

	Weight of tungsten trioxide. Gram.	Loss. Gram.
Taken	0.3007
Ignited for two minutes.....	0.2978	0.0029
“ “ “ “ again	0.2962	0.0016
“ “ “ “ “	0.2946	0.0016
“ “ “ “ “	0.2932	0.0014
“ “ “ “ “	0.2924	0.0008
“ “ “ “ “	0.2916	0.0008
“ “ “ “ “	0.2906	0.0010
“ “ five “ “	0.2872	0.0034
Total loss....		0.0135

All the ignitions except the last were made with a lamp provided with a water-blast, which gave a flame of only moderate power. The last ignition was made with a lamp connected with a foot bellows, which gave a considerably higher temperature. It is noticeable that the losses show a tendency to diminish after the first ignition, but this is probably due to a change in the physical condition of the oxide rather than to the removal of some more volatile substance. It is hardly possible that our carefully purified tungstic acid, which showed no loss when heated with a good Bunsen burner, could contain an amount of molybdic acid or other volatile substance sufficient to give the results that have been obtained. The loss shown in the table above amounts to nearly 5 per cent., while in another experiment 0.1955 gram of tungstic acid lost over 7 per cent. after heating with the blast-lamp for twenty minutes. It should be stated that the platinum crucible in which these ignitions were made showed no loss in weight after it had been cleaned.

We have shown that Herting's criticism of the usual method for separating silicic and tungstic acids is without foundation, and it appears probable that his difficulties were due to igniting tungstic acid at a too elevated temperature.

SHEFFIELD SCIENTIFIC SCHOOL,
April, 1901.

POTASSIUM PERSELENATE¹—PRELIMINARY NOTE.

BY L. M. DENNIS AND O. W. BROWN.
Received April 2, 1901.

POTASSIUM perselenate was prepared by the electrolysis of a saturated solution of potassium selenate containing a little free selenic acid. This solution was placed in a 150 cc.

¹ The experimental work herein described was performed by Mr. Brown in the spring of 1898. It has been impossible to resume the work until recently, but it is hoped that the investigation may soon be carried to completion.

beaker and the anode, a platinum plate of about 15 sq. cm. surface, was introduced into it. The cathode, a piece of platinum foil, was contained in a small porous cup of about 75 cc. capacity which was suspended in the solution. This porous cup was filled with a dilute solution of selenic acid. The beaker was placed in a freezing-mixture and a current varying from 2.5 to 3 amperes was passed through the solution. The temperature in the outer cell averaged about 4° C.

After the action of the current had continued for some hours, a white substance began to appear in the neighborhood of the anode, its formation being accompanied by an increase in the resistance of the cell. After considerable of the solid had separated, the process was interrupted, the solution in the beaker was decanted, and the substance dried on a porous plate. It was then placed in a desiccator containing phosphorus pentoxide, and this was placed upon ice.

The complete analysis of the substance was not made at the time but merely the available oxygen was determined, this being done, first by adding oxalic acid in excess and determining the excess by means of potassium permanganate, and second, by adding ammonium ferrous sulphate in excess and titrating this excess in the same manner.

The two methods gave agreeing results, for when used on a sample of potassium selenate containing a small amount of perselenate, oxalic acid and potassium permanganate showed 2.41 per cent. of $KSeO_4$, while the ammonium ferrous sulphate method gave 2.42 per cent.

Potassium perselenate was not obtained free from selenate, the highest percentage of perselenate in the product being 74.44.

Potassium perselenate, when hot, oxidizes manganese dioxide to potassium permanganate, quickly oxidizes ferrous sulphate in the cold, and acts similarly upon thalious sulphate. An aqueous solution of the salt gives off oxygen when warmed.

CORNELL UNIVERSITY,
April, 1901.

NOTES.

On Methods of Sugar Analysis.—In the March number of the *Journal of the American Chemical Society* there is published a paper by Professor H. W. Wiley on "The Fourth International