

Oil and Gas Series - Chemical Injection Metering

In oil and gas exploration and production operations, gas hydrates are a serious economic and safety concern. Low seabed temperatures combined with high fluid pressures promote the formation of clathrates in reservoir hydrocarbon-water fluid mixtures. Clathrates are known to block pipelines, subsea transfer lines, and form in the well, in risers, BOP's (Blow-Out Preventers) and choke lines, impeding flow and interfering with the operation of pipeline equipment and instrumentation.

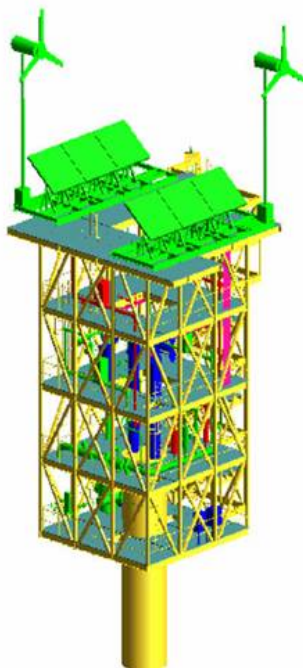


Another of the major problems experienced in the oil production industry is the formation of mineral scale. Scale is deposited both downhole within an oil reservoir and topside, throughout produced water systems. Downhole, scale formation causes damage by creating restriction and blockage within the rock matrix. In production equipment, it builds up in vessels, causes blockage in piping and interferes with plant operations, all of which have a detrimental effect on productivity and profitability. Typical examples of inorganic scales are insoluble barium/strontium/calcium sulphates and calcium/magnesium carbonates.

Corrosion issues, both short term and long term, are costly to plant operations and at their worst, can be dangerous to personnel and devastating to the environment. Replacing corroded components is a time consuming process, often requiring plant shutdown with a subsequent loss of productivity.



In many cases and particularly where unmanned installations are in operation, the formation of gas hydrates, scaling and the onset of corrosion is prevented by chemical injection. Chemical cocktails such as MEG/KHI/CI* are continuously streamed into process lines and delivered downhole where they act to prevent impact upon plant and productivity. Flow rate for chemical addition is low, typically in the 5 to 50 USGPH range, but these chemicals must be delivered consistently at an optimum rate if they are to give the most benefit.



Chemical overdosing is costly and depletes chemical stocks offshore rapidly while underdosing can create expensive maintenance issues. The only way to ensure that chemicals are being added at the correct rate is to have live flow measurement, and high accuracy, reliability and low maintenance overhead for this flow measurement are of the utmost importance.

Rheonik mass flow meters are ideal for chemical injection applications and are trusted in installations around the world with:

- The Highest Pressure Ratings Available
- Low Flow Capabilities with High Accuracy and Wide Turndown
- Wide Choice of Wetted/Environmental Materials
- Exceptional Durability in Harsh Environments
- Low Maintenance Requirements
- Extensive Range of Process Fittings

*KHI - Kinetic Hydrate Inhibitor, MEG - Monoethylene Glycol, CI - Corrosion Inhibitor

