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Deposition Watch

Case Study / Calcium Carbonate Scaling

Deposition Watch is a non-nuclear solution for monitoring of deposition buildup, such as waxes, scales and sands, and slug flow inside industrial process pipes. Integrate the system into plant automation to maintain an optimal level of antiscalant chemicals and to optimize pipe pigging cycle.

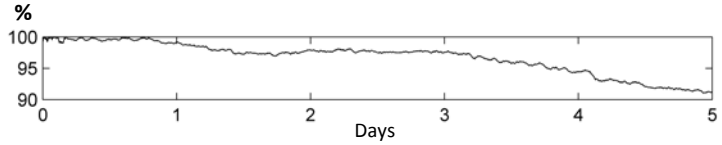
Scaling Measurement in a Finnish Chemical Plant

A Finnish chemical plant has a problem with calcium carbonate scaling in a process pipe. Current measurement systems have been unable to accurately monitor the scale formation online. Deposition Watch was installed into the pipe to measure scaling (the upper picture on the right). In order to verify functionality of the measurement, the state of pipe deposition was checked during a maintenance break (the picture below on the right).

The results below demonstrate that Deposition Watch is able to image and measure calcium carbonate scaling formation in a process pipe. The tomographic cross-section images below represent the thickening of scaling (red circle gets thicker) and the density of scaling (the circles gets more red). Pipe free volume index is sent to the plant automation system.

Pipe cross-section image

Free volume index [%]



Let Us Find a Solution for You!

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Technical Data

PIPE SENSOR	
Pipe sensor sizes	Standard sizes: DN50 (2”) - Length 150 mm (5,9”) - Weight ~15 kg (~33 lbs.)* DN100 (4”): - Length 150 mm (5,9”) - Weight ~22 kg (~49 lbs.)* DN150 (6”): - Length 220 mm (8,7”) - Weight ~48 kg (~106 lbs.)* DN200 (8”): - Length 220 mm (8,7”) - Weight ~55 kg (~121 lbs.)* Other sizes on request. *Weight of a non-ATEX stainless steel pipe sensor.
Pipe sensor materials	Sensor body and electrodes: Stainless Steel or Titanium Gaskets: PEEK Other materials on request.
Maximum pressure	Standard model: 16 bar | High pressure model: 100 bar | Extra high pressure model: 390 bar (Maximum pressure might vary depending on the pipe size)
IP-classification	Standard: IP54 | Superior: IP65
DATA CABINET & ATEX POWER CABINET	
Data cabinet size	300 x 400 x 210 mm - ~21 kg (11,8“ x 15,7“ x 8,3“ - ~46 lbs.)
Power cabinet size (only in ATEX)	380 x 430 x 210 mm - ~18 kg (15,0” x 16,9” x 8,3” - ~40 lbs.)
Sensor-cabinet connection	Data cabinet: Bus cable, isolated RS485, maximum length 100 m (328 ft.) Power cabinet (only in ATEX): Cable, maximum length 50 m (164 ft.)
Remote control	3G/4G (LTE), Ethernet. Other connections on request.
IP-classification	IP65
Power consumption	<80W (DN50/2”)
COMMUNICATION INTERFACES AND MEASUREMENT	
AC power input	100-240VAC ~ 50/60 Hz
Process control connections	mA-message (0..20 mA and 4..20 mA), Modbus/TCP
PROCESS CONDITIONS	
Process temperature range	Standard model: 0 - +90 °C (+32 - +194 °F) | High temperature model: 0 - +200 °C (+32 - +392 °F) | Extra high temperature model: 0 - +400 °C (+32 - +752 °F)
Environment temperature range	-20 - +60 °C (-4- +140 °F) NOTE: Additional cooling is needed for the cabinet in above 40 °C (104 °F) temperatures (the effect of the sun or other possible heat radiation sources must be taken into account).

Rocsole is a leading provider of tomography technology for industrial processes. Established in 2012, and venture-backed by Repsol, the company serves some of the largest oil and gas companies in the world, along with other heavy industries. Rocsole’s key assets include tomographic process imaging expertise, fluent development of solutions in cooperation with the client, and an innovative and progressive staff.

Read more at www.rocsole.com

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