

GKN POWDER METALLURGY - Copper

PM-CuEV1

MATERIAL DATA SHEET

Names: MPIF/ANSI Designation: **N/A**; GKN Designation: **Cu(EV1)**

Description: High purity copper produced via conventional press-and-sinter powder metallurgy (PM) processing. Secondary (cold/warm/hot) forming operations can be employed for parts produced using this material to optimize density and properties.

Applications: Electrical and Thermal management solutions including, but not limited to: battery terminals, busbars, electrical connectors, heat sinks, heat spreaders, and other components requiring high electrical & thermal conductivity.

Chemistry

Limits	GKN Specification (Wt.%)		
	Cu	Oxygen	Other
Typical	99.8 (Balance)	0.05	0.15
Max	99.6 (Balance)	0.2	0.2

Mechanical Properties

	Ultimate Tensile Strength (MPa)	Tensile Yield Strength (MPa)	Total Tensile Elongation (%)	Modulus of Elasticity, Young's (GPa)	Poisson's Ratio (ν)	Apparent Hardness, Rockwell
Typical Values	190-200 MPa	60-70 MPa	25-40%	90 GPa	0.31	60 HRH
Notes	<i>Per MPIF Standard 10</i>	<i>Per MPIF Standard 10</i>	<i>Per MPIF Standard 10</i>	<i>Per MPIF Standard 10</i>	<i>Per MPIF Standard 10</i>	<i>Per MPIF Standard 43</i>

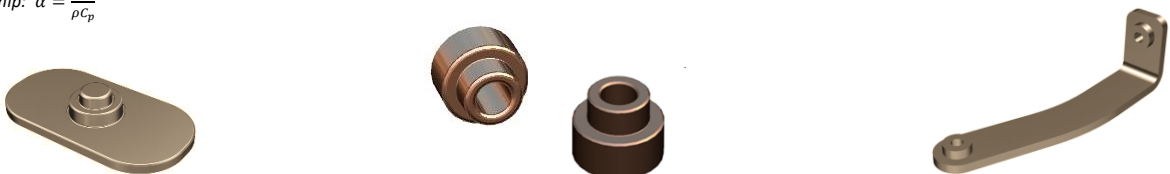
Material properties are typical values obtained from standard test bars according to the referenced standard test methods. These are NOT guaranteed minimum values; specific ranges must be developed for each application and should be derived through functional testing

Physical Properties

	Thermal Conductivity (k) ²	Thermal Diffusivity (α) ¹	Specific Heat Capacity (C_p) ¹	Electrical Conductivity (%IACS)	CTE, linear ¹
Typical	374 W/m-K	** m ² /s	** J/g-°C	94% IACS	** $\mu\text{m}/\text{m}\cdot\text{°C}$
Minimum	358 W/m-K	** m ² /s	** J/g-°C	90% IACS	** $\mu\text{m}/\text{m}\cdot\text{°C}$

¹ Pending Data from standardized testing

² Calculated via relationship: $\alpha = \frac{k}{\rho C_p}$



This document is for informational purposes only and should not be considered as a binding descriptor of their performance in all applications. The product characteristics and performance data on this page represent standard products and depict their typical performance under controlled laboratory conditions. Actual performance will vary depending on the operating environment and application. GKN Powder Metallurgy reserves the right to revise its products and documents without notification. For product design to meet specific applications, dimensions, electrical and working points, please contact GKN Powder Metallurgy Marketing and Sales.