

MATERIAL PROPERTIES FOR LM-106c.

Composition: Alloy of Zr•Cu•Ni•Nb•Al

MECHANICAL

Property	Metric	English
DENSITY, ρ	g/cm^3	lb/in^3
	6.8	0.25
HARDNESS	Vickers	Rockwell C
	460	47
CHARPY IMPACT	J/cm^2	ft lb/in^2
	6.5	31
FATIGUE STRENGTH	MPa @ 10^7 cycles	ksi @ 10^7 cycles
	206	29.8
POISSON'S RATIO	ν	ν
	0.38	0.38
ELASTICITY, e	%	%
	1.6	1.6
ULTIMATE TENSILE STRENGTH	MPa	ksi
	1250	181
YOUNG'S MODULUS, E	GPa	ksi
	85	12,328
ULTIMATE FLEXURAL STRENGTH	MPa	ksi
	2000	290
FLEXURAL MODULUS	GPa	ksi
	65	9428
MOLD SHRINKAGE	%	%
	0.25	0.25

THERMAL

Property	Metric	English
GLASS TRANSITION TEMPERATURE, T_g	$^{\circ}\text{C}$	$^{\circ}\text{F}$
	425	800
CRYSTALLIZATION TEMPERATURE, T_x	$^{\circ}\text{C}$	$^{\circ}\text{F}$
	500	930
THERMAL CONDUCTIVITY	$\text{W/m}\cdot\text{K}$	$\text{Btu/hr ft }^{\circ}\text{F}$
	5	2.9
THERMAL EXPANSION	$\mu(\text{m/m})/^{\circ}\text{K}$	$\mu(\text{in/in})^{\circ}\text{F}$
	12.0	6.7
STD. OPERATING TEMPERATURE	$^{\circ}\text{C}$	$^{\circ}\text{F}$
	<200	<392
SALT SPRAY (ASTM B117)	600 hours	600 hours
	Pass	Pass
SEAWATER IMMERSION	After 30 days	After 30 days
	No detectable degradation	No detectable degradation
RESISTANCE TO ACIDITY	Yes	Yes
RESISTANCE TO ALKALINITY	Yes	Yes
SURFACE ROUGHNESS, R_a (As Cast)	μm	μin
	0.35	14
ELECTRICAL RESISTIVITY, r	$\mu\Omega\cdot\text{cm}$	$\mu\Omega\cdot\text{in}$
	190	74

ENVIRONMENTAL

SURFACE & ELECTRICAL