

Heat nearly to boiling, stirring occasionally and adding more bromine water, if necessary, till the precipitate of manganese dioxide separates. Filter and wash. The precipitate adhering to the beaker need not be removed, but the beaker must be rinsed thoroughly. Place the beaker under the funnel containing the precipitate and drop upon the latter, from a burette, the solution of ferrous ammonium sulphate till solution is complete, breaking up the precipitate occasionally with a fine stream of water from a wash bottle. Unless the manganese exceeds 0.4 per cent., not more than 20 cc. of the solution need be used. Wash out the filter and titrate the filtrate with the standard permanganate solution. The difference between the number of cc. of permanganate used and the amount which would have been employed if no manganese dioxide had been dissolved in the ferrous ammonium sulphate, multiplied by the manganese equivalent of the solution, will give the amount of manganese in one gram of iron.

The method was tested with solutions containing known amounts of manganese and gave accurate results. The method avoids the evaporation to dryness required by Volhard's method and also gives a very sharp end reaction, while the end reaction of Volhard's method is very difficult to see.

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A NEW HYDROXY-DIHYDRO-ALPHA-CAMPHOLYTIC ACID.

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Dihydro-alpha-campholytic acid was prepared by W. M. Blanchard and one of us last year. From this the alpha-brom. derivative, $C_8H_{14} \begin{matrix} -CO_2H \\ -Br. \end{matrix}$ and the corresponding hydroxy acid, $C_8H_{14} \begin{matrix} -CO_2H \\ -OH \end{matrix}$, have been prepared. When the latter is warmed with lead peroxide and dilute sulphuric acid a ketone is formed which should be identical with the 2-3.3 trimethyl cyclopentanone, prepared synthetically by one of us, if the Perkin-Bouveault formula for camphor is correct. From the melting point of the oximes the two ketones appear to be different, and the formula for camphor referred to seems to be no longer tenable. The rejection of that formula, however, compels us to suppose a transfer of a methyl group from one carbon atom to another in reactions which take place readily at ordinary temperatures under the influence of sulphuric or hydrobromic acid.