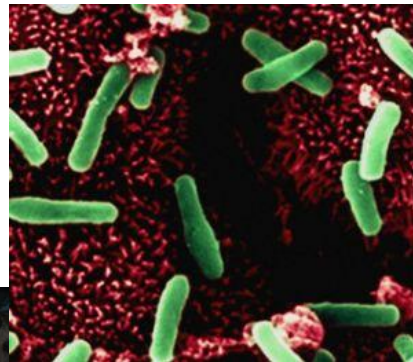
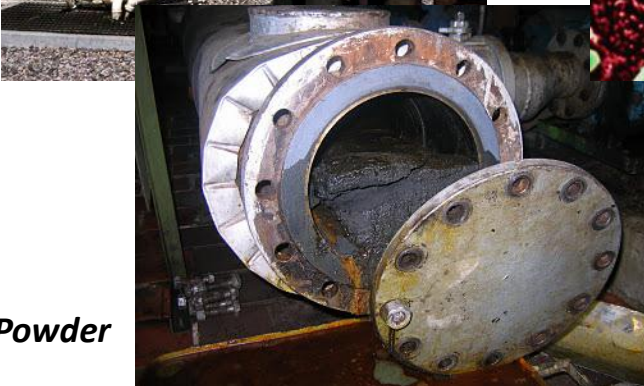
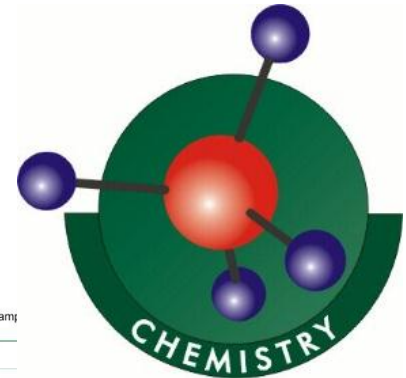




MIC Corrosion Tek, LLC introduces the patent pending MIC-Pig; a specialty pig which collects in-situ black powder and MIC bacterium from gas, liquid and solid phases within the pipeline length or sections of potential corrosion concern.



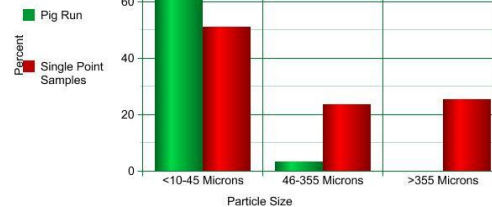
MIC Bacteria



Black Powder

Cleaning Pig vs. Average Particle Size of Single Point Sample

Data



Analysis



“Why was the MIC-Pig Created?”

MIC Corrosion Tek personnel has been involved in the analysis of MIC bacteria and Black Powder within the oil & gas and pipeline Industry for many years.

Over the years, data has been collected which illustrates that information received from analysis may be skewed by the way the sample was taken, especially within pipeline samples.

Information obtained from “Single Point” samples (valves, access points, etc.) differed from “End of run Pipeline Samples” (samples collected from receivers at end of pig runs) , in the same pipeline.

Data analysis indicated wide and scattered quantitative and qualitative results of corrosion by-product compounds and MIC Bacteria populations within the pipeline, resulting in skewed summations and recommendations for mitigation of Black Powder and corrosion abatement .

MIC Corrosion Tek concluded there has to be a way to collect MC bacteria and Black Powder that is homogeneous; representing the entire pipeline or section for correct mitigation and abatement , eliminating Black Powder Formation and controlling “pitting corrosion” caused by MIC bacteria.

The patent pending MIC-Pig was created to fulfill this need. . .



“How was the MIC-Pig Developed?”

MIC Corrosion Tek’s scientists asked themselves, “How can we develop a device which will collect Black Powder, corrosion by-products and MIC bacterium from gas, water, oil and Black Powder throughout an entire pipeline”?

Research was performed on previous art and technologies used within the petroleum and other industries , including pharmaceutical and material science disciplines.

The information collected allowed them to integrate and develop new technologies to selectively sample compounds and MIC bacteria within a pipeline pig.

Specific sterile “Pods” containing compounds to selectively sample from oil, water, gas and solids with an affinity to MIC bacterium were developed.

