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Research on Development and Accuracy Improvement of an Explosion Proof Combustible Gas Leak Detector Using an IR Sensor

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Abstract : In this paper, we presented not only development technology of an explosion proof type and portable combustible gas leak detector but also algorithm to improve accuracy for measuring gas concentrations. The presented techniques are to apply the flame-proof enclosure and intrinsic safe explosion proof to an infrared gas leak detector at first in Korea and to improve accuracy using linearization recursion equation and Lagrange interpolation polynomial. Together, we tested sensor characteristics and calibrated suitable input gases and output voltages. Then, we advanced the performances of combustible gaseous detectors through reflecting demands of gas safety management fields. To check performances of two company's detectors, we achieved the measurement tests with eight standard gases made by Korea Gas Safety Corporation. We demonstrated our instruments better in detecting accuracy other than detectors through experimental results.

Keywords : accuracy improvement, IR gas sensor, gas leak, detector
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