Solutions Containing Potassium Iodide, Etc.

EXPTS. 3 AND 4. A 0.25; B 2.44; C 2.46; FeSO, Ex. (3) none, Ex. (4) 0.05.									
3.	One reading only; θ , 4410; 100x, 4.0								
4: 6 400 x	21 5.2	(55)* (16)	62 55.6	1395 91.3	1588 92 9	2881 93·7	3126 95-		

Series B. Potassium chlorate in small quantity

Effect of the Chlorate. — The (approximate) constancy of k_{1} (Expt. 1) shows that the rate is proportional to the concentration of the potassium chlorate in the reacting mixture. This conclusion is supported by the constancy of k_{1} in the experiments of this section, by the identity of k_{1} in Expts. 5 and 6 (where the initial concentrations of the chlorate were different), and by the experiments of Series D, where the chlorate was doubled in excess. The only exception is referred to in Series E. The slight but regular decrease in k_{1} as the reaction proceeds, is due to the slight decrease in the concentrations of the reagents present in excess. In the case of Expt. 1, I have applied the correction due to this cause, assuming that the rate is proportional to the first power of the concentration of the potassium iodide, and to the cube of that of the acid (see page 100). The constancy of " k_{1} corr." leaves nothing to be desired.

5. A 1	1.00; B 8.77;	C 8,85.	6. A 0.5; B 8.77; C 8.85.			
θ	100.3	$k_1 imes 10^4$	θ	100 x	$k_1 imes$ 104	
15	1.4	9.2	30	1.35	9.2	
72	6.7	9.5	83	3.5	8.7	
106	9.4	9.3	162	6.7	8.7	
139	11.05	8.5	241	9.45	8.5	
213	15.2	7.8	332	13.1	8.3	
262	19.8	8.2	593	21.5	9.2	
1317	64.9	8.0	1413	39.4	10.8*	
1462	67.15	7.8	1691	42.3	11.0*	
	$\mathbf{R} = 0.0$	92	$\mathbf{R} = 0.046$			

EXPTS. 5 AND 6.

* Interpolated.

Experiments 1, 2, 3, and 4 were carried out with stock solutions whose composition is not known with accuracy; they cannot be compared directly with the other experiments of this paper.

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