

side (50 mg) in 0.5 M sulphuric acid at 90° for 40 min. It was characterised as described in the text. Further the pentaacetate obtained after borohydride reduction and acetylation was shown to be indistinguishable from an authentic sample of 4-O-methyl-D-glucitol pentaacetate by paper chromatography using dimethyl sulphoxide as stationary phase and light petroleum as irrigant.¹¹

The author wishes to thank Professor Bengt Lindberg for his interest in this work.

1. Theander, O. *Acta Chem. Scand.* **12** (1958) 1897.
2. Edward, J. T. *Chem. Ind. (London)* **1955** 1102.
3. Timell, T. E. *Can. J. Chem.* **42** (1964) 1456.
4. Foster, A. B. *Advan. Carbohydrate Chem.* **12** (1957) 81.
5. Garegg, P. J. and Lindberg, B. *Acta Chem. Scand.* **15** (1961) 1913.
6. Marchessault, R. H. and Rånby, B. G. *Svensk Papperstid.* **62** (1959) 230; *J. Polymer Sci.* **36** (1959) 561.
7. Johansson, I., Lindberg, B. and Theander, O. *Acta Chem. Scand.* **17** (1963) 2019.
8. Assarsson, A. and Theander, O. *Acta Chem. Scand.* **12** (1958) 1507.
9. Assarsson, A. and Theander, O. *Acta Chem. Scand.* **18** (1964) 727.
10. Theander, O. *Acta Chem. Scand.* **17** (1963) 1751.
11. Wickberg, B. *Acta Chem. Scand.* **12** (1958) 615.

Received April 8, 1964.

Oxidation of Azide Ions by Hydrogen Peroxide

NIELS HOFMAN-BANG

Chemistry, Department A, Technical University of Denmark, Copenhagen, Denmark

During an analytical investigation the question arose whether hydrogen peroxide does react with azide ions at a pH about 9, or is only catalytically decomposed. Riegger¹ has shown that an aqueous solution of free hydrazoic acid is not oxidized by 3 % hydrogen peroxide solution. The work of Turrentine² is that usually quoted in connection with azide ions and hydrogen peroxide in basic solution. He could not detect any oxidation of azide ions, but his estimations of these were colorimetric (ferric azide) and he does not give any analytical results.

The question has been dealt with in the following way. Equal volumes of 0.1 M sodium azide and 0.1 M hydrogen peroxide solutions were mixed and the gas evolved collected over water. The solutions were made from deaerated water. The gas was analysed according to the method of Christiansen and Wulff.³ Two different experiments carried out at room temperature (20–22°C) gave the results: 94.3 % oxygen and 5.7 % nitrogen, and 94.1 % oxygen and 5.9 % nitrogen.

Evidently most of the hydrogen peroxide is just catalytically decomposed, while a minor quantity oxidizes azide ions with formation of nitrogen gas.

1. Riegger, H. E. *J. Am. Chem. Soc.* **33** (1911) 1569.
2. Turrentine, J. W. *J. Am. Chem. Soc.* **37** (1915) 1105.
3. Christiansen, J. A. and Wulff, I. *Kgl. Danske Videnskab. Selskab, Mat.-Fys. Medd.* **22** (1945) No. 4.

Received May 4, 1964.