

sult of the titration showed the precipitate to be potassium methyl oxalate. Solutions of potassium hydroxide in other alcohols were used with diethyl oxalate and also with other oxalic esters and the results are given in Table I.

TABLE I.—EFFECT OF KOH ON OXALIC ESTERS.

Diethyl oxalate.		Dimethyl oxalate.		Diisoamyl oxalate.	
Solvent alcohol.	Result.	Solvent alcohol.	Result.	Solvent alcohol.	Result.
Methyl	K methyl oxalate	Ethyl	K ethyl oxalate	Methyl	K methyl oxalate
Propyl	K propyl oxalate	Propyl	K propyl oxalate	Ethyl	K ethyl oxalate
Isoamyl	K isoamyl oxalate	Isobutyl	K isobutyl oxalate	Propyl	K propyl oxalate
		Isoamyl	K isoamyl oxalate	Isobutyl	K isobutyl oxalate

In every case the oxalic ester when treated with slightly less than the calculated amount of potassium hydroxide in alcoholic solution gave a practically pure potassium alkyl salt in which the alkyl corresponded to the alcohol used as solvent. Further experiments showed that if mixed alcohols were used as solvent the product consisted of the two potassium alkyl salts corresponding to the alcohols used.

(a) Dimethyl oxalate with potassium hydroxide in a solvent consisting of ethyl alcohol and acetone in equal proportions gave potassium ethyl oxalate.

(b) Dimethyl oxalate was dissolved in ethyl alcohol and, after two hours, the alcohol was evaporated and the remaining ester was pure, unchanged dimethyl oxalate.

Some solubility determinations were made at room temperature with the following results:

100 cc. methyl alcohol dissolved:	100 cc. ethyl alcohol dissolved:
3.0 g. potassium methyl oxalate	0.15 g. potassium methyl oxalate
5.6 g. potassium ethyl oxalate	0.30 g. potassium ethyl oxalate
0.016 g. dipotassium oxalate	0.004 g. dipotassium oxalate

The precipitation of potassium alkyl oxalate rather than dipotassium oxalate is not due to greater insolubility of the former and, also, the precipitation of potassium ethyl oxalate rather than potassium methyl oxalate from ethyl alcohol solution is not due to greater insolubility of the potassium ethyl oxalate.

It would be possible to represent the reaction we are considering in three ways:

