

Paper electrophoresis of inorganic anions in 0.1N NaOH solution

Extensive work on the electromigration of inorganic anions has so far only been reported for KCl¹ and ammonium bicarbonate^{2, 3} as electrolytes. Recently JACH *et al.*⁴ employed 0.01 N NaOH as electrolyte for the separation of anion mixtures obtained in Szilard-Chalmers reactions. They showed that such mixtures as BrO₃⁻-Br⁻, IO₄⁻-IO₃⁻-I⁻ and AsO₃⁻⁻⁻-AsO₄⁻⁻⁻ yielded good separations. We thus considered it of interest to study a large number of the usual inorganic anions with NaOH as electrolyte. Instead of 0.01 N NaOH we used 0.1 N NaOH as in a higher concentration more material may be separated without distortion due to increased conductivity of the spots. The large electrophoresis apparatus of Jouan was employed and a thick paper (Papeterie d'Arches No. 304). The spots were placed exactly in the centre of

TABLE I

ELECTROMIGRATION OF INORGANIC ANIONS IN 0.1 N NaOH IN ONE HOUR WITH 240 V

The distances are corrected from one electropherogram to the next to a movement of 80 mm for CrO₄⁻⁻⁻

Anion	mm	Anion	mm
Borate	30-32	Thiocyanate	72-77
Arsenite	23-27	Sulphite	62-69
Arsenate	51-54	Thiosulphate	86-89
Nitrite	92	Sulphate	73-81
Nitrate	81-84	Persulphate	85
Chloride	90-91	Selenite	58-60
Chlorate	72-76	Tellurite	49-52
Perchlorate	73-80	Tellurate	0
Bromide	92-96	Ferrocyanide	73-77
Bromate	60-65	Ferricyanide	79-80
Iodide	96-101	Molybdate	69-74
Iodate	40-42	H ₂ O ₂	0
Periodate	5-15 with comet to 40	Orthophosphate	46-48
Fluoride	60-61		

the sheet and a voltage of 240 V was applied for 1 hour. Under these conditions CrO₄⁻⁻⁻ moves approximately 80 mm. As it is easily recognised by its colour and has an intermediate mobility all other distances moved were corrected to CrO₄⁻⁻⁻ 80 mm. Periodate yields usually one or two spots close to the point of application and a reduction comet up to the distance moved by iodate. The movement of the other ions examined is reported in Table I.

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