

different known resistances in place of C. The resistance of C can then be read directly from the scale of the instrument. In both these modifications the frequency of the alternating current must remain the same, and neither is as accurate as the first one by substitution.

The hydrogen cell rectifier permits the use of an optical detector instead of the telephone in the Kohlrausch-Ostwald method. The telephone is replaced by a resistance and a sensitive galvanometer in series with the "balanced" cell, arranged like R, V and H in Fig. 2. The point on the slide wire which gives no deflection is then the same one as found by the telephone.

To "balance" the cell the circuit of a Leclanché is closed through a high resistance and a slide wire. The alternating current being stopped, an electromotive force is taken from the slide wire and sent through the rectifier, the slide being left just below the point which shows deflection. If "overbalanced" the cell will give a constant deflection, but if "underbalanced" the low voltage current obtained will give no deflection. An arrangement like Fig. 2 will give here greater sensitiveness, but the method of substitution as first described is the simplest and gives the best results.

[CONTRIBUTION FROM THE LABORATORY OF ANALYTICAL CHEMISTRY, UNIVERSITY OF MICHIGAN.]

ON THE PREPARATION OF POTASSIUM XANTHATE FOR NICKEL DETERMINATIONS.

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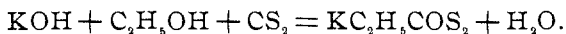
IN 1895 the author with W. H. Andrews published a method for the determination of nickel in nickel steel.¹ This method has been in use in this laboratory since its publication and has given very satisfactory results, provided the potassium xanthate used had been properly prepared. The potassium xanthate usually found on the market has not been satisfactory owing to the fact that the salt after making has not been carefully washed and dried. The practice in this laboratory has been to have each student prepare the potassium xanthate used in his own work.

¹ This Journal, 17, 125.

The method of preparation is as follows: A weighed amount of fused potassium hydroxide is placed with absolute alcohol in a tightly stoppered flask and digested cold, with occasional shaking, until solution is complete, except for the small amount of potassium carbonate usually present; 2.5 cc. of absolute alcohol should be used for each gram of potassium hydroxide.

The clear solution of potassium hydroxide is poured off from any undissolved carbonate into a beaker and cooled by standing in ice-water. Pure carbon disulphide is now gradually added with constant stirring until 1 cc. has been added for each gram of potassium hydroxide used. When all the carbon disulphide has been added the stirring is continued, the beaker being kept in ice-water until the temperature is reduced to 10°C. or below.

The formation of potassium xanthate takes place according to the reaction:



The precipitated salt is transferred best to a Buchner funnel in which a filter-paper has been laid, and the solution drawn out by means of a pump. When the solution has been drawn through, the precipitate is pressed rather firmly down in the funnel and washed once by pouring over it just enough absolute alcohol to cover it well. When the alcohol has been drawn through, the precipitate is washed twice in a similar manner with ether. The washed xanthate thus prepared is thoroughly dried at about 100° C. and after pulverizing is ready for use.

We have found that potassium xanthate made by the above method is perfectly stable, just as accurate results having been obtained with xanthate that had been kept three years as with the fresh material. With ordinary care in preparation, the yield of potassium xanthate is about 10 per cent. greater than the amount of potassium hydroxide used.

ANN ARBOR, MICH.,
April 16, 1900.