

## THE RATE OF OXIDATION OF ARSENIOUS ACID BY CHROMIC ACID.

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The following measurements together with those on the rate of oxidation of iodide by chromic acid<sup>1</sup> constitute a necessary preliminary investigation to the study of the rates of the reactions in solutions containing arsenious acid, iodide, bichromate and sulphuric acid.<sup>2</sup>

In all of these experiments the concentration of the arsenious acid was small and the sulphuric acid and potassium bichromate concentrations relatively large, so that the results might be directly comparable with the measurements in which iodide was present. It was consequently possible to consider the concentrations of the sulphuric acid and bichromate as constant in the experiments of each table.

### Method of Experimenting

A supply of distilled water and dilute solutions of potassium bichromate, sulphuric acid and arsenious acid were kept at 0° C in a thermostat. The bichromate and sulphuric acid and some of the water were measured into a beaker clamped down in the bath; the arsenious acid mixed with the rest of the water necessary to make up the required total volume, was thrown into the beaker from a large test-tube, the reacting mixture violently stirred and the time noted. To stop the reaction a quantity of ammonium bicarbonate solution more than sufficient to neutralize the acid present was added to the beaker and the contents were thoroughly stirred. The residual arsenious acid was then determined by titration with volumetric iodine and arsenious acid.

### Solutions Employed

The following stock solutions were prepared:

*Potassium Bichromate*,  $K_2Cr_2O_7$ , 0.1 F, or 0.6 N, prepared

<sup>1</sup> De Lury: Jour. Phys. Chem., 7, 239 (1903).

<sup>2</sup> *Ibid.*, immediately following the present paper.