

Zamak 2 properties^[17]

Property	Metric value	Imperial value
Mechanical properties		
Ultimate tensile strength	397 MPa (331 MPa aged)	58,000 psi
Yield strength (0.2% offset)	361 MPa	52,000 psi
Impact strength	38 J (7 J aged)	28 ft-lbf (5 ft-lbf aged)
Elongation at F _{max}	3% (2% aged)	
Elongation at fracture	6%	
Shear strength	317 MPa	46,000 psi
Compressive yield strength	641 MPa	93,000 psi
Fatigue strength (reverse bending 5x10 ⁸ cycles)	59 MPa	8,600 psi
Hardness	130 Brinell (98 Brinell aged)	
Modulus of elasticity	96 GPa	14,000,000 psi
Physical properties		
Solidification range (melting range)	379—390 °C	714—734 °F
Density	6.8 kg/dm ³	0.25 lb/in ³
Coefficient of thermal expansion	27.8 µm/m-°C	15.4 µin/in-°F
Thermal conductivity	105 W/m-K	729 BTU-in/hr-ft ² -°F
Electrical resistivity	6.85 µΩ-cm at 20 °C	2.70 µΩ-in at 68 °F
Latent heat (heat of fusion)	110 J/g	4.7x10 ⁻⁵ BTU/lb
Specific heat capacity	419 J/kg-°C	0.100 BTU/lb-°F
Coefficient of friction	0.08	

KS

The KS alloy was developed for spin casting decorative parts. It has the same composition as zamak 2, except with more magnesium in order to produce finer grains and reduce the orange peel effect.^[25]

KS composition^[25]

		Alloying elements			Impurities							
Standard	Limit	Al	Cu	Mg	Pb	Cd	Sn	Fe	Ni	Si	In	Tl
Nyrstar	min	3.8	2.5	0.4	-	-	-	-	-	-	-	-
	max	4.2	3.5	0.6	0.003	0.003	0.001	0.020	-	-	-	-

KS properties^[25]

Property	Metric value	Imperial value
Mechanical properties		
Ultimate tensile strength	< 200 MPa	< 29,000 psi
Yield strength (0.2% offset)	< 200 MPa	< 29,000 psi
Elongation	< 2%	
Hardness	150 Brinell max	
Physical properties		
Solidification range (melting range)	380—390 °C	716—734 °F
Density	6.6 g/cm ³	0.25 lb/in ³
Coefficient of thermal expansion	28.0 μm/m-°C	15.4 μin/in-°F
Thermal conductivity	105 W/m-K	729 BTU-in/hr-ft ² -°F
Electrical conductivity	25% IACS	
Specific heat capacity	419 J/kg-°C	0.100 BTU/lb-°F
Coefficient of friction	0.08	

Zamak 3

Zamak 3 is the de facto standard for the zamak series of zinc alloys; all other zinc alloys are compared to this. Zamak 3 has the base composition for the zamak alloys (96% zinc, 4% aluminium). It has excellent castability and long term dimensional stability. More than 70% of all North American zinc die castings are made from zamak 3.^[2]