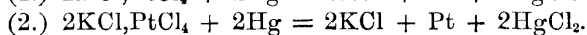
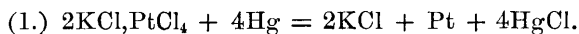


XCIX.—*Note on the Reduction of Potassium Platinochloride.*

By EDWARD SONSTADT.

THE usual laboratory method of reducing the platinochlorides of potassium and other alkali metals by hydrogen is effective, although inconvenient and requiring some preparation; moreover it is not readily applicable to larger quantities than can be placed in a porcelain boat within a glass tube. The method I have now to offer is thoroughly effective at a temperature below a red heat, and can be conveniently used on any quantity of the salt.

When potassium platinochloride, for instance, is rubbed up with about twice its weight of mercury (in the same manner that chalk and mercury are rubbed together to form the well-known compound "mercury with chalk") and the mixture is gently heated, calomel sublimes, together with the excess of mercury, leaving a very porous mass of platinum and potassium chloride, which can be quickly washed. The reduction is complete, no trace of undecomposed platinum salt remaining, and if the mercury used is pure, no foreign element is introduced. If the platinum salt and mercury are taken in approximately equal weights, the sublimate consists chiefly of corrosive sublimate, but the reduction is also complete in this case. The following equations represent the reactions.



With small, accurately weighed quantities of the platinochloride, it is more convenient to place an excess of mercury (which need

not be a great excess) in a small porcelain crucible, and then to add the platinum salt; heat is applied very gently for some time, and afterwards raised sufficiently to volatilise the sublimate adhering to the sides of the crucible, and to drive off the excess of mercury. It is hardly necessary to add that the heating should be conducted within a chamber adapted for carrying off the fumes, or, if considerable quantities are under treatment, that provision should be made for collecting the sublimate.

Mercury, when agitated with solution of a platinum salt, precipitates the platinum, as it does many other metals from their solutions. The reaction is very delicate, so much so, that a solution of 1 part of potassium platinochloride in 3,000,000 parts of water may be distinguished from pure water by the test, provided that the mercury is so pure as to leave no stain on a clean porcelain crucible when volatilised.

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