These pods are then inserted into a varying pore size matrix used to collect Black Powder within the MIC-Pig.

The MIC-Pig is then sent to MIC Corrosion Tek’s laboratory for analysis and report.



“What Type of Analysis is Performed?”

MIC Corrosion Tek provides analysis of many different variables to determine the causation and by-products of corrosive forces plus the presence of MIC bacterium:

MIC Bacterium Analysis (Gas, Oil, Water and Black Powder)

- **Most Probable Number (Population of SRB, APB, GHB and Slime Bacteria)**
- **DNA Analysis**

Black Powder Analysis

- **SEM (Scanning Electronic Microscope)**
- **EDS (Energy-dispersive X-ray spectroscopy)**
- **VFA (Volatile Fatty Acids)**
- **Protein**
- **Particle Size**
- **Density**
- **XRD (X-Ray Diffraction)**



All analysis or specific analyses may be ordered at your option



“Integration of Analytical Data”

Upon the completion of analysis, the data provides a wealth of information:

- What kinds of nutrients (food) are available for MIC bacterium?
- What is the population of dead and alive MIC bacterium?
- What phases (gas, liquids and solids) are the MIC bacterium transferred by?
- What are the corrosion by-products of the corrosion process?



With this information, we are able to ascertain the following:

- Chemical and microbiological corrosion mechanisms taking place.
- Extent of corrosion and erosion taking place.

Once we know the mechanisms of corrosion taking place, we can then design a custom monitoring and mitigation program for your specific pipeline. The MIC-Pig can then be used for monitoring the effectiveness of the program in place plus mitigation and abatement method adjustments may be made from the data received.



“Benefits of the MIC-Pig”

- The only way to sample a pipeline “in-situ” for MIC Bacterium and Black Powder
- The sterile MIC-Pig is capable of sampling a section of a pipeline at a time, to compare differences in MIC Bacterium and Black Powder presence within various sections
- The MIC-Pig samples gas and oil plus water phases for MIC Bacterium in addition to Black Powder
- The origin of Black Powder may be analyzed for source and chemical composition to determine cause of Black Powder formation
- You may custom choose the analysis you want when ordering
- May be ran during normal pigging by spearheading in front of pigs, pig trains and as a stand-alone
- Just “Run, Pack & Ship” (shipping free within USA and Canada) to MIC Corrosion Tek’s Laboratory for analysis and written report of conclusions issued within 21-days



“Frequently Asked Questions”

1. Question: Why does the MIC-Pig come only in a few relatively small sizes?

Answer: The MC-Pig is a different kind of pig with a different function from common pig functions. The MIC-Pig is not a cleaning pig or a gauge pig which requires diameters close to internal pipeline diameter to function well. The MIC-Pig is used as an in-situ sampling device for black powder and MIC bacterium as it travels through gas and oil pipelines. Exact diameter requirements are not necessary to perform this action.

2. Question: How is the MIC-Pig usually ran through a pipeline?

Answer: The MIC-Pig can be ran through a pipeline in three ways: As a stand-alone pig where the internal diameter of the pipeline is close to the diameter of the MIC-Pig; as a “spearhead” (in front of another pig) in your scheduled pig runs and in the middle of a pig train. Other ways are possible depending upon the velocity and conditions of your particular application and pipeline. Please contact MIC Corrosion’s technical help to discuss such options at Support@MIC-Tek.com .

3. Question: Why does the MIC-Pig have to be shipped back by FedEx 2-day or by International Priority shipping methods after sampling is complete?

Answer: Time is of the essence after the sampling procedure. To obtain an accurate “snapshot” of microbiological information and chemical compositions, the sample must be analyzed ASAP. Shipping by FedEx 2-day service is free with included prepaid shipment form for companies located in the USA and Canada. International Priority Shipping is preferred for international shipping.

Have a question about the MIC-Pig? Please submit it to us by emailing us at Support@MIC-Tek.com or calling us at +1303.587.3325 and we will respond ASAP.



***Thank You for Taking the Time Out of Your
Busy Day to Watch this Presentation!***



230 Fox Ridge Drive

St Charles, MO 63303 USA

Telephone: +1.303.587.3325

Email: Support@MIC-Tek.com

Website: <http://www.MIC-Tek.com>