

ATI Allegheny Ludlum AL 20™ Plate Specialty Steel

Category : Metal , Ferrous Metal , Stainless Steel

Material Notes:

The N08020 alloy has been available for many years and has found applications in many environments, such as in chlorides and in sulfuric and sulfurous acids. Although AL 20 alloy was developed for improved resistance to corrosion by sulfuric acid, it finds wide use throughout the chemical industry. It is used extensively in the manufacture of solvents, explosives, plastics, synthetic fibers, organic chemicals, pharmaceuticals, and food-processing equipment. Containment of acid mixtures and chloride stress corrosion resistance are examples of successful applications for AL 20 alloy. Where purity must be maintained in the processing of products such as foodstuffs or dyes, AL 20 alloy is used to protect end products from the danger of contamination by metallic ions through corrosion. AL 20 alloy has been applied economically in many areas where other materials may provide the necessary corrosion resistance, but are either higher in initial cost or more expensive to install and maintain. Important advantages of AL 20 alloy are its excellent mechanical properties and comparative ease of fabrication. The presence of columbium in the alloy minimizes the precipitation of carbides in heat-affected zones during welding so that assemblies can usually be placed in service in the as-welded condition. Welds with matching filler metal will be slightly less corrosion resistant than the base alloy. The N08020 alloy is readily available in a wide range of product forms, and is covered by a wide variety of ASTM and ASME specifications having assigned maximum working stresses to 540 °C. The alloy is familiar to many fabricators and the weldability of this alloy contributes to its use in many engineered applications. Weld filler metal is readily available and welding procedures are well established. Information provided by Allegheny Ludlum

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-AL-20-Plate-Specialty-Steel.php

Physical Properties	Metric	English	Comments
Density	8.08 g/cc	0.292 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	200 - 220	200 - 220	typical plate
Tensile Strength, Ultimate	85.0 - 95.0 MPa	12300 - 13800 psi	Typical
Tensile Strength, Yield	50.0 - 60.0 MPa	7250 - 8700 psi	Typical
Elongation at Break	35 - 45 %	35 - 45 %	Typical
Modulus of Elasticity	193 GPa	28000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	14.7 µm/m-°C	8.17 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	15.4 µm/m-°C	8.56 µin/in-°F	
	@Temperature 20.0 -	@Temperature 68.0 -	

Thermal Properties	250 °C Metric	482 °F English	Comments
Specific Heat Capacity	0.500 J/g-°C	0.120 BTU/lb-°F	
Thermal Conductivity	12.2 W/m-K	84.7 BTU-in/hr-ft ² -°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.020 %	0.020 %	
Chromium, Cr	19.5 %	19.5 %	
Copper, Cu	3.2 %	3.2 %	
Iron, Fe	41 %	41 %	as balance
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	2.15 %	2.15 %	
Nickel, Ni	33 %	33 %	
Niobium, Nb (Columbium, Cb)	0.40 %	0.40 %	includes Ta
Phosphorous, P	0.025 %	0.025 %	
Silicon, Si	0.40 %	0.40 %	
Sulfur, S	0.0020 %	0.0020 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000108 ohm-cm	0.000108 ohm-cm	

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