$AgFO_3$(?)	$d = 3.37$	Tetragonal
$AgClO_3$	$d = 4.43$	Tetragonal
$AgBrO_3$	$d = 5.21$	Tetragonal

The above evidence is strongly indicative of the formation of silver fluorate.

The investigation is being continued.

Summary

The treatment of concentrated, cold solutions of fixed alkali hydroxides with fluorine forms a product of comparatively high oxidizing power, and evidence is presented to show that the oxidation cannot be due either to an alkali ozonate, ozone, hydrogen peroxide or fluorine monoxide. When a molten mixture of alkali hydroxides and fluorides is electrolyzed, there is formed an oxysalt of fluorine. Examination of the silver salt of this oxy-acid indicates that it is silver fluorate, $AgFO_3$.

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Notes

The Absorption Spectra of *m*-Bromophenol Indophenol, 2,6-Dibromophenol Indophenol and Guaiacol Indophenol

BY MATILDA MOLDENHAUER BROOKS

The absorption curves of *m*-bromophenol indophenol, 2,6-dibromophenol indophenol and guaiacol indophenol have been measured in 0.0001

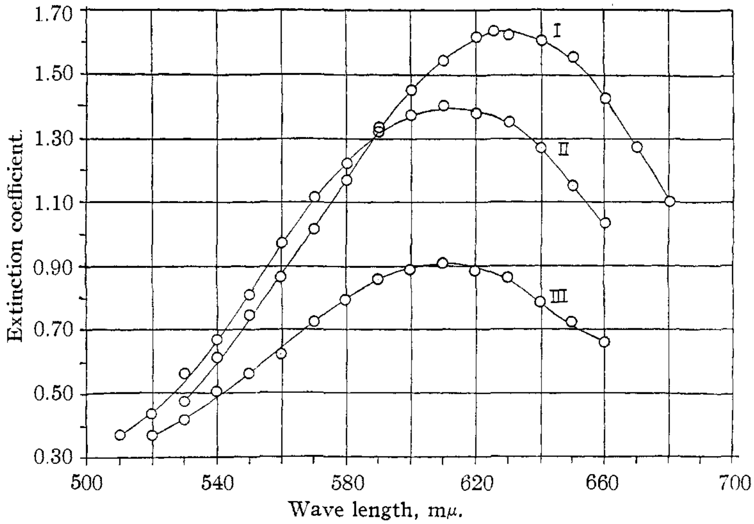

Fig. 1.—I, *m*-bromophenol indophenol; II, 2,6-dibromophenol indophenol: III, guaiacol indophenol.

M aqueous solution and the results are shown in the accompanying figure. The *P*H of the first two solutions was brought to 11.7 and that of the third to 11.8 by the addition of sodium hydroxide, the *P*H values being ascertained by means of the hydrogen electrode. In this range of alkalinity the blue dye ion predominates and there is no noticeable change in the absorption maximum when higher alkalinities are used. Shifting the wave length 2 mμ to one side or the other of the absorption maximum gave reproducible decreases in the absorption index. A Bausch and Lomb instrument was used. The solutions in all cases were freshly prepared from W. M. Clark's dyes and it was found that the absorption maxima did not alter during two days' standing. The absorption maximum of the first dye was at 625 mμ, and that of the second and third at 610 mμ. It was also found that Lambert and Beer's law held for solutions of twice the concentration.

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The Acid Soluble Oxidizing Material from Charcoal

BY M. A. MAYERS

In the course of an investigation of the mechanism of combustion of carbon, it seemed advisable to check the observation of Lamb and Elder[1] that a peroxide-like substance is dissolved out of charcoal by dilute sulfuric acid, which will then liberate iodine from potassium iodide. We applied this test to several commercial charcoals, coal, and ash-free lampblack, and found that an extract capable of liberating iodine from potassium iodide was obtained only from those materials that contained iron in their ash. Measurements on one of the extracts, which liberated about a tenth as much iodine as those of Lamb and Elder, showed that the iodine liberated was equivalent to the ferric ion extracted. These experiments throw some doubt on the existence of the acid soluble peroxide-like material reported to have been extracted from charcoals.

Several commercial charcoals and Edenborn coal[2] were washed with 1.0 *M* sulfuric acid, at which concentration Lamb and Elder found the greatest activity. The filtrates liberated iodine from 10% potassium iodide solution, and decolorized a few drops of potassium permanganate, but did not give the characteristic test for hydrogen peroxide with chromic acid, nor that for ozone with silver.[3] No gas appeared when an inverted test-tube

(1) Lamb and Elder, THIS JOURNAL, **53**, 157 (1931); *cf.* also I. M. Kolthoff, *ibid.*, **54**, 4478 (1932).

(2) U. S. Bureau of Mines, Tech. Paper No. 525 (1932).

(3) Only the first of these tests was considered significant. The reduction of potassium permanganate might have been caused by minute amounts of organic material or by ferrous iron. The peroxide and ozone tests may not have been sufficiently delicate.