88.00 per cent., giving as a mean 88.12 per cent. A third portion, weighing 0.3363 gram, was heated for fifteen minutes over a Bunsen flame; the increase in weight was 0.0119 gram, and heating again for forty-five minutes there resulted an alteration of only 0.0011 gram, after which the weight continued constant. The total increase of the material taken by its conversion into urano-uranic oxide, was therefore 0.0130 gram, while the calculated increase should be 0.0132 gram.

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[CONTRIBUTION FROM THE JOHN HARRISON LABORATORY OF CHEMISTRY. No. 6.]

THE SEPARATION OF IRON FROM BERYLLIUM.

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THIS separation is generally effected through the solubility of beryllium hydroxide in ammonium carbonate. It is, however, not always satisfactory, and any method affording better results will be of interest to the analyst.

Ilinski and v. Knorre[1] called attention to the use of nitroso-β-naphthol in analytical work. For example, they separated cobalt from nickel and iron from aluminum by means of this reagent. Inasmuch as their study has not been continued, it seemed to us of interest to ascertain whether or not the same reagent could be used for the separation indicated at the head of this communication. We used the following solutions: (1) a fifty per cent. acetic acid solution of the nitroso-β-naphthol, (2) a ferric solution of which ten cubic centimeters contained 0.1278 gram of ferric oxide, and finally a beryllium chloride solution of which ten cubic centimeters contained 0.1248 gram.

The first step taken was to learn how completely the iron was precipitated by the proposed reagent. To this end ten cubic centimeters of the ferric solution ($=0.1278$ gram Fe_2O_3) were diluted with two hundred cubic centimeters of distilled water, and one hundred and twenty-five cubic centimeters of the nitroso-β-naphthol added to the cold liquid, which was then allowed to stand for a period of twenty-four hours. The iron precipitate was then filtered out, washed at first with fifty per cent. acetic acid, and subsequently with water, until a few drops of the washings left no residue upon evaporation and ignition upon a strip

[1] *Ber. d. chem. Ges.*, **18**, 699, 2728.

of platinum. After the iron nitroso-β-naphthol had dried it was mixed with an equal amount of pure oxalic acid, and the filter folded up over the mixture, which was then carefully heated in a weighed porcelain crucible. The heat at first was moderate, but gradually increased until all the carbon had been burned off. These are practically the precautions which were recommended by Ilinski and v. Knorre, so that our experience corroborates that given by these chemists.

The results obtained by us are:

1. 0.1277 gram of ferric oxide.
2. 0.1283 “ “ “ “
3. 0.1277 “ “ “ “

The theoretical ferric oxide equaled 0.1278 grams.

Upon treating ten cc. of the beryllium solution just as described under the iron, no evidence of precipitation was observed even after the expiration of forty-eight hours.

The real object of our study was the separation of the iron from the beryllium. In following out this idea we proceeded in the following manner: Ten cc. of the ferric salt (= 0.1278 gram of ferric oxide) and an equal volume of the beryllium solution, equal to 0.1248 gram beryllium oxide, were diluted to two hundred cc. with distilled water. The nitroso-β-naphthol solution was added to this cold mixture. After standing twelve hours the ferric compound was filtered out and disposed of as above described. The ferric oxide found was:

1. 0.1277 gram,
2. 0.1275 “
3. 0.1277 “

instead of the theoretical 0.1278 gram.

Efforts made to precipitate uranium salts with this reagent resulted negatively. The substitution of an alcoholic for an acetic acid solution of the reagent made no difference.

We also found that nitroso-β-napthol does not precipitate solutions of cerous salts, of lanthanum ammonium nitrate, of praseodymium nitrate, of neodymium nitrate, of terbium, of erbium, or of sodium molybdate or tungstate. Zirconium chloride gave an orange-colored precipitate, and ceric ammonium nitrate a bright scarlet, flocculent precipitate, which was, however, far from being complete.

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