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Rare Earth Elements in Electronics Manufacturing

What Are Rare Earth Elements (REEs)?

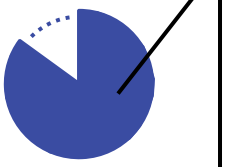
Rare Earth Elements are 17 chemically similar elements crucial for modern electronics, energy, and defense technologies. Though abundant in the Earth's crust, they are rarely found in concentrated, economically exploitable forms, making extraction and refinement difficult and costly.

Light REEs

Lanthanum
Cerium
Praseodymium
Neodymium
Promethium
Samarium

Heavy REEs

Europium
Gadolinium
Terbium
Dysprosium
Holmium
Erbium
Thulium
Ytterbium
Lutetium
Yttrium
Scandium



CN China dominates both mining and refining of REEs, especially heavy REEs, **controlling over 85% of global refining capacity.**

Key Electronic Component Categories Affected

Category	Common REEs	Function of REE
MLCCs (Capacitors)	Neodymium, Samarium	Dielectric enhancement, thermal stability, grain structure reliability
Permanent Magnets	Neodymium, Samarium, Dysprosium	High magnetic strength, heat, and corrosion resistance
LEDs & Displays	Yttrium, Terbium, Europium	Phosphor generation for light emission and color tuning
Relays (RF, Power)	Samarium (SmCo magnets)	High-temp, compact actuation with corrosion resistance
Sensors & Imaging Devices	Gadolinium	Enhanced sensitivity in imaging and thermal sensing applications
Semiconductors	Gallium, Germanium, Antimony (critical)	High-frequency & optoelectronic performance; flame resistance; infrared & fiber optic functions

The Rare Earth Ripple Effect: What Manufacturers Need to See Coming

Rare earth elements are often invisible in BOMs—but their impact on production, compliance, and sourcing is anything but small. Here's why material-level visibility is critical:

Restrictions Disrupt More Than Supply

China's export controls can delay access to key materials, impacting production timelines and delivery commitments.

Blind Spots Create Compliance Risk

Manufacturers lacking detailed substance data risk regulatory pressures leading to redesigns, fines, and market delays.

Refinement Monopolies Are a Hidden Dependency

Many non-Chinese components rely on China-refined REEs, exposing the supply chain to single-source volatility.

Can You Design Around Rare Earth Elements?

Manufacturers looking to reduce rare earth dependency face a critical question: Are there reliable alternatives? In many cases, yes—but only if you have the right insights to guide your decisions.

Find Viable Alternatives, Faster	Rare-earth-free components exist across categories like capacitors, relays, and sensors—but surfacing them requires granular, substance-level part data.
Design Smarter with Material-Level Visibility	Knowing which components have REEs helps engineering and sourcing teams make informed design decisions while ensuring compliance and efficiency.
Mitigate Risks Across the Lifecycle	Early visibility into REE exposure prevents late redesigns, ensures regulatory compliance, and protects against sourcing volatility.

Close the Gaps: Turn REE Risk Into Informed Action

Understanding rare earth exposure is one thing—managing it confidently is another. **Accuris Electronic Parts Solutions** gives you the tools to do just that.

Know What's Inside

Access part-level material data to see exactly which components contain REEs.

Find Alternatives

Quickly identify rare-earth-free component alternatives that meet your specs.

Stay Compliant

Make smarter sourcing and design decisions—before risk becomes disruption.