

A MODIFIED METHOD OF DETERMINING ZINC.

BY WM. P. HEADDEN.

If the ore be sulphide, as is usually the case in ores containing lead, copper and zinc, one-half gram of it, finely pulverized, is treated with from 3–5 C.C. of concentrated nitric acid, a few drops of concentrated sulphuric acid added and the whole evaporated to dryness.

If examination of the residue should show that undecomposed ore still remains, it is to be moistened with nitric acid and again evaporated; if the ore has been properly pulverized, this will be found unnecessary. The residue, consisting of sulphates and usually containing nitric acid, is treated with a few C.C. of concentrated hydrochloric acid, and gently heated until the effervescence ceases and all the nitric acid has been destroyed. A failure at this point may lead to incorrect results.

The solution, without being filtered, is now precipitated, with ammonia, or ammonia and ammoniac carbonate, after the addition of ammoniac chloride in relatively large quantities. I prefer to add it in the solid state.

The partially washed precipitate is dissolved in hydrochloric acid and reprecipitated by ammoniac hydrate. The united filtrates, including wash water, should not exceed fifty C.C. and will contain the whole of the zinc and copper. This solution is slightly acidulated with hydrochloric acid, strips of aluminium added and boiled for a few minutes, when the whole of the copper will be precipitated. Granulated lead may be used instead of the aluminium; it is, however, doubtful whether it has even the advantage of

greater cheapness. If a large amount of copper is present it necessitates the addition of a great deal of lead and the exercise of considerable care to insure its complete precipitation.

The solution, which may be either decanted or filtered from the precipitated copper and excessive aluminium, is to be diluted—after the addition of 8–10 C.C. concentrated hydrochloric acid—to a quarter of a litre, and titrated with a standardized solution of potassic ferrocyanide.

The results agree very well.

The method may be so modified that sodic acetate may be used to precipitate the ferric oxide, but I have not found it preferable to the method as given, either in time consumed in its execution or in agreement of the results.