Sorting It Out: Critical Minerals or Crucial Materials?

written by Tracy Hughes | June 12, 2026

"You like potato and I like po-tah-to, you like tomato and I like to-mah-to…" wrote lyricist Ira Gershwin in *Let's Call the Whole Thing Off* (1937), with music by George Gershwin.

For nearly two decades, our industry has been having its own version of that debate.

In the early days, around 2008 and 2009, these materials were commonly referred to as "strategic materials" or "strategic minerals." As the sector evolved, new labels emerged, including "battery metals," "battery materials," and "magnet metals." We even tried to popularize the term "technology metals," a phrase championed by Critical Minerals Institute (CMI) Co-Chair Jack Lifton long before critical minerals became a mainstream policy discussion. Earlier this week, CMI Co-Chair Melissa "Mel" Sanderson suggested another alternative: "crucial materials".

Eventually, governments, industry associations, and investors settled on "critical minerals." Today, the term is so widely accepted that few stop to ask a rather obvious question:

Are these materials actually minerals?

In many cases, the answer is no.

The reality is that many of the materials appearing on national critical minerals lists are not minerals at all. Copper is a metal. Uranium is a metal. Gallium is a metal. Rare earth elements are metals. Steel is an alloy. Antimony, germanium, and silicon are classified as metalloids.

In fact, among the 24 entries on the 2026 Critical Minerals Institute (CMI) Watchlist, only graphite comfortably fits the traditional geological definition of a mineral.

The numbers tell an interesting story. Of the 24 materials on the CMI Watchlist, 20 are metals, 3 are metalloids, one is an alloy, and only one is clearly a mineral. Yet we continue to refer to the entire group as “critical minerals.”

Before we go any further, it is worth understanding the difference.

What is a Mineral?

A mineral is a naturally occurring inorganic substance with a defined chemical composition and crystalline structure. Graphite, quartz, and feldspar are all minerals.

Importantly, a mineral is not the same thing as a metal. Metals are often extracted from minerals through mining and processing. Copper is produced from copper-bearing minerals such as chalcopyrite. Aluminum is produced from bauxite. Lithium is recovered from minerals such as spodumene or from brines.

What is a Metal?

A metal is a chemical element that typically conducts heat and electricity and can be shaped without breaking. Copper (Cu), nickel (Ni), lithium (Li), uranium (U), tungsten (W), titanium (Ti), and aluminum (Al) are all metals.

Most of the materials appearing on government critical minerals lists are, in fact, metals rather than minerals.

What is a Metalloid?

A metalloid is an element that exhibits properties of both metals and non-metals. Silicon (Si), germanium (Ge), and antimony (Sb)—all included on the CMI Watchlist—are metalloids.

Their unique electrical properties make them indispensable to semiconductors, communications technologies, advanced manufacturing, and defense applications.

What Is an Alloy?

An alloy is a material composed of two or more elements, usually metals, designed to enhance performance characteristics such as strength, durability, or corrosion resistance.

Steel, which appears on the CMI Watchlist, is not a mineral and not a single metallic element. It is an alloy primarily composed of iron (Fe) and carbon (C), often with additional elements added to achieve specific industrial properties.

The 2026 CMI Watchlist by Scientific Classification

Aluminum (Al)	Metal
Antimony (Sb)	Metalloid
Cobalt (Co)	Metal
Copper (Cu)	Metal
Gallium (Ga)	Metal
Germanium (Ge)	Metalloid
Graphite / Carbon (C)	Mineral
Indium (In)	Metal

Lithium (Li)	Metal
Magnesium (Mg)	Metal
Manganese (Mn)	Metal
Molybdenum (Mo)	Metal
Nickel (Ni)	Metal
Niobium (Nb)	Metal
Platinum-Group Metals (PGMs) – 6: Platinum (Pt), Palladium (Pd), Rhodium (Rh), Ruthenium (Ru), Iridium (Ir), and Osmium (Os)	Metals
Rare Earth Elements (REEs) – 17: *Lanthanum (La), *Cerium (Ce), *Praseodymium (Pr), *Neodymium (Nd), ***Promethium (Pm), *Samarium (Sm), **Europium (Eu), **Gadolinium (Gd), **Terbium (Tb), **Dysprosium (Dy), **Holmium (Ho), **Erbium (Er), **Thulium (Tm), Ytterbium (Yb), **Lutetium (Lu), Scandium (Sc), and **Yttrium (Y)	Metals
Rhenium (Re)	Metal
Silicon (Si)	Metalloid
Steel (Fe-based alloy)	Alloy
Tantalum (Ta)	Metal
Titanium (Ti)	Metal
Tungsten (W)	Metal
Uranium (U)	Metal
Vanadium (V)	Metal

[*Light Rare Earth Elements (LREEs) | **Heavy Rare Earth Elements (HREEs) | ***Pm is the only REE with no stable isotopes; it occurs only in trace amounts naturally and is primarily reactor-produced.]

Viewed strictly through a scientific lens, only a small portion of what governments, investors, and industry participants call “critical minerals” are actually minerals. Most are metals. Some are metalloids. One is an alloy.

Yet the term “critical minerals” has won the branding war.

Does it matter?

Not particularly.

The more important question is not what we call these materials, but why we call them critical in the first place.

At the Critical Minerals Institute, we define criticality differently from many governments and organizations. Geological abundance is not the determining factor. Neither is market size.

A material becomes critical when the world depends upon a supply chain concentrated in one or two geopolitical jurisdictions where reliability risks exist.

As CMI Watchlist Editor Alastair Neill recently observed:

“A material becomes critical when its production is dominated by one or two countries—particularly where those jurisdictions present reliability risks to ongoing global supply.”

This distinction is important because criticality is not a geological concept.

It is a geopolitical and industrial concept.

Copper provides a useful example.

Copper is not scarce. Large copper deposits exist around the world. Yet copper has become increasingly critical because modern society cannot function without it. Electrification, artificial intelligence data centers, electric vehicles, transmission infrastructure, military systems, and renewable energy technologies all require enormous quantities of copper.

As demand rises faster than new mines can be developed, supply becomes strategically important.

Gallium offers another example.

Gallium is not particularly rare. It is produced as a byproduct of aluminum refining. The challenge is that China dominates production and processing. The risk is not the existence of gallium resources. The risk is concentration of supply.

The same pattern appears repeatedly throughout the critical minerals economy.

Rare earth elements are relatively abundant in the Earth’s crust. The issue is processing dominance.

Tungsten is not exceptionally rare. The issue is production concentration.

Indium and rhenium are not geologically unique. The issue is that they are produced primarily as byproducts, making supply difficult to increase when demand rises.

Even uranium, one of the world’s most important energy materials, owes much of its criticality to geopolitical considerations surrounding mining, conversion, enrichment, and fuel security.

This is why supply chains—not resources—define criticality.

The 2026 CMI Watchlist reflects this reality. Its Top 5 materials—Copper, Gallium, Tungsten, Uranium, and Rare Earth Elements—were not selected because they are the rarest materials on Earth. They were selected because they are foundational to modern economies, difficult to substitute, and exposed to geopolitical or processing risks that could disrupt supply.

Ultimately, the debate over whether these materials should be called minerals, metals, strategic materials, or critical materials misses the larger point.

The world does not have a critical minerals problem.

It has a critical supply chain problem.

And as governments, corporations, and investors increasingly discover, control of supply chains—not ownership of resources—will determine who succeeds in the next phase of the global economy.

Call them minerals.

Call them metals.

Call them crucial materials.

What matters is not what they are called.

What matters is who controls them.