

too rapid stream of dry chlorine led in. The red lead, 120 g. (dried at 150° for one to two hours) is introduced in five approximately equal portions, each addition being delayed until the color due to the previous portion has faded. The temperature is held at 65–80° throughout the reaction; higher temperatures decrease the yield. The reaction is complete in sixty to ninety minutes. The hot decolorized suspension is decanted promptly through a preheated filter. This filtrate, on cooling, will deposit about 65 g. of a material containing more than 90% tetraacetate.² The residual solid is returned from the filter to the reaction flask, and mechanically stirred for ten to fifteen minutes at 70–80° with 100 ml. of glacial acetic acid, or with a like volume of the cooled filtrate from a previous extraction. The hot suspension is decanted through a preheated filter, and the residue again extracted. About 33 g. of 90–95% tetraacetate is thus recovered, in addition to the original deposit, making a total yield of approximately 100 g. of high-grade tetraacetate. The contaminants (lead diacetate, lead chloride, acetic acid) ordinarily will not interfere in the use of the product. If pure tetraacetate is demanded, recrystallization from glacial acetic acid will serve, but the loss is considerable.

Dimroth and Schweizer reported a yield of 300–350 g. of crude tetraacetate from 600–650 g. of Pb₃O₄; Hellmuth claims 350 g. of purified product from this weight of red lead.³ On a comparative basis our procedure yields a product containing approximately 500 g. of tetraacetate.

(2) A typical sample contained 92.9% tetraacetate, 2.2% diacetate, 3.5% lead chloride, 1.4% acetic acid (by difference).

(3) Hellmuth's crude product contains 30–50% lead tetraacetate.

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The Entropy of Ionization in Solutions of Low Dielectric Constant

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In a recent publication,¹ Bent and Keevil have reported figures derived from the conductances of some organic compounds in ether which indicate that the entropy of ionization at the temperature under consideration may have the same value for a number of compounds. Unfortunately, as they pointed out, the data were too few to warrant any definite statement to that effect.

There have been reported recently² some measurements in the same solvent of the conductance of sodium triphenylmethyl, a compound of somewhat smaller molecular diameter than those used by Bent and Keevil. In this case, the temperature coefficient of the equivalent conductance was zero between 0 and 25° within experimental error. Calculating ΔH in the same manner as was done by Bent and Keevil, it is found to be equal

(1) H. E. Bent and N. B. Keevil, *THIS JOURNAL*, **60**, 193 (1938).

(2) E. Swift, Jr., *ibid.*, **60**, 1403 (1938).

to -3.1 kcal., while $\Delta F = -15.1$ kcal. The resulting value of ΔS is -65.6 E. U., considerably higher than the values reported by Bent and Keevil for the compounds they studied ($\Delta S = -81, -83$ E. U.), but in fair agreement with the value calculated for sodium triphenylboron by Bent and Coolidge,³ *i. e.*, -60 E. U. This indicates that a generalization about the constancy of ΔS in this solvent cannot be made, except perhaps in the case where the ions being compared are of about the same diameter.

(3) H. E. Bent and A. S. Coolidge, *ibid.*, **58**, 505 (1936).

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Polymers of Propylene from Isopropyl Alcohol and Boron Trifluoride

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Although the action of boron trifluoride as a polymerizing agent was first observed in 1873¹ more than five decades elapsed before its use was exploited to any extent. Otto² reported the polymerization of ethylene and propylene with boron trifluoride and since then more than a score

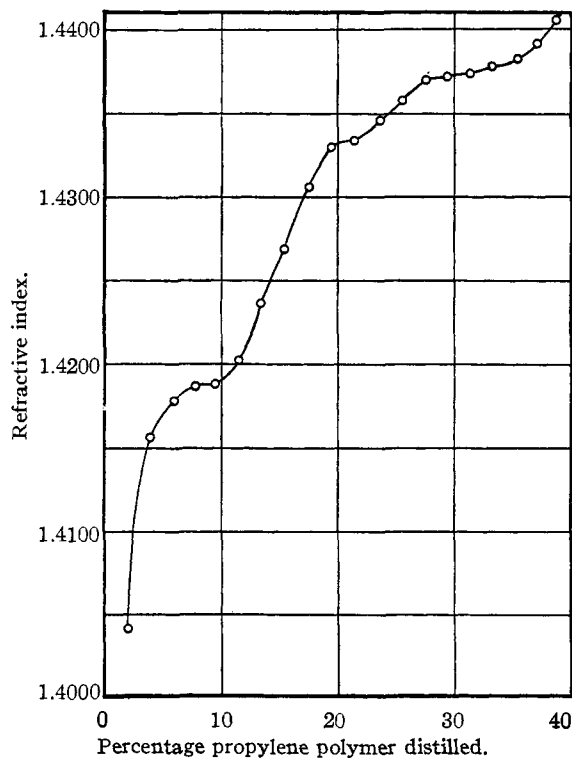


Fig. 1.

(1) Butlerow and Gorjanow, *Ann.*, **169**, 147 (1873).

(2) Otto, *Brennstoff-Chem.*, **8**, 321 (1927).