

# **LEAK RATE AND LOCATION ANALYSIS THROUGH SLITS AND CRACKS IN PIPES BY NANO POROUS CERAMIC HUMIDITY SENSORS**

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**Abstract:** Nano porous sol gel thin film humidity sensor was studied using commercially available reference humidity sensor from Honeywell Corporation. The main advantages of our developed set up for humidity measurements is low cost and high resolution yielding a full set of information on the variation of humidity at 250°C. Humidity is considered to be one of the most effective indicators of the leakage. On this ground we developed nano porous sensor which can be used for LBB (Leak before break) application. The ceramic sensors, based on sol gel thin film are shown to increase its capacitance upon water adsorption over the temperature range upto 250°C. The variation of capacity to voltage is shown to provide useful information on both break rate and location. The sensor installation spacing on the outer surface of the piping is determined as a function of the detection sensitivity. In this paper we have summarize the results of the development and characterization of ceramic humidity sensor for leak rate and location analysis by a microcontroller device.