegheny Ludlum Stainless Steel Type AL 436S™ Ferric Stainless Steel

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

### Material Notes:

The AL 436S™ alloy has a body-centered cubic, ferritic microstructure at all temperatures below the melting point. Angular titanium carbide particles occur randomly in the ferrite matrix microstructure. Weldability of the AL 436S™ alloy is similar to that of other stabilized ferritic alloys. GTAW (TIG), GMAW (MIG), high frequency and spot welding procedures are applicable. Conventional inert gas shielding is required for tungsten or metal arc processes. Properly welded, the AL 436S alloy retains corrosion resistance and most of the mechanical properties of the base metal in the weld deposit and heat-affected zone. Weld deposits are fully ferritic and free of martensite. Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_ATI-Allegheny-Ludlum-Stainless-Steel-Type-AL-436S-Ferric-Stainless-Steel.php](http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Stainless-Steel-Type-AL-436S-Ferric-Stainless-Steel.php)

Physical Properties	Metric	English	Comments
Density	7.80 g/cc	0.282 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	464 MPa	67300 psi	
	441 MPa @Temperature 93.3 °C	64000 psi @Temperature 200 °F	200°F
Tensile Strength, Yield	292 MPa	42400 psi	
	259 MPa @Temperature 93.3 °C	37500 psi @Temperature 200 °F	
Elongation at Break	33 %	33 %	
	32 % @Temperature 93.3 °C	32 % @Temperature 200 °F	
Modulus of Elasticity	200 GPa	29000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	9.90 µm/m-°C	5.50 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	10.1 µm/m-°C	5.61 µin/in-°F	
	@Temperature 20.0 - 316 °C	@Temperature 68.0 - 601 °F	
	10.6 µm/m-°C	5.89 µin/in-°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 20.0 - 480 °C	@ Temperature 68.0 - 896 °F	
	11.0 µm/m-°C	6.11 µin/in-°F	
	@Temperature 20.0 - 650 °C	@Temperature 68.0 - 1200 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Thermal Conductivity	22.48 W/m-K	156.0 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.010 %	0.010 %	
Chromium, Cr	17.3 %	17.3 %	
Iron, Fe	80 %	80 %	as balance
Manganese, Mn	0.20 %	0.20 %	
Molybdenum, Mo	1.2 %	1.2 %	
Nickel, Ni	0.30 %	0.30 %	
Nitrogen, N	0.015 %	0.015 %	
Phosphorous, P	0.020 %	0.020 %	
Silicon, Si	0.37 %	0.37 %	
Sulfur, S	0.0010 %	0.0010 %	
Titanium, Ti	0.20 %	0.20 %	

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