

## Carlson 904L Austenitic Stainless Steel

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel

### Material Notes:

**General Description** 904L is an austenitic nickel-chromium stainless steel with molybdenum and copper additions. The elevated nickel and chromium content of 904L make it resistant to corrosion in a wide range of both oxidizing and reducing environments. The high nickel content also provides resistance to chloride stress corrosion cracking. Molybdenum and copper are present in the alloy for increased resistance to pitting and crevice corrosion and to general corrosion in reducing acids. The low carbon content of 904L provides resistance to intergranular corrosion in the post-welded or stress relieved condition. **Applications** The corrosion resistance of 904L makes it a useful alloy in numerous severe operating environments. It is utilized extensively in the chemical, petrochemical, pulp and paper, and pollution control industries : Tanks, vessels, piping, heat exchangers, and other equipment for the production and handling of sulfuric and phosphoric acid. Reactor vessels for fertilizer production Tall oil distillation Pulp and paper bleaching operations Absorber towers, stack linings, duct work, dampers, and other support equipment for flue gas desulphurization systems for fossil-fired power plants and waste incinerators. Information provided by Carlson

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Carlson-904L-Austenitic-Stainless-Steel.php](http://www.lookpolymers.com/polymer_Carlson-904L-Austenitic-Stainless-Steel.php)

Physical Properties	Metric	English	Comments
Density	7.97 g/cc	0.288 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	<= 192	<= 192	
Hardness, Rockwell B	<= 90	<= 90	
Tensile Strength at Break	>= 490 MPa	>= 71000 psi	
Tensile Strength, Yield	>= 214 MPa @Strain 0.200 %	>= 31000 psi @Strain 0.200 %	
Elongation at Break	>= 35 %	>= 35 %	
Reduction of Area	>= 40 %	>= 40 %	
Modulus of Elasticity	196 GPa	28400 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	10.4 µm/m-°C	5.80 µin/in-°F	
	@Temperature 20.0 - 98.9 °C	@Temperature 68.0 - 210 °F	
	14.6 µm/m-°C	8.10 µin/in-°F	
	@Temperature 20.0 -	@Temperature 68.0 -	

Thermal Properties	399 °C Metric	750 °F English	Comments
	16.6 µm/m-°C	9.20 µin/in-°F	
	@Temperature 20.0 - 799 °C	@Temperature 68.0 - 1470 °F	
Specific Heat Capacity	0.439 J/g-°C	0.105 BTU/lb-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °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	38.9 - 53 %	38.9 - 53 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	4.0 - 5.0 %	4.0 - 5.0 %	
Nickel, Ni	23 - 28 %	23 - 28 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.035 %	<= 0.035 %	

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