

Special Metals UDIMET[®] alloy D-979 Fe-Ni Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy

Material Notes:

UDIMET[®] alloy D-979 (UNS N09979) is an iron-nickel alloy designed for turbine disc applications at temperatures up to 1200-1400[°]F (649-760[°]C). Hardened by a complex precipitation of intermetallic phases, the alloy combines corrosion resistance with excellent tensile and stress rupture strength. Information Provided by Special Metals Corporation

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-UDIMET-alloy-D-979-Fe-Ni-Alloy.php

Physical Properties	Metric	English	Comments
Density	8.19 g/cc	0.296 lb/in ³	

Mechanical Properties	Metric	English	Comments
Rupture Strength	69.0 MPa	10000 psi	
	@Temperature 871 [°] C, Time 3.60e+6 sec	@Temperature 1600 [°] F, Time 1000 hour	
	145 MPa	21000 psi	
	@Temperature 816 [°] C, Time 3.60e+6 sec	@Temperature 1500 [°] F, Time 1000 hour	
	250 MPa	36300 psi	
@Temperature 760 [°] C, Time 3.60e+6 sec	@Temperature 1400 [°] F, Time 1000 hour		
380 MPa	55100 psi		
@Temperature 704 [°] C, Time 3.60e+6 sec	@Temperature 1300 [°] F, Time 1000 hour		
515 MPa	74700 psi		
@Temperature 649 [°] C, Time 3.60e+6 sec	@Temperature 1200 [°] F, Time 1000 hour		

Thermal Properties	Metric	English	Comments
CTE, linear	13.7 μ m/m- [°] C	7.61 μ in/in- [°] F	
	@Temperature 93.0 [°] C	@Temperature 199 [°] F	
Thermal Conductivity	12.6 W/m-K	87.4 BTU-in/hr-ft ² - [°] F	

Thermal Properties	Metric ^{1220 1390 Â°C}	English ^{2230 2530 Â°F}	Comments
Solidus	1220 Â°C	2230 Â°F	
Liquidus	1390 Â°C	2530 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.75 - 1.3 %	0.75 - 1.3 %	
Boron, B	0.0080 - 0.016 %	0.0080 - 0.016 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Chromium, Cr	14 - 16 %	14 - 16 %	
Iron, Fe	20.804 - 34.542 %	20.804 - 34.542 %	Balance
Manganese, Mn	<= 0.75 %	<= 0.75 %	
Molybdenum, Mo	3.0 - 4.5 %	3.0 - 4.5 %	
Nickel, Ni	42 - 48 %	42 - 48 %	
Silicon, Si	<= 0.75 %	<= 0.75 %	
Titanium, Ti	2.7 - 3.3 %	2.7 - 3.3 %	
Tungsten, W	3.0 - 4.5 %	3.0 - 4.5 %	

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