Acidophiles

sourpusses

life in the extremes

www.nasa.gov
Ferroplasma acidiphilum extracts energy from iron—it “eats” the metal and leaves rust behind.

**EXTREME ABILITY**  Acids, such as the citric acid in lemons, taste sour. Even the word acid comes from the Latin word *acidus* meaning “sour.” Acidophiles survive in very acidic environments where pH rarely rises above 3. When other organisms are exposed to such acidic conditions their DNA is damaged beyond repair.

**EXTREME ENVIRONMENTS**  These organisms are most commonly found in mine drainages, waste treatment plants, and sulfuric acid hot springs. Scientists speculate that acidophiles could live in the toxic clouds of Venus’ atmosphere.

**EXTREME EXAMPLES**  Acidophiles play a complex role in acid mine drainage and some are used in coal mining to recover metallic minerals and to reduce sulfur levels.

Photo Credit: Algae flow patterns at Yellowstone National Park - J. Schmidt, NPS (front); Ferroplasma acidiphilum - Helmholtz Centre for Infection Research (back). For more information visit http://astrobiology.nasa.gov/