

## **Microbiologically Induced Corrosion.**

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**Purpose:** To explain how microorganism can induce failure in metallic structures.

This display will cover Microbiologically Induced Corrosion (MIC). MIC is caused by micro-organisms that actually consume steel (carbon or otherwise). During this consumption, the layers of the steel are virtually stripped away to nothing. The display will cover a case study of the failure of three API Grade L-80 couplings. The display will take an investigative look at the causes, solutions, and preventatives of MIC.

The case study involves the failure of three L-80 coupling and pipe connections. The couplings were considered new when put into service. They were supposed to have been coated plastically but were not. After several weeks of storage, the couplers were put into service. Upon the running of the tubing, it was reported that the couplers exhibited minor pitting. After samples were taken (cross-sections of tubing), the tubing was revealed to have possessed deep, terraced, round bottom pits. Many of the pits were larger in diameter below the surface than at surface level, therefore forming subsurface "caverns". This condition is consistent with MIC attack. The bacteria tend to tunnel into the steel in an effort to seek low oxygen levels. Finally, they are anaerobic and tend to leave large internal voids exposed to the surface by much smaller openings.

The display will cover all of the major details of this case with samples, pictures, Photomicrographs and a mini-report. My ultimate goal is for the average display viewer to comprehend why these micro-organisms are such a problem.