MATERION

Data Sheet

SupremEX® 225CA Alloy

A high-quality aluminum alloy (2124A) reinforced with 25 vol.% silicon carbide particles which produces a metal matrix composite (MMC). 225CA is manufactured via a powder metallurgy route using a mechanical alloying process to ensure a homogeneous distribution of reinforcement. This provides a refined grain structure and enhanced mechanical properties. The 225CA MMC is heat treatable, offering high strength and elastic modulus for structural applications. 225CA is available in a variety of shapes including billet and forgings.

Typical Physical Properties*

Density g/cm³ (lb/in³)	Elastic Modulus GPa (msi)	Specific Stiffness GPa/g/cm³	Poisson's Ratio
2.88 (0.104)	115 (16.7)	39	0.3

Thermal Conductivity W/m°K (BTU/hr. ft. °F)	Thermal Expansion ppm/°C (ppm/°F) at 25 °C	Solidus °C (°F)	Specific Heat Capacity J/g/°C (BTU/lb/°F)
156 (90)	16.3 (9.1)	548 (1,018)	0.829 (0.198)

Typical Mechanical Properties*

Product Form	HIPed Billet	Forged
Heat Treatment	T4	T6
$R_p0.2$ MPa (ksi)	455 (66)	435 (63)
R_m MPa (ksi)	570 (83)	580 (84)
Elongation to Failure %	1.5	3

*Data is for information purposes only; it does not constitute a guarantee.

225CA Alloy Advantages

- High fatigue strength and stiffness with low weight
- Lower mass components
- Reduced section thickness
- High hardness and low friction
- Longer wear life
- Reduced need for coatings
- Good machinability using conventional methods and proper tooling
- Lower coefficient of thermal expansion versus aluminum
- Smaller starting clearances
- Better thermal match to high strength materials
- High thermal conductivity
- Faster heat removal
- Less need for active cooling
- Isotropic properties and microstructure

Forms Available

SupremEX 225CA alloy is available as billet/shaped billet (DPT) and forgings.

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