

CARBON AN IMPURITY IN HYDROGEN AFFECTING DETERMINATION OF ATOMIC WEIGHT.

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(*Abstract.*)

It is very difficult to obtain hydrogen free from carbon, if zinc is employed.

1. If zinc be dissolved in dilute acids, carbon contaminates the escaping hydrogen. No sample of zinc yet obtained by the writer gave hydrogen in which carbon was not quickly shown by passing it over heated copper oxide and into lime water.

2. If zinc be amalgamated, put into dilute acid and hydrogen obtained electrolytically, it still contains carbon, which has been proved in the same way.

3. If the purest zinc obtainable in commerce is heated in a vacuum, it gives off a gas containing carbon not in the form of the dioxide. Dr. William H. Burton kindly made many experiments on this matter: sixty grammes of zinc gave sometimes 0.8 c.c. carbon dioxide by combustion of carbon existing in the gas given off on fusion in some form other than carbon dioxide. All samples also gave off nitrogen.

4. It is obvious that metallic aluminium is likely to contain gases imprisoned in it and derived from metallurgical processes.

5. The electrolysis of an alkaline hydroxide is likely to give an impure hydrogen unless alkaline carbonates be removed. Such electrolysis, where a carbonate had been purposely added, in a voltameter most thoroughly cleaned from all organic matter, gave hydrogen containing a notable amount of carbon.

The bearing of these facts on the determination of the atomic weight of hydrogen is obvious.