

Technology V10/S6: Alternatives to Rare Technology Metals

Rare Earth Elements, also called rare earth metals, are limited natural materials found on Earth. There are 17 different types of these metals. Even though the materials can be found all over the earth's crust, there is only a small



amount of concentrated materials that can be mined easily. Technology metals are metals that are used in today's technology such as laptops, phones, etc. In 2020, the Covid-19 Pandemic brought materials mining to a halt, and the global supply dwindled. This highlighted how important rare earth materials are to technology advancement.

Scientists have said that $CeCo_3$ and $CeCo_5$ could replace some rare earth metals used in technology today. $CeCo_5$ is the stronger of the two making it more desirable.

Replacing rare earth metals with these alternatives could benefit the environment and be a better economic option for a high demand market. Recently, the demand for metals



that can be used in technology has been exacerbated by the shift to climate friendly technologies. Rare earth materials are used in the creation of wind turbines and solar panels. As climate change and global warming become more inevitable, governments will be searching for the materials to build out these alternatives.

However, these metal substitutes come with issues of their own. Substitute metals are high in Cobalt, a material that has come under a lot of controversy over the years. Cobalt mine workers have been abused by supervisors, underpaid, and unfairly held to legal agreements. Though $CeCo_3$ and $CeCo_5$ might pose solutions for some problems, they will not solve the human rights abuses that plague mining industries. Some scientists feel that we should find ways to avoid the need for rare earth materials rather than find substitutes for them.