

Summary

The rearrangement of the potassium salt of dibenzhydroxamic acid has been studied and a description given of the changes in the reaction mixture as time progressed. The velocity of the rearrangement has been measured and found to correspond with that of a unimolecular reaction for the last 75% of the reaction time. An explanation has been given as to why a first order reaction constant was not obtained for the first 25% of the reaction.

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NOTE

Graham and Carr's Supposed Calcium-Nicotine Combinations.—In a recent article¹ Graham and Carr mention the difficulty which they had in securing complete recovery, by any available analytical method, of all the nicotine present in various products to which calcium salts had been added, and attribute their difficulty to the probable formation of hypothetical combinations of calcium with nicotine which are insoluble in the solvents used in the several analytical processes they employed. While there can be no doubt as to the fact of failure to recover all nicotine originally present in such mixtures, the explanation suggested by these authors is altogether untenable in the light of theoretical considerations and of experimental evidence as to the effect of various calcium compounds upon nicotine-containing materials which has been published recently.

In studies of the effect of various chemicals upon the volatility of nicotine from various compounds and mixtures used for insecticide purposes, Thatcher and Streeter,² Headlee and Rudolfs,³ and de Ong⁴ have found that nicotine, in its reactions with other chemicals, behaves in a way exactly analogous to the behavior of ammonia, and that nicotine compounds react with various calcium salts in the same way as do ammonium compounds, in so far as the volatility of the resulting product is concerned. Hence, it is very difficult to conceive the formation of stable insoluble compounds of the strong base nicotine with the strongly basic element calcium.

The investigations referred to above have shown that carbonates of the alkali and alkaline earth metals are especially effective in increasing the volatility of nicotine from insecticide mixtures. In fact, mixtures of nicotine sulfate (Black-leaf Forty) with calcium or sodium carbonate, when exposed in the open air, lost by volatilization every trace of nicotine

¹ Graham and Carr, *THIS JOURNAL*, **46**, 695 (1924).

² Thatcher and Streeter, *N. Y. (Geneva) Agr. Expt. Sta. Bull.*, **501** (1923).

³ Headlee and Rudolfs, *N. J. Agr. Expt. Sta. Bull.*, **381** (1923).

⁴ de Ong, *J. Econ. Entomology*, **16**, 486 (1924).

which they originally contained after only a few days of exposure. The volatilization of the nicotine from such mixtures was so rapid that it was only with great difficulty and care that a representative sample could be weighed from a tightly stoppered weighing bottle, and there was always a considerable loss of nicotine during the mixing of the ingredients, before a sample could be drawn for analysis.

Further, the hypothetical insoluble compounds of calcium with nicotine could scarcely escape decomposition in the alkaline distillation method for estimating nicotine. If such compounds were actually formed, the alkaline distillation method should give higher results on such mixtures than would the organic solvent methods. Whereas, we have always found that the two types of methods give satisfactorily comparable results on all kinds of nicotine-containing materials, provided proper precautions to prevent loss of volatile nicotine from alkaline mixtures during the early steps of the analytical process are observed.

Hence, it seems clear that the difficulty experienced by the authors of the above mentioned article is probably due to loss of nicotine in the preliminary steps of the analytical process and not to the formation of supposedly insoluble compounds of nicotine with calcium as suggested by them.

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NEW BOOKS

Building for Peace. II. International Letters. By WILLIAM ALBERT NOYES. W. Heffer and Sons, Ltd., Cambridge, England; The Chemical Catalog Company, New York, 1924. 78 pp. 22 × 14.5 cm. Price 1/6 net (35 cents).

All who read the collection of letters published earlier under the title "Building for Peace. I," and especially those who have a personal acquaintance with Dr. Noyes, will recognize the earnestness of spirit and purpose which led to their publication. This purpose is to place in the hands of men prominent in scientific fields who hold radically opposed views as to post-war conditions and policies, statements of the views of their opponents which are presumably the more frank and candid because originally written as a part of a personal interchange of correspondence, without expectation of publication. Dr. Noyes firmly believes that unless a better mutual understanding can be reached, especially between France and Germany, a further contest of arms is inevitable. There is appended to the collection of letters, which is, in general, similar to that in the first pamphlet, a proposal formulated by Dr. Noyes for the settlement of the reparations problem which would, if adopted, base the payments upon damages to the civil population, and would exclude all claims looking toward the payments of