

Micro Motion density meter simplifies aggressive ceramic slurry concentration measurement

BENEFITS

- Dramatically reduced maintenance costs
- Simple replacement and installation with an easy-to-clean density device
- Continuous and reliable density data
- Organization no longer requires a Radiation Officer



APPLICATION

A leading ceramic manufacturer uses the zirconium opacifier in the ceramic industry to give porcelain items their bright white color. During its manufacture, it is critical the density of the zirconium opacifier fluid is monitored.

CHALLENGE

Nuclear densitometers were being used in this application to continuously monitor and control the density of zirconium opacifier fluid. However, these devices were at the end of their life cycle and their measurements were beginning to drift, which meant the devices required constant recalibration. This high level of maintenance resulted in significant cost to the operation. While nuclear densitometers are tolerant of entrained solids and gas, and are non-contacting, their replacement is costly. In addition, the use of a radioactive source requires permitting and traceability documentation, regular monitoring and robust emergency procedures. When the existing Radiation Officer left the organization, the company was faced with either training someone to take over the responsibility for these aging units, or to look for an alternative type of measurement device.

An existing 1" recirculation line presented the ideal position to install a replacement device. It allowed flow rates to be kept in the 6-10 feet per second range, critical to limit erosion because the opacifier can be abrasive if moved too fast. However, a contacting measurement device would still need to be able to withstand the long-term abrasive effects of the opacifier, and be very easy to clean to prevent any build up.

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SOLUTION

Following a review of alternative devices and technologies, the company selected Emerson's Micro Motion 7845 straight tube density and concentration meter. This high performance, general purpose device is ideal for this application because it is a single straight tube device, and also very easy to clean and maintain. An added benefit was that the 7845 with DN25 flange fit perfectly without having to reconfigure the pipework. Since being installed, the 7845 has provided extremely reliable and accurate measurement results. Based on this outstanding performance, the company has purchased an additional unit for a second production line.

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