

Special Metals INCOLOY® 27-7MO Super-Austenitic Stainless Steel

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel

Material Notes:

INCOLOY® alloy 27-7MO (UNS S31277; EP 1,263,999 B1) is an advanced 7% molybdenum super-austenitic stainless steel offering corrosion resistance in most environments superior to 6% molybdenum super-austenitic stainless steels. In many environments, alloy 27-7MO offers resistance approaching that of much more highly alloyed materials such as INCONEL alloys 625, 22, and C-276. Applications for INCOLOY alloy 27-7MO are found in the pollution control, power, marine, chemical processing, pulp and paper, and oil and gas industries. The alloy offers a unique combination of corrosion resistance, high strength and ease of fabrication at an economical price. Alloy 27-7MO is available in standard product forms including plate, sheet, rod, bar, wire rod, pipe, tube, and forging stock. Information Provided by Special Metals Corporation

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-INCOLOY-27-7MO-Super-Austenitic-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	8.02 g/cc	0.290 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	95	95	
Hardness, Vickers	225	225	0% cold work
	380	380	50% cold work
Tensile Strength, Ultimate	827 MPa	120000 psi	
Tensile Strength, Yield	414 MPa	60000 psi	
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	50 %	50 %	
Modulus of Elasticity	138 GPa	20000 ksi	
	@Temperature 816 °C	@Temperature 1500 °F	
	153 GPa	22200 ksi	
	@Temperature 649 °C	@Temperature 1200 °F	
	164 GPa	23800 ksi	
	@Temperature 482 °C	@Temperature 900 °F	
	174 GPa	25200 ksi	
	@Temperature 316 °C	@Temperature 601 °F	
	184 GPa	26700 ksi	

Mechanical Properties	Metric	English	Comments
	191 GPa	27700 ksi	
	@Temperature 22.0 °C	@Temperature 71.6 °F	
Poissons Ratio	0.29	0.29	
	@Temperature 22.0 °C	@Temperature 71.6 °F	
	0.30	0.30	
	@Temperature 149 °C	@Temperature 300 °F	
	0.30	0.30	
	@Temperature 316 °C	@Temperature 601 °F	
	0.31	0.31	
	@Temperature 816 °C	@Temperature 1500 °F	
	0.32	0.32	
	@Temperature 482 °C	@Temperature 900 °F	
	0.33	0.33	
	@Temperature 649 °C	@Temperature 1200 °F	
Shear Modulus	53.0 GPa	7690 ksi	
	@Temperature 816 °C	@Temperature 1500 °F	
	57.0 GPa	8270 ksi	
	@Temperature 649 °C	@Temperature 1200 °F	
	62.0 GPa	8990 ksi	
	@Temperature 482 °C	@Temperature 900 °F	
	67.0 GPa	9720 ksi	
	@Temperature 316 °C	@Temperature 601 °F	
	71.0 GPa	10300 ksi	
	@Temperature 149 °C	@Temperature 300 °F	
	74.0 GPa	10700 ksi	
	@Temperature 22.0 °C	@Temperature 71.6 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.21 μm/m-°C	6.783 μin/in-°F	Mill Annealed Condition
	@Temperature -190 °C	@Temperature -310 °F	

Thermal Properties	Metric	English	Comments
	13.93 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	7.739 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature -50.0 $^{\circ}\text{C}$	@Temperature -58.0 $^{\circ}\text{F}$	
	15.46 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	8.589 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Mill Annealed Condition
	@Temperature 200 $^{\circ}\text{C}$	@Temperature 392 $^{\circ}\text{F}$	
	15.85 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	8.806 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Mill Annealed Condition
	@Temperature 350 $^{\circ}\text{C}$	@Temperature 662 $^{\circ}\text{F}$	
	16.19 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	8.994 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Mill Annealed Condition
	@Temperature 500 $^{\circ}\text{C}$	@Temperature 932 $^{\circ}\text{F}$	
	16.86 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	9.367 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Mill Annealed Condition
	@Temperature 650 $^{\circ}\text{C}$	@Temperature 1200 $^{\circ}\text{F}$	
Specific Heat Capacity	0.454 J/g- $^{\circ}\text{C}$	0.109 BTU/lb- $^{\circ}\text{F}$	
Thermal Conductivity	10.114 W/m-K	70.191 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 23.0 $^{\circ}\text{C}$	@Temperature 73.4 $^{\circ}\text{F}$	
	12.126 W/m-K	84.154 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 100 $^{\circ}\text{C}$	@Temperature 212 $^{\circ}\text{F}$	
	16.295 W/m-K	113.09 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 300 $^{\circ}\text{C}$	@Temperature 572 $^{\circ}\text{F}$	
	20.039 W/m-K	139.07 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 500 $^{\circ}\text{C}$	@Temperature 932 $^{\circ}\text{F}$	
	24.069 W/m-K	167.04 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 700 $^{\circ}\text{C}$	@Temperature 1290 $^{\circ}\text{F}$	
	25.852 W/m-K	179.41 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 900 $^{\circ}\text{C}$	@Temperature 1650 $^{\circ}\text{F}$	
	28.947 W/m-K	200.89 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	
	@Temperature 1100 $^{\circ}\text{C}$	@Temperature 2010 $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.020 %	<= 0.020 %	

Chromium, Cr Component Elements Properties	20.5 - 23 % Metric	20.5 - 23 % English	Comments
Copper, Cu	0.50 - 1.5 %	0.50 - 1.5 %	
Iron, Fe	35.54 - 46.2 %	35.54 - 46.2 %	Balance
Manganese, Mn	<= 3.0 %	<= 3.0 %	
Molybdenum, Mo	6.5 - 8.0 %	6.5 - 8.0 %	
Nickel, Ni	26 - 28 %	26 - 28 %	
Nitrogen, N	0.30 - 0.40 %	0.30 - 0.40 %	
Phosphorous, P	<= 0.030 %	<= 0.030 %	
Silicon, Si	<= 0.50 %	<= 0.50 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000100 ohm-cm	0.000100 ohm-cm	
Magnetic Permeability	1.004	1.004	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	<= 1.01	<= 1.01	200 oersted (15.9 kA/m); Annealed
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	<= 1.01	<= 1.01	200 oersted (15.9 kA/m); 50% Cold Worked
	@Temperature -30.0 °C	@Temperature -22.0 °F	

Descriptive Properties	Value	Comments
Critical Crevice Temperature (°C)	45	ASTM G48 Test Methods C and D
	60	in "Green Death" solution
Critical Pitting Temperature (°C)	>85	ASTM G48 Test Methods C and D
	75	in "Green Death" solution
Pitting Resistance Equivalent Number	43	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China