

Welcome to Earth Matters – Minerals are essential in our lives. Celebrating Earth Science Week, I'm Alex Gysi, a new Economic Geologist at the New Mexico Bureau of Geology and Mineral Resources and Assistant Professor in the department of Earth & Environmental Science at New Mexico Tech. I lead the Ore Deposits and Critical Minerals research group and a new experimental lab where we grow and dissolve minerals.

Minerals are essential parts of our lives, we find them everywhere. We walk on them on black and white sand beaches, they cover the ocean floor, they occur in the cores of mountain belts, and even on other planets, their moons and asteroids. When we wake up in the morning we are brushing our teeth using toothpaste, which contains component from minerals such as silica from quartz and titanium dioxide from rutile. The mineral apatite, a calcium phosphate, is the major component of our teeth and bone material. Clay minerals are important component in soils, they can absorb water and swell, which is why it is important to know where we build our roads and houses. Talking about house, guess what? Drywall is made of calcium sulfate, yes the mineral gypsum. We also use minerals in technological devices such as the cell phones and computers and many more areas essential to our lives.

So what is a mineral? There are many definitions, but essentially it must be a naturally occurring solid, it has an ordered atomic arrangement, which can lead to nice crystals, and commonly it is formed through inorganic processes. For example, a diamond is formed deep in the Earth's mantle and is brought to the surface through rapid eruptions in kimberlites. We can synthesize a diamond but it forms in nature, and hence it is a mineral. Mineralogy is also a fundamental discipline in Earth Sciences because minerals give us clues necessary to understand processes at the origin, timing, evolution and behavior of planets. Celebrating Earth Science Week, I'm Alex Gysi, a new Economic Geologist at the New Mexico Bureau of Geology and Mineral Resources and Assistant Professor in the department of Earth & Environmental Science at New Mexico Tech.