

ROUGE MONITORING SYSTEM

ROUGE MONITORING SYSTEM FOR ULTRAPURE WATER SYSTEMS

The Rouge Monitor was designed to improve facility operations in ultrapure water systems, by enabling the user to directly monitor the rouging rate and assist in determining when a re-passivation is required to prevent unacceptable levels of contaminants in the water.

Rouge is prevalent in the Biotech, Pharmaceutical, and Semiconductor industries because most of their systems are made up of stainless steel, typically 316/316L grade and the operating temperature is high. Rouge normally builds up on the interior surfaces of high purity water distillation units, storage tanks, distribution systems, and process vessels. Many drug manufacturers are concerned about the particulate matter from build-up contaminating their products and sterile systems. An effective way to deal with

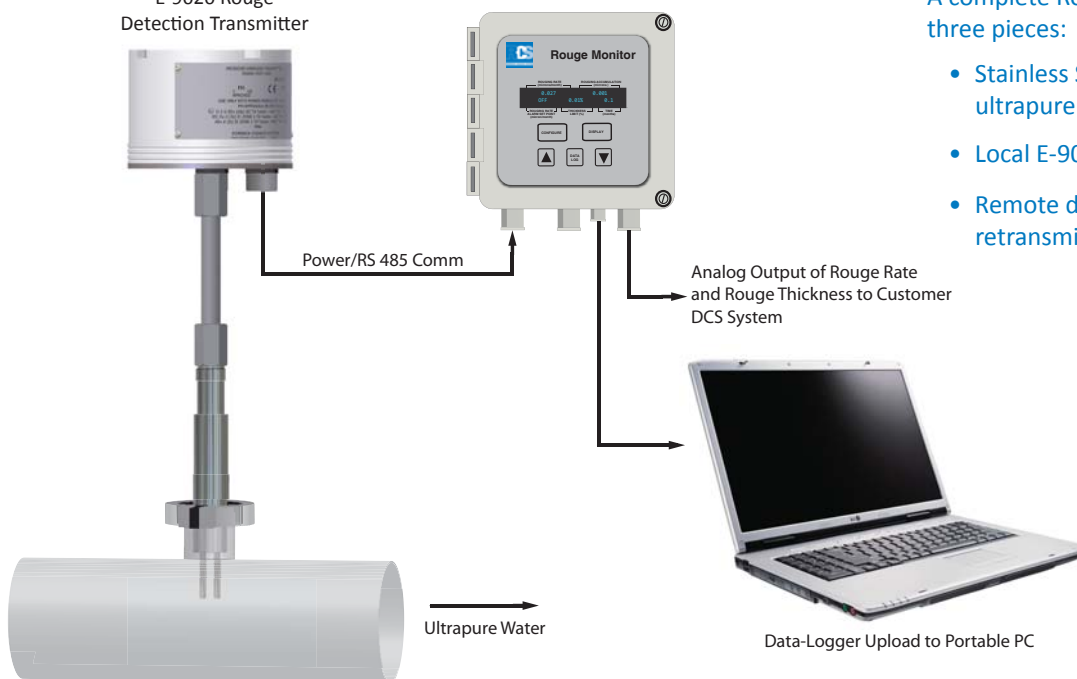
this problem is to monitor the rouging (corrosion) rate on-line in case of process upsets to prevent contamination. The patented Solution Resistance Compensation (SRC) incorporated in our electrochemical measurement technology enables very low corrosion rates to be measured accurately in the high resistivity of ultrapure water.

Downtime Costs Reduced by Planned Re-passivation Schedules



Rouge Monitor with Stainless Steel Probe

E-9020 Rouge
Detection Transmitter



A complete Rouge Monitoring System consists of three pieces:

- Stainless Steel Probe that is inserted into the ultrapure process stream
- Local E-9020 Rouge Detection Transmitter
- Remote display control, data-logging and retransmission unit

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FEATURES AND BENEFITS

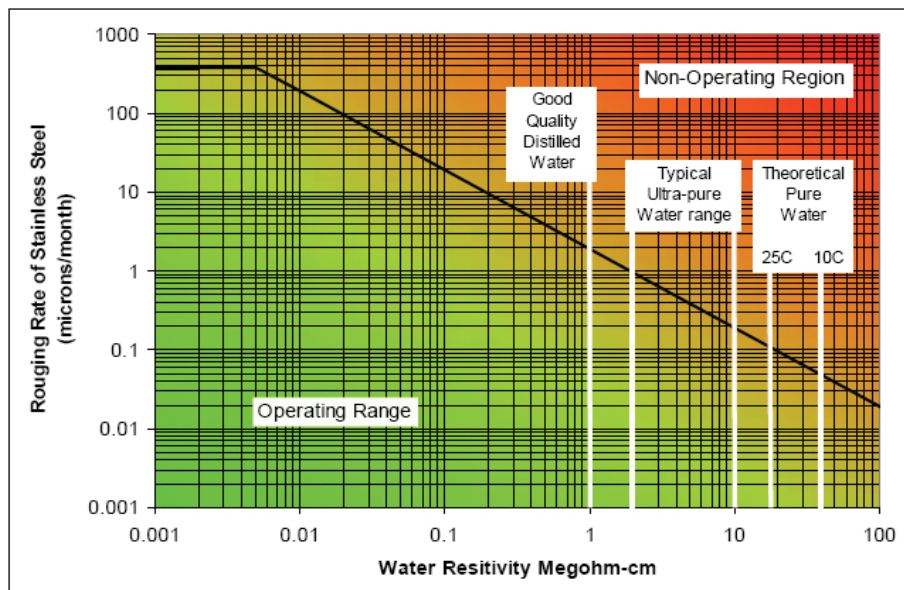
The Rouge Monitoring System offers the following features and benefits:

- Downtime costs reduced by planned re-passivation schedules
- Alarm for abnormal water quality and process changes
- Instantaneous rouging rate in units of microns/month
- Accumulated rouge thickness in microns
- Easy data transfer from the display control/data-logging/retransmission unit to PC
- 316L Stainless Steel Construction

The Rouge Monitor provides a low cost method of measuring the rouging rate through a very sensitive electrochemical measurement method based on a special version of the RCS CORRATER® range of instruments specifically designed for these very low conductivity waters.

OPERATING RANGE

The following graph shows the range of operation of the rouge monitor. The lower left side of the graph is the recommended operating range. The upper right of the graph is the non-operating region. The operating limit shown on the graph is based on a nominal maximum error of 20% in the rouging rate. The error reduced rapidly further to the lower left of the line, and increases rapidly above and to the right of the line.



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