

An aliquot portion was then taken for analysis by the method as given above and the results obtained were as follows.

Whole blood	Ash
Iron per 100 cc. of blood	
Mg.	Mg.
38.0	39.0
30.0	32.0
42.0	42.5

The iron content of rabbit's blood varies from 27 to 42 mg. per 100 cc., while dog's blood varies from 40 to 48 mg. per 100 cc. and human blood from 45 to 52 mg. per 100 cc.

Summary.

The method may be summarized as follows: 0.5 cc. of blood after laking in 4 cc. of water is treated with conc. hydrochloric acid and a very small amount of potassium chlorate placed in boiling water until white or light yellow, cooled and filtered, and the residue washed with water until 15 cc. of filtrate is obtained; an aliquot portion is then compared colorimetrically with standard iron solution using potassium thiocyanate as the indicator.

The advantages are: (1) A small amount of blood sample needed; (2) the analysis is rapid, not over 20 minutes being required; (3) greater accuracy is insured because the contrast in colors is more marked; (4) since it is a colorimetric method the results are more accurate with minute amounts than by either gravimetric or volumetric analysis.

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NOTES.

The Preparation of Phenylacetylene.—Phenylacetylene has been prepared by a number of methods, the two outstanding ones being those of Glaser¹ and Holleman,² in which phenylpropionic acid is used, and the method of Nef,³ which employs ω -bromostyrene. In Nef's experiments, the bromostyrene was heated with potassium hydroxide and a small quantity of absolute alcohol. The products obtained were phenylacetylene and phenylvinyl-ether, $C_6H_5CH=CHOC_2H_5$, the yield of phenylacetylene being 60% of that calculated. Owing to the considerable conversion of starting material into by-product by Nef's method, the writer tried the use of molten potassium hydroxide instead of alcoholic potash.

The potassium hydroxide (80 g.) was placed in a distilling flask provided

¹ Glaser, *Ann.*, **154**, 151 (1870).

² Holleman, *Ber.*, **20**, 3080 (1887); *Rec. trav. chim.*, **15**, 157 (1896).

³ Nef, *Ann.*, **308**, 264 (1899).

with a dropping funnel and a condenser. The flask was heated by means of an oil-bath at 200–235° (chiefly at 200–215°). Since the boiling point of phenylacetylene is 142–143°, and that of bromostyrene is 218–220°, the temperature of the molten potassium hydroxide was high enough to cause the phenylacetylene formed to distil from the unchanged bromostyrene. The latter was allowed to enter at the rate of about a drop a second, and the phenylacetylene soon distilled. From 25 g. of bromostyrene, 12.5 g. of phenylacetylene was obtained together with a small amount of water. The water was separated in a separatory funnel, and the phenylacetylene was dried with solid potassium hydroxide. Thus, 11 g. of apparently pure product boiling at 142–144° was obtained. This is a yield of practically 80% of the purified material.

A crust of potassium bromide is formed, and has a tendency to cover the melted potassium hydroxide, but this can be broken by means of a stirrer or by shaking the materials. The preparation of phenylacetylene is thus made comparatively easy.

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The Successive Stages of the Hydrolysis of Tri-acetin.—Since the publication of my article under this title,¹ my attention has been called to the extensive investigations of Professor Julius Meyer² in this field. This investigator studied the rate of acid hydrolysis and of alkaline saponification at different temperatures. He computed the velocity constants k_1 , k_2 , k_3 of the single stages of hydrolysis from his experimental results by means of equations which he developed, and compared them with each other. In this way, the assumption of Geitel and Abel that $k_1 : k_2 : k_3 = 1 : 2 : 3$ was demonstrated to hold both for the acid as well as for the alkaline hydrolysis. The saponification of other symmetrical polyesters, for instance the acetic acid ester of glycol, the ethyl ester of malonic and other dibasic acids, was also found to be in accord with this simple relation.

My results and conclusions, obtained by a different method both of experimental and theoretical treatment, entirely confirm these of Meyer.

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¹ Yamasaki, *THIS JOURNAL*, **42**, 1455 (1920).

² Meyer, *Z. Elektrochem.*, **13**, 186, 485 (1907); *Z. physik. Chem.*, **66**, 87; **67**, 257 (1909).