METHODS FOR THE ANALYSIS OF IRON AND STEEL USED IN LABORATORIES OF THE AMERICAN ROLLING MILL CO.

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Trieste

RESEARCH LABORATORY
THE AMERICAN ROLLING MILL COMPANY
MIDDLETOWN, OHIO

Preface

WE ARE ISSUING THIS BULLETIN on account of the numerous requests we receive for copies of the methods used in our laboratories, especially those referring to the analysis of pure American Ingot Iron. Some of the methods are essentially as described in the standard text books, others are entirely new. We have not attempted to include all the elements existing in special steels. We refer the chemist to standard text books for the methods of analysis not herein described. This bulletin is intended as an aid to experienced chemists who are thoroughly conversant with the standard methods for the analysis of iron and steel. For the sake of brevity we have omitted details which are fully described in the text books, but in some cases where we considered it advisable we have given minute details.

We invite criticism and suggestions in reference to new or modifications of old methods, which will be duly credited to the author if published in our future bulletins.

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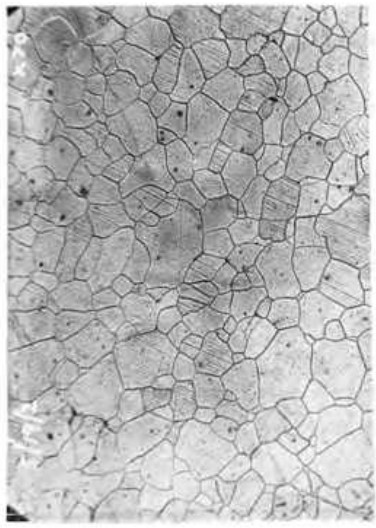
METHODS OF ANALYSIS

Determination of Silicon

Dissolve 4.69 grams of the sample in a platinum dish, using 60 c. c. of nitric acid, 1.18 specific gravity, and 10 c. c. of sulphuric acid, 1.84 specific gravity. Evaporate to dense white fumes and allow to cool. Dissolve ferric sulphate in about 35 c. c. of hydrochloric acid, 1.20 specific gravity, dilute and filter. Filter on ashless paper and wash alternately with distilled water and dilute hydrochloric acid, 1.05 specific gravity, until free from iron. Ignite in platinum crucible, using a Meker burner with natural draft. Weigh residue and add about 1 c. c. of hydrofluoric acid and about 3 drops of concentrated sulphuric acid. Heat crucible carefully until acid has evaporated, then to full temperature of burner until iron has changed to oxide. Cool and weigh. The loss is silica. Each milligram equals .01% of silicon.



AMERICAN INGOT IRON
Clear Ferrite, Medium Grain, Absence of Slag and Gases