

High-performance Materials for Supporting Society and Realizing Customer Innovation

Focusing on structural and compositional control technologies for a wide variety of materials, the Proterial Group has created high-performance materials in collaboration with its customers. By reflecting the needs of our customers in every step from R&D to mass production, we help customers realize innovation. Moreover, this approach serves as the driving force for the sustained growth of the Company. By continuing to deliver unique, high-performance materials, Proterial is working to solve social issues and secure sustainable growth.

Ceramic Scintillator

A scintillator is a substance that absorbs rays, such as X rays and gamma rays, and makes them visible to the human eye. Scintillators are used primarily in X-ray computer tomography (CT) and other medical equipment, analytical devices, nondestructive inspection equipment, and airport carry-on luggage scanners.



Wires and Cables for Rolling Stock

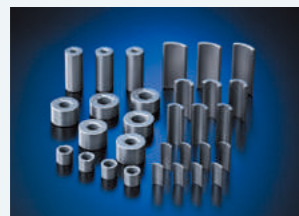
Our wires and cables for rolling stock are used in cab wiring, underfloor wiring, car body wiring and other applications in Shinkansen bullet trains as well as many other rolling stock vehicles in Japan. In addition to Japan, these products have been adopted for rolling stock destined for China and Europe. In this way, Proterial's wires and cables for rolling stock support the development of railways as their importance continues to grow as a mode of transportation with a low environmental impact.



NEOMAX® rare-earth magnets



Ferrite Magnets



NEOMAX® rare-earth magnets and ferrite magnets are primarily used in motors. Originally developed by the Company in 1982, NEOMAX® magnets have nearly 10 times the magnetic force of ferrite magnets, and have therefore contributed to miniaturizing motors and to realizing a more efficient, electrified society. The Company continues to lead the industry in its transition to weight-saving rare-earth materials through R&D. Ferrite magnets are primarily composed of iron oxide materials which are abundantly available. The Company has also achieved the world's best-of-class magnetic properties in the form of ferrite magnets, which have also contributed to realizing smaller, more efficient motors. In 2022, the Company showed the world the potential of these as magnets for xEV drive motors.

Silicon Nitride Substrates

Silicon nitride substrates are a key component for power semiconductors that control motors and convert power in xEVs* and other applications. The Company has also taken the lead toward commercialization over its competitors. In response to rapidly growing demand and the subsequent outlook for continued growth, the Company is currently making investments to increase production.



Aircraft Engine Components

The aircraft market is expected to broaden significantly over the medium- to long-term. The Company has therefore made large-scale investments with an eye toward market expansion. As a field that demands an extremely high level of technology, quality, and control, Proterial is developing these components into a new pillar of business.



Metglas® Amorphous Alloy

Amorphous alloys are metals that lack a crystalline structure. When used as a core, amorphous alloy transformers demonstrate one-third to one-fifth the iron loss (no-load loss) compared to transformers with grain-oriented electrical steel plate cores, and thereby contribute to reductions in power consumption. In recent years, significant anticipation has therefore been placed on their application to motor cores.



Clad Metals

Clad metals are made by roll bonding several metals with different characteristics. The clad metals used for the external electrodes of secondary batteries are able to efficiently connect the cathode and anode, which are made of different metals (aluminum and copper, etc.). Progress in the transition to xEV is therefore expected to expand demand.



Nanocrystalline Soft Magnetic Material FINEMET®

FINEMET® is crystallized alloy ribbon with a main chemical composition of Fe. By reducing the crystal alloy grain size to the level of 10 nm, something that had previously not been possible, the Company enabled FINEMET® to express dramatically improved magnetic characteristics. Since commercializing FINEMET® as an original product in 1988, applications for this product have expanded along with progress in the shift to xEV*.



xEV : A generic term for electric vehicles (EVs), hybrid electric vehicles (HEVs), and plug-in hybrid electric vehicles (PHEVs).