

- B. By solution of the perchlorates.  
 C. By crystallization of the sulfates.  
 D. By solution of the alums.

In these several processes those fractions in which the higher analogue of cesium, eka-cesium, might be expected to be concentrated were examined by means of the arc spectra of the solid material in the red, the visible, and the ultra-violet portions of the spectrum. In no case were there indications of the existence of eka-cesium.

ITHACA, N. Y.

---

### NOTE.

**Correction.**—Dr. F. H. MacDougall has kindly called my attention to the fact that several errors occur in the article entitled *The Form of the Conductance Function in Dilute Solutions*, which appeared in the January, 1920, number of *THIS JOURNAL*.

Equation VII should have been written in the general form

$$\frac{d\Lambda}{d(C\Lambda)} = \frac{C\Lambda}{K'^2} \frac{dK'}{d(C\Lambda)} - \frac{1}{K'}$$

Equation VII is in general a limiting form of this equation, which is approached as the concentration decreases. As long as  $\frac{dK'}{d(C\Lambda)}$  remains finite, it follows that the first term of the right-hand member will disappear at the concentration  $C = 0$ . In case, however, that  $\frac{dK'}{d(C\Lambda)}$  approaches infinity as the concentration approaches zero, the expression becomes indeterminate. In general, however, we may expect that this term will approach zero in the limit. If the value of  $\frac{dK'}{d(C\Lambda)}$  be substituted from Equation XV we obtain the expression

$$\frac{d\Lambda}{d(C\Lambda)} = \frac{Dm(C\Lambda)^m}{K'^2\Lambda_0^m} - \frac{1}{K'}$$

from which it follows that even though  $\frac{dK'}{d(C\Lambda)}$  becomes infinite as the concentration approaches the value zero, the term as a whole approaches the value zero and  $\frac{d\Lambda}{d(C\Lambda)}$  approaches the value  $-\frac{1}{K'}$ . Equation VIII was intended to be written in the form

$$\frac{d^2\Lambda}{d(C\Lambda)^2} = \frac{dK'/d(C\Lambda)}{K'^2}$$

but it is very doubtful whether this relation would be approximated even

at low concentrations. The general conclusions of the paper are not affected.

The most general expression for the first differential coefficient is

$$\frac{d\Lambda}{d(C\Lambda)} = \frac{\Lambda^2}{\Lambda_0^2 K'} \left[ \frac{C\Lambda}{K'} \frac{dK'}{d(C\Lambda)} - 1 \right].$$

At low concentrations the  $\Lambda, C\Lambda$ -curve will cut the  $\Lambda$ -axis at an angle whose tangent is equal to  $-\frac{1}{K'}$ . At higher concentrations the tangent to the curve will decrease because of the increase in the value of  $K'$ , as well as the increase in the value of the term involving  $\frac{dK'}{d(C\Lambda)}$ . The curve will, therefore, be convex toward the  $C$ -axis in dilute solutions. It is not possible to follow up the form of this curve readily at higher concentrations without introducing the equation for the conductance function. If the function XIV is introduced, we have the equation

$$\frac{d\Lambda}{d(C\Lambda)} = \frac{\Lambda^2}{\Lambda_0^2 K'^r} \left[ m - 1 - \frac{mK}{K'} \right].$$

So long as  $m < 1$ ,  $\frac{d\Lambda}{d(C\Lambda)}$  will always have a negative value which decreases with increasing concentration. When  $m > 1$ ,  $\frac{d\Lambda}{d(C\Lambda)}$  will pass through zero and thereafter become positive at higher concentrations, which corresponds with the form of conductance curves such as we have them in solvents of low dielectric constant. C. A. KRAUS.

WORCESTER, MASS.

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE UNIVERSITY OF ILLINOIS.]

## POSITIVE HALOGEN IN ORGANIC COMPOUNDS. IODINE IN DI-iodoacetylene and chloro-iodo-ethylene.<sup>1</sup>

By LLOYD B. HOWELL, WITH WILLIAM A. NOYES.

Received February 3, 1920.

For a number of years chemists have recognized the fact that certain organic halogen compounds, *e. g.*, those in which a halogen has replaced a hydrogen atom of any of the groups:  $-\text{NH}_2$ ,  $>\text{NH}$ , or  $-\text{OH}$ , exhibit extraordinary activity. Unlike the halogen of the ordinary types of alkyl and acyl halide linkage, which are reduced with more or less difficulty, the halogen of the above-mentioned types shows actual oxidizing power in the presence of such reducing agents as aqueous solutions of ferrous

<sup>1</sup> An abstract of a thesis submitted by Mr. Howell in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in the Graduate School of the University of Illinois.