

GKN POWDER METALLURGY - Aluminum

PM-5657

MATERIAL DATA SHEET

Names: MPIF/ANSI Designation: **AT-5657**; GKN Designation: **TC2000**

Description: Non-heat-treatable, dilute Al-Sn-Mg alloy 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.

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

Table 1: Chemical Composition Data

Limits	GKN Specification (Wt.%)					
	Al	Sn	Mg	Cu	Fe	Other
Max	Balance	1.6	1.1	0.05	0.15	1.0
Min	Balance	1.4	0.9	-	-	-

Mechanical Properties

	Ultimate Tensile Strength (MPa)	Tensile Yield Strength (MPa)	Total Tensile Elongation (%)	Poisson's Ratio (ν)	Apparent Hardness, Rockwell
Typical Values	110 MPa	40 MPa	10.0%	0.33	40 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 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) ¹	Thermal Diffusivity (α) ²	Specific Heat Capacity (C_p)	Electrical Conductivity (%IACS)	CTE, linear
Typical	215 W/m-K	87 m ² /s	0.915 J/g-°C	54% IACS	24.5 μ m/m-°C
Minimum	195 W/m-K	79 m ² /s	0.915 J/g-°C	51% IACS	23.4 μ m/m-°C

¹ Measured via TPS (Transient Plane Source) method per ISO Standard (ISO/DIS 22007-2.2).

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



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