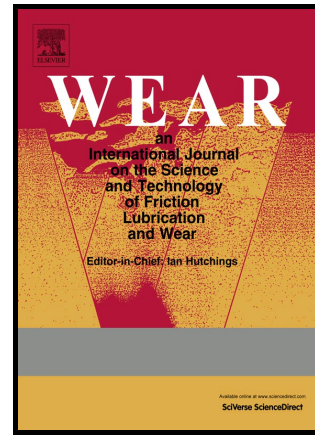


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Electrical Resistance probe measurements of solid particle erosion in multiphase annular flow

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Abstract

Oil and gas production and transportation facilities have the potential of catastrophic explosions, fire and release of toxic gases due to erosion failures which may lead to loss of lives and properties. Repairs of such a complex system can be very expensive and troublesome. Therefore, control of erosion is a subject of paramount interest in the oil and gas production/transportation industry.

Reliable erosion monitoring of the process piping and equipment is required to assess the erosion status of these components. Electrical Resistance (ER) probes are used to determine general metal loss rates which could be a result of erosion and/or corrosion. These probes are able to measure for short term erosion or corrosion rate changes by measuring the change in electrical resistance of the probe element. This study focused on collecting experimental erosion data in a large-scale multiphase flow loop with a 76.2 mm (3 inch) standard elbow using ER probes under particle-laden annular flow conditions.

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