PROMOTER THAT ACCELERATES MICROBIOLOGICALLY INFLUENCED CORROSION

Technology Overview

Microbiologically Influenced Corrosion (MIC) is a major problem in the oil and gas industry and other industries such as water utility throughout the world. Currently, MIC is mitigated primarily using pigging and/or biocides that can be very expensive in large-scale applications. An improperly maintained pipeline may result in MIC pitting that leads to pinhole leaks costing billions of dollars in lost production, pipeline replacement and clean up.

The invention deals with the premise that promoters that are naturally secreted by some synergistic microbes in a biofilm community greatly accelerate MIC pitting due to sulfate reducing bacteria. This means that a corrosive biofilm in the presence of these promoters poses a much bigger problem. In addition to traditional testing of microbial cell counts, testing the presence of promoters helps identify a more realistic MIC pitting threat and this is needed for pipeline operators and others to determine mitigation strategies.

Potentials Fields of Use

The primary target industries for this invention would be the oil, gas, and water utility industries. In the United States alone, total estimated corrosion costs is around $276 billion per year and 20% of corrosion is often attributed to MIC.

Benefit Analysis

The proposed invention will have various advantages over the other methods used for treating MIC:

- The detection of these promoters provides a more accurate MIC assessment than conventional microbial cell counts. This leads to more effective and economical maintenance and mitigation schedules.
- Promoters can cut lab testing of MIC pitting by 50% or more.
- Inhibition of promoters is a new strategy for MIC mitigation.

Stage of Development

Correlation between presence of promoters and accelerated corrosion has already been established in laboratory testing. Assays for some promoters exist and some yet to be developed.

Future Development

The technology would require additional research and experimental validation before it becomes available for commercial use.

Licensing Opportunities

A patent application for this technology has been filed. Licensing opportunities are available.

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