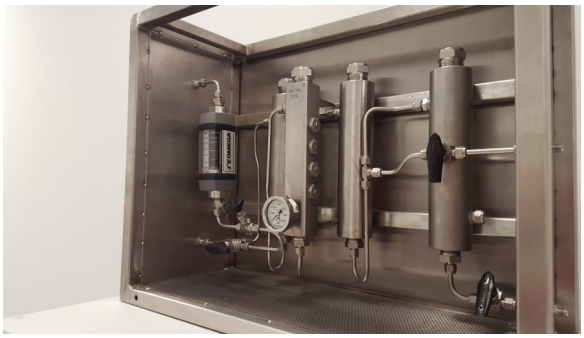
Field Application — Multifunction & Bio-Sidestreams

PMAC provide a comprehensive range of purpose built equipment and instrumentation for field-testing and measurement of oilfield chemistry issues. Having the ability to pre-empt or evaluate ever-changing production scenarios is important in supporting a quality flow assurance system within any Integrity Management Programme. PMAC instrumentation and know-how allows for sound proactive decision-making based on good test results. Although inline analysers and probes are an ideal source of sand and corrosion monitoring (where they are available), no such single tool is ready for either scale, wax or asphaltene control. These are therefore high risk / high cost prevention areas.

PMAC provide a range of sidestream systems that are small enough to be portable, yet robust enough for the rigors of oilfield environments. These can be simple "stand-alone" systems or included in a multi-functional sidestream. Whether evaluation of corrosion, scale, wax or asphaltene potentials; to chemical inhibitor evaluation and optimisation; to SAG testing of drilling mud's PMAC can provide you with the appropriate capabilities based on sound industry practices and in-house expertise. Transferring our experience from our laboratory instrumentation to Field applications PMAC provide high quality, easy to operate systems have been proved to be invaluable to oilfield operations and managers.



The Field Corrosion Sidestream is designed for dynamic measurement of corrosion rates under flowing conditions, in the absence of online facilities. The standard systems typically operate at pressures of either 100 or 330 bar although a low-pressure system is available in polycarbonate.

The HP systems are typically manufactured in a stainless steel frame or carrying case incorporating between 2-4 test cells, a flow indicator and integral system control valves. Cells are machined to accept either ½ or ¾" NPT probes. Optional chemical dosing pump can be fitted to allow for Field evaluation of inhibitors. Corrosion monitoring is via a portable logger, the choice is up to the user: e.g. Europcorr Dual LPR/ER Maxicorr logger , ACM Field recorder, Cormon LPR or ER probes and logger (or a combination).

The sidestream is ideal for determination/ measurement of corrosion rates, the evaluation of the efficiency of corrosion inhibitors in the field or process plant where intrusive equipment cannot be installed.

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Flow Assurance Specialists

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COMBINED FIELD CORROSION SIDESTREAM

FOR DYNAMIC EVALUATION OF CORROSION INHIBITOR

The Combined Field Corrosion Sidestream and chemical injection system is designed for testing corrosion inhibitors under flowing conditions. The system can operate at pressures up to 1500 psi . Higher Pressure versions are available on request. The Combined Field Corrosion Sidestream system consists of a stainless steel case incorporating three corrosion cells, a flow meter and integral system control valves and a Williams ™pump for chemical dosing. Built into a transport box for easy handling.

Chemical Injection

A high pressure low flow air driven WILLIAMS™ chemical pump is used to inject inhibitor into the system to permit treated and untreated fluids to be monitored. The inlet flow is controlled using a needle valve and the outlet pressure is adjusted by a further needle valve in conjunction with a 0-1000 psi pressure gauge

Corrosion Monitoring

A portable logger such as the ACM Instruments LPR monitor (Pocket Machine™) or Cormon LPR/ER or EN probe monitor from Integriti Solutions can be used with this sidestream to evaluate protection against pitting. Alternatively probes can be wired for other monitors if required.

Applications

For the evaluation of Corrosion Inhibitors in the field or process plant. The measurement of corrosion rates where intrusive equipment cannot be installed.

Description

- Combined corrosion sidestream chemical Injection system, for dynamic evaluation of corrosion inhibitor in the field, at pressure.
- Transit Case. (1) 70x40x55 cm. (Systems can be designed with only two cells for monitoring purposes if required) Containing combined cells & chemical injection system in a stainless steel frame.
- Cells (High Pressure). Machined from solid stainless steel bar stock to accept 1" NPT two-electrode LPR probes. Three cells are provided for EN measurement, one upstream cell to test uninhibited brines and two downstream cells to test inhibited brine.
- Chemical Injection System. The inhibitor is injected before the downstream pair of cells using a chemical pump into a mixing TEE. The flowrate is monitored using a 0 to 20 litre per minute GAP type flow meter at the outlet from the unit.
- Pump: Williams ™ CP125V125B-TG, Flow Rate .0015-.275 litres/ hour. Max. Temp. 82°C
- Electrochemical Monitoring System. ACM Instruments LPR , Pocket Instrument and LPR probes, Supplied with 100 Spare electrodes. Electronic Noise probes available as an optional extra.

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The PMAC Bio-Sidestream

The management of Microbiological contamination in water handling systems is of vital importance in any protective maintenance program. The more efficient the analytical procedures you have in place, the more effective the corrective action you can take. Which is where the PMAC Bio-Sidestream, low pressure Acetyl models, rated to 300 psi or the high pressure stainless steel or titanium model (standard rated to 3500 psi working pressure). The standard design typically holds 24 biostuds for the analysis of sessile microbiological contamination in water injection or produced water handling systems. It can be mounted vertically or horizontally and it is attached to the operating system directly from a standard sample point. In addition the outer valve may be simply run to a drain or looped back into the system.

The high pressure sidestream, manufactured in 316 stainless steel or titanium for maximum corrosion resistance, has no welded parts and can therefore be used in sour process pipework without requiring any weld certification. This biofilm monitoring methodology complies with the recommended practices of both NACE (National Association of Corrosion Engineers) and ICorr (the Institute of Corrosion). Once installed the Sidestream is easy to use and maintain. The water flow rate is set and the continuous monitoring commences immediately; once a pre-determined flow or time lapse has been reached, through a series of valves isolates the system from the sidestream; a biostud holder can be removed and replaced as necessary. Analysis of the biostud is easily carried out using standard kits. Subsequently any necessary treatments can be introduced, overall proving an effective microbiological management of water systems.

<u>The PMAC Multi-tasking Sidestream</u>

Utilises multiple flow through cells in series, allowing for the user to monitor for corrosion rates (LPR and or ER) in addition to Biocide efficacy; PMAC have also adapted this sidestream to offer mini-weight-loss corrosion coupons, offering longitudinal studies in parallel with the Bio-cide monitoring. The PMAC Multi-tasking Sidestream is a cost effective technique enabling greater Process Measurement And Control in a single system; when fitted with injection ports allows for chemical optimisation (MIC) trials.

Please contact us with your specifications as various combinations of material, pressure rating, number of coupons and combi-nations of task are available.

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