

Analyser offers superior gas and dust measurement

Industrial solutions provider Rand Technical Services (RTS) now offers a reliable and maintenance-free method of measuring gas emissions in the reheating furnace and the continuous annealing process.

It points out that this is something that steel manufacturer ArcelorMittal South Africa is keen on adopting.

RTS is the sole Southern African supplier of gas and dust analysis company Neo Monitors' tunable diode laser (TDL) gas analyser, named LaserGas.

Mittal approached RTS in the hope that the LaserGas would be able to resolve a problem it was encountering with its existing gas analysis monitors on the furnace flues.

This is an area subjected to extremely high temperatures and, until now, Mittal had been unable to find an instrument that could withstand the heat, while simultaneously providing

accurate measurements.

"Many instruments depend on probes that are mounted in the gas stream, which exposes them to high temperatures and dust contamination, resulting in faulty readings," says RTS MD **Ian Fraser**.

Another strategy tried by Mittal was pumping the gas out of the flue through a sampling system. However, this also proved troublesome and unreliable.

"Mittal clearly required a system that was reliable and had low maintenance requirements," says Fraser.

RTS proposed the installation of a LaserGas, which transmits a laser beam through the gas to a receiver with a sensitive detector that detects absorption of the signal at the critical frequency and measures the amount of gas present as a percentage value.

Depending on the type of gas being measured, oxygen, for example, the LaserGas can detect concentrations as

low as 100 parts per million.

Laser beams are effectively parallel and there is very little spread up to ranges of 20 m and more. Neo Monitor offers extremely accurate measurements, even when gas concentrations are low.

The LaserGas can transmit readings accurately in ambient temperatures of up to 1 500 °C. The industrial design and the built-in purging facilities make the gas analyser easy to maintain.

There are no moving parts in the instruments and maintenance involves visual inspection and cleaning of the windows, together with yearly calibration checks.

"This was a challenging installation owing to the area in which the monitor had to be placed. Characterised by confined spaces and high temperature levels, the installation environment is very demanding but the client was so pleased with the performance of the monitor, that they are now considering a second instrument," says Fraser.

The use of probeless technology means that Mittal is guaranteed a faster return on investment and accuracy of measurement over extended periods, he adds.