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**Pure gold dissolution with hydrogen peroxide as the oxidizer in HBr or HI solution**

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**ABSTRACT**

The pure gold dissolution has been explored for H<sub>2</sub>O<sub>2</sub> as the oxidizer in the presence of HBr or HI at 35 °C and, as the reference, for the dilute HNO<sub>3</sub> system containing NaCl. It has been found that 0.02 – 0.2 mol dm<sup>-3</sup> H<sub>2</sub>O<sub>2</sub> solutions with 0.2 – 2.0 mol dm<sup>-3</sup> HBr have provided effective media for dissolution of pure gold-wire (99.95 %, 0.25 mm diameter, *ca.* 20 mg) in a 20 mL reaction vessel: the dissolution rate constant, log (*k*/s<sup>-1</sup>), has increased from -6.17 to -3.33 with increasing concentrations of H<sub>2</sub>O<sub>2</sub> and HBr. The influences of “indifferent” salts or supporting electrolytes, LiClO<sub>4</sub>, NaClO<sub>4</sub>, or Mg(ClO<sub>4</sub>)<sub>2</sub> on the log (*k*/s<sup>-1</sup>) value have been very small. Contrastingly, the log (*k*/s<sup>-1</sup>) value of -4.22

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