Beat: Technology

Rocks On Mars Have Mysterious Purple Coating

Perseverance Rover Found The Material

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USPA NEWS - A presentation on data gathered from the Perseverance rover is trying to explain the coating of unknown, dark gray, almost purple material on Martian rocks.

Observed everywhere the rover has traveled, details on the coating's composition could come with clues about Mars' past, including whether it hosted microbial life. On Earth, rock coatings, called varnishes, tend to be excellent places to find unusual microbes like cyanobacteria. The surface of a stone are shelter for a microbe, and often offer moisture and shelter. Some species have even been known to metabolize minerals like manganese on the surface of rocks in order to create a coating to protect themselves from UV sunlight.

A study in Italy, found 55 species of bacteria living under rock varnishes in five sample locations, all of which were rich in iron and manganese. On Mars, the Perseverance rover's science kit has researchers believing the near-purple coating found everywhere in Jezero Crater is rich in iron.

The rover's laser spectroscopy tool blasts rock with laser beams until bits of it explode, and then measures the elemental composition of the gas created. Microphones can also measure the "clack" sound of the rocks when they break, with softer sounds indicating softer rock. While this tool didn't detect any manganese in the Jezero samples, other samples taken in Gale Crater with a similar tool aboard the Curiosity rover did.

The samples which Perseverance took found iron-oxides and hydrogen. In other words, rust. The presence of hydrogen would suggest that water played a role in the coating's creation, but the rover is currently investigating old solidified magma and isn't really anywhere near the lake sediments of Jezero.

It's a mystery that requires more investigation, and maybe before the end of the mission Perseverance will come across varnishes with both iron and manganese like the Italian ones. But for now the rover has been caching samples in tubes for its future return to Earth. Scientists are hoping the purple coatings can survive the journey intact enough to be studied in a proper laboratory.

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