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CIRCULAR

OF THE

BUREAU OF STANDARDS

S. W. STRATTON, DIRECTOR

No. 11

ANALYZED IRONS AND STEELS—INFORMATION AS TO SAMPLES

[6th Edition]*

Issued May 15, 1910

Under the provisions of the act of Congress establishing the Bureau of Standards, the Bureau is authorized, among other things, to determine "physical constants and the properties of materials, when such data are of great importance to scientific or manufacturing interests."

For several years the American Foundrymen's Association had charge of the preparation, analysis, and distribution of certain samples of iron for use in checking analytical results. By an agreement with that association in 1905 the samples were transferred to the Bureau of Standards, which institution has since then attended to their distribution and will endeavor to replace them with new samples as occasion demands. With the cooperation of the American Association of Steel Manufacturers, the Bureau is also issuing samples of analyzed steel.

Samples of the following irons and steels are now ready for distribution:
Pig iron (Sample B).—Renewal. The silicon and phosphorus in this iron are low.

Pig iron (Sample C).—Renewal. The silicon and phosphorus in this iron are medium.

Pig iron (Sample D).—The silicon, phosphorus, and manganese in this iron are high.

Bessemer steel (samples of approximately 0.1, 0.2, 0.4, 0.6, 0.8 per cent carbon).

Basic open-hearth steel (samples with 0.1, 0.2, 0.6, 0.8, and 1.0 per cent carbon).

Acid open-hearth steel (samples with 0.1, 0.2, 0.4, 0.6 per cent carbon).

The following samples are in course of preparation:

Basic open-hearth steel, with 0.4 per cent carbon.

Acid open-hearth steel (samples with 0.8 and 1.0 per cent carbon).

Vanadium steel, with 0.1 to 0.2 per cent vanadium.

A few of the more important alloy steels will be prepared in the near future.

Detailed certificates of analysis will be sent with samples ordered. Summary analyses are given in this circular on page 2.

Descriptive circular No. 14, giving the Bureau's methods of analysis, will be sent to those ordering samples.

* Superseding the fifth edition, issued November 1, 1909.

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USE OF THE SAMPLES

Great pains have been taken to make the contents of all the bottles uniform, and the agreement of the analyses indicates that these efforts have been successful. In shipping, however, the fine and coarse particles in the bottles become segregated *so that it is of the greatest importance that the contents of each bottle be thoroughly mixed again before any is used for analysis.* Each bottle of iron will be labeled with its letter and serial number only, and each bottle of steel with its appropriate percentage of carbon and serial number, but gummed labels containing the average of the analyses by the different chemists will be furnished with each sample, and also certificates giving the complete analysis of each chemist, as it is believed that many will desire to know how close an agreement has been secured in these analyses. Owing to the dependence of the colorimetric method on identical heat treatment and composition of sample and standard, and the difficulty of securing these conditions in practice, the steels are not recommended for this method.

FEES

The following schedule of fees has been adopted for samples of the same or different irons or steels:

SCHEDULE 101.—*Samples of Analyzed Irons and Steels.*

(a) Single samples, of 150 grams, each sample	\$2.00
(b) Three or more samples, each	1.70

Orders for samples should be accompanied by a remittance, which may be by check, draft, or post-office order, and should be made payable to the Bureau of Standards.

S. W. STRATTON,
Director.

Approved:

CHARLES NAGEL,
Secretary.



