

Laboratory Tests and Field Use of High-Temperature Strain Gages

J.K. Hayes, Combustion Engineering Co., Inc.

Extensive laboratory tests of Aitech weldable strain gages for both static and dynamic applications for temperatures ranging to 1500°F are described. The limitations of these gages are discussed. Field work in which strain gages were installed on two fossil boilers is described as well.

5. Other Extreme Environments

Chairman: G. Brown, Princeton University

On-Line Structural-Integrity Measurements in Nuclear-Generating Stations

M.T. Flaman, Ontario Hydro Research

Structural-integrity problems in nuclear-generating-station equipment can often be unexpected and extremely urgent. One of the best methods of investigating and solving such problems is by direct on-line measurement of the affected component, based upon such parameters as stress, strain, displacement and flaw/crack growth. Several examples of past and ongoing nuclear-plant measurement programs at Ontario Hydro are described and discussed.

6. General Session

Chairman: S.K. Foss, Deere & Company

Sheath and Sensor Assembly Performance at 1550°C

T. Hynes and G.G. Bryant, U.S. Army Materials & Mechanics Research Center

Studies performed to select appropriate candidate materials for development of thermal-sensor protective sheaths for liquid-steel processing systems are described. Industrial tests in continuous casting tundishes on a prototype boron-nitride sensor-sheath system at $1550 \pm 40^\circ\text{C}$ for five hours, beginning with cold immersion, demonstrated continuous measurement capability and high survivability.

Variation in the Elastic Constants of a Nickel-Based Super-alloy René N4 to 1298 K

D.P. Dandekar, U.S. Army Materials & Mechanics Research Center

The resonant-beam method has been used to determine both Young's modulus and the shear modulus of René N4 to 1298 K in air. The variations in these moduli of René N4 were determined by performing four independent experimental runs. The results of these experiments show that the values of Young's modulus and the shear modulus of René N4 decrease to 0.72 and 0.65 of their respective room-temperature values at 1298 K.

Registration

To register for the conference, contact SEM at 14 Fairfield Drive, Brookfield Center, CT 06805; (203) 775-6373.

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