

FGD SLURRY DENSITY MEASUREMENT

Ronan Measurements Division supplies the process control industry with leading-edge Radiometric Measurement Systems that provide non-contact measurement solutions for the harshest environments.

DENSITY MEASUREMENT SYSTEM

Application

A by-product of the burning of pulverized coal in electric power plants is sulfur dioxide (SO_2) gas. To comply with the 1990 Clean Air Act, many plants have installed wet scrubber Flue Gas Desulfurization (FGD) systems to reduce their SO_2 emissions. Due to its low-cost and availability, limestone is the most extensively used reagent. The limestone slurry reacts with the flue gas in the absorber, removing the SO_2 . The limestone in the slurry is converted into calcium sulfite, air is then introduced and oxidizes the sulfite into calcium sulfate which is then filtered and dewatered. This waste material is then either disposed of in ponds, landfills or sold as ingredients in the manufacturing of gypsum wallboard, cement or used as a fertilizer additive.

Problem

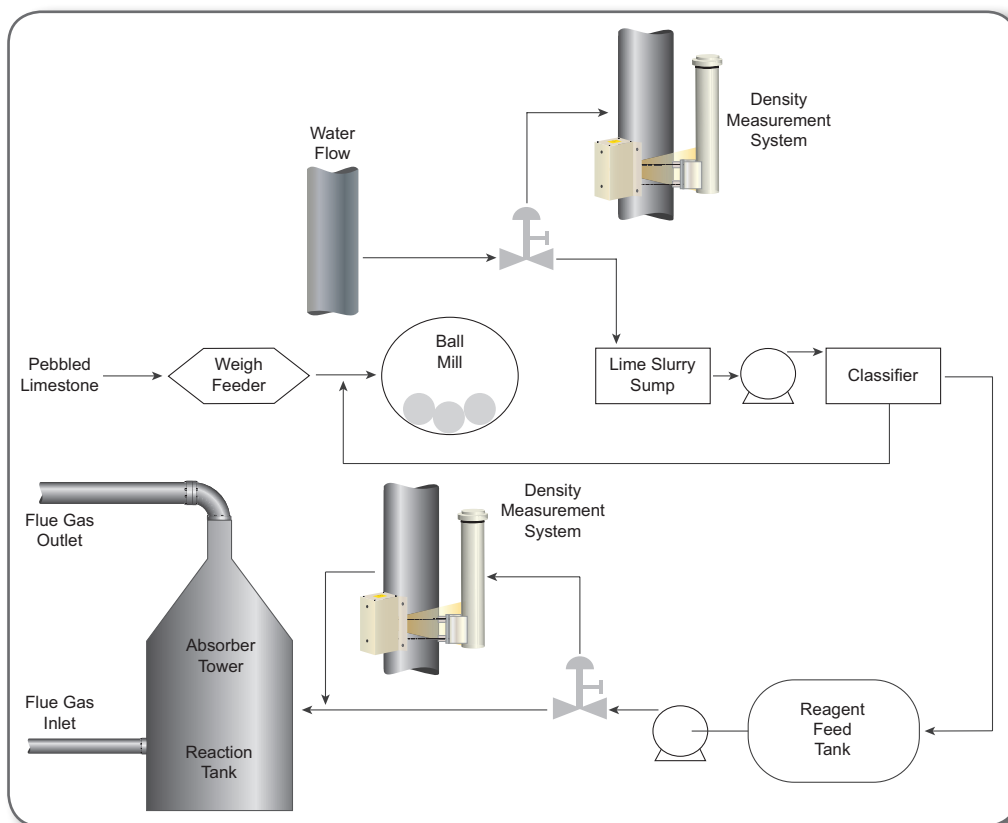
Controlling the density of the slurries before and after the scrubbing process is critical. Limestone slurry is very abrasive and has a caustic pH, making density measurement with in-line gages very difficult and expensive.

Solution

Ronan non-contact gamma density gauges mount externally to the pipe and are therefore immune to the abrasive solids and caustic chemicals present in the slurries. This results in low maintenance and less cost as exotic materials are not required. Accuracy of Ronan gauges is high as density is directly measured as a mass in a given volume, not inferred as with other volumetric technologies, which are prone to errors due to varying process variables. No sampling of the slurry is required, eliminating the need for bypass piping.

Summary

Radiometric Measurement provides accurate and reliable solution to measure slurry density, with low cost of ownership. Ronan expert engineers work directly with process engineers to customize a system to meet your needs.



DENSITY MEASUREMENT SYSTEM

RLL Low-Level Source

Ronan is the only manufacturer to offer the revolutionary Radiation Low-Level (RLL) Source Holder. The RLL uses up to 100 times less gamma energy than comparable gauges, and is the only source holder recognized by the NRC to be so safe that it does not require the stringent documentation, training or handling procedures of other systems. The gauge can be relocated by your personnel, without a licensed person present.

Other features of the RLL:

- Source lasts as long as standard installation
- Generally licensed device, reduces paperwork and cost
- Does not require wipe testing, saving you time and money
- Does not require on-off shutter checks, or radiation surveys
- No RSO, radiation training or factory assistance is required to install or move devices



Scintillation Detector

Ronan pioneered the use of solid crystal scintillation detectors more than 20 years ago, and now has an installed base in the thousands across a wide variety of applications worldwide. Ronan employs two types of crystals, Scintillating Plastic Crystals for standard applications and Sodium Iodide scintillating crystals for ultra low-level fields. Scintillation Detectors provide efficient detection, enabling the use of lower-level sources. Ion Chamber detectors are also available for extremely high vibration applications.



X96S Radiometric Transmitter

The X96S Radiometric Transmitter features the fastest processor in the industry. The modular design allows for low cost expansion of outputs and measurement variables. Calibration and configuration is in a simplified format and can be achieved locally through push buttons, by using the liquid crystal graphic display, or remotely through industry standard protocols. The X96S is compatible with all models of Ronan detectors.

Other features of the X96S:

- 4 – 20 outputs with HART
 - Mass Flow
 - Percent Solids
 - Volumetric Flow
- Local and/or remote eight line display
- Flexible, modular design permits customization
- State of the art dynamic filtering
- Isolated digital and analog I/O, software settable
- NEMA-4, 4X enclosure or rack-mount chassis

