

# Copper Foam Electrode Material For Lithium Battery And Supercapacitor Substrates

Item Number: FZ56



## Introduction

High-purity open-cell copper foam engineered for high-performance lithium battery and supercapacitor electrode substrates. Featuring 98% interconnected porosity, superior electrical conductivity, and rapid thermal dissipation, this substrate delivers outstanding electrochemical stability and maximum active material loading for advanced energy storage.

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| Application                          | Description                                                                                                                                 | Key Benefit                                                                                                                 |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Lithium Battery Anodes               | Serves as a 3D current collector and scaffold for lithium-metal deposition, silicon composite anodes, and alloy anodes.                     | Suppresses dendritic lithium growth, accommodates volume expansion, and enhances cycling stability at high C-rates.         |
| Supercapacitor Current Collectors    | Acts as the conductive framework and current collector for electric double-layer capacitors (EDLC) and hybrid pseudocapacitors.             | Maximizes active material adhesion, lowers equivalent series resistance (ESR), and accelerates charge/discharge kinetics.   |
| Nickel-Zinc Battery Electrodes       | Utilized as the primary electrode skeleton in high-capacity nickel-zinc and advanced alkaline secondary cell configurations.                | Provides rigid mechanical support, reduces electrode deformation, and prolongs operational cycle life under deep discharge. |
| Electrochemical Metal Recovery       | Functions as a high-surface-area working cathode for the electrowinning and recovery of copper and heavy metals from industrial wastewater. | Enhances mass transfer rates and maximizes metal deposition efficiency per unit cell volume.                                |
| Chemical & Photocatalytic Carriers   | Replaces conventional perforated copper plates as a structural catalyst support for organic synthesis and gas-phase air purification.       | Dramatically increases the active contact area, boosting chemical conversion efficiency and space-time yield.               |
| Power Electronics Thermal Management | Integrated into heat sinks, heat exchangers, and cooling jackets for power electronics, EV drive motors, and high-flux electronics.         | Enhances convective and conductive heat transfer rates via high surface-to-volume ratios and low thermal resistance.        |
| Acoustic & EMI Shielding             | Applied in aerospace enclosures, telecommunication cabinets, and specialized testing chambers to block RF radiation and sound waves.        | Delivers silver-grade electromagnetic shielding effectiveness while mitigating acoustic energy through micropore expansion. |
| Fluid Pressure Dampers & Regulators  | Installed inline within hydraulic and pneumatic lines as a fluid buffer and pressure pulse attenuator for delicate pressure sensors.        | Dissipates destructive pressure spikes, laminarizes turbulent flows, and protects sensitive analytical instrumentation.     |

| Parameter                          | Specification (Item: FZ56)                               |
|------------------------------------|----------------------------------------------------------|
| Product Identification             | FZ56                                                     |
| Base Material                      | High-Purity Copper (Cu)                                  |
| Thickness Range                    | 1.0 mm to 25.0 mm                                        |
| Pore Size Range                    | 0.1 mm to 10.0 mm                                        |
| Pores Per Inch (PPI)               | 5 PPI to 120 PPI                                         |
| Total Porosity                     | ≥ 98%                                                    |
| Through-Hole Ratio (Open Porosity) | ≥ 98%                                                    |
| Bulk Density                       | 0.10 g/cm³ to 0.80 g/cm³                                 |
| Structure Type                     | Open-cell three-dimensional reticulated metallic network |

| Parameter                       | Specification (Item: FZ56)                                         |
|---------------------------------|--------------------------------------------------------------------|
| Flammability / Thermal Function | High-efficiency thermal conductor / Flame and flame-spread barrier |