TITLE:
Ultraviolet Spectrophotometric Determination of Iron (III) as Chloro-complex

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CITATION:

ISSUE DATE:
1958-07-31

URL:
http://hdl.handle.net/2433/75645

RIGHT:
ABSTRACTS

The results indicated that the hardness of boundary-line portion was about 1.5
\~2.7 times of meshy portion.

The authors presumed that one of the major reasons of the greater wear-
resistance of S-H cast iron was based upon the following characteristics:
1. The existence of a unique net structure of S-H cast iron.
2. The presence of a boundary-line portion of greater hardness in the
matrix of eutectic graphite structure of lower hardness.
3. The fine and uniform distribution of fine TiC particles in S-H cast iron
casting.

Ultraviolet Spectrophotometric Determination of Iron(III)
as Chloro-complex

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Bulltein of the Chemical Society of Japan, 30, 433, (1957)

The absorption spectra have been investigated for the solution of ferric
perchlorate at various concentrations of hydrochloric acid. It was found that
the tetra chloro-complex is formed even at the small concentration of chloride
when the acidity is considerably high, but it may not be formed even at higher
chloride concentration if the acidity is low. It was also assumed from the
result of change in absorption spectra that the reduction of ferric to ferrous
ion occurred in concentrated hydrochloric acid such as 9.6 N. A method for
spectrophotometric determination of iron has been then studied using hydro-
chloric acid as reagent. Effects of temperature, acidity and diverse ions have
been examined and the iron content of iron-base alloys has been determined
differential method. Some of the results obtained are as follows:
1) The Beer's law is followed in the range 0.2~20 p.p.m. of iron by ordi-
nary method and up to 60 p.p.m. by differential method.
2) The effect of temperature to the absorbance is almost negligible in the
range 10~25°C.
3) The presence of such cations as Na+, K+, NH4+, Co++, Zn++, Mn++ and
Al³+ does not interfere in the concentration of 200 p.p.m. For Cu++ and Ti⁴+,
it is found that the maximum allowable concentration was 2.0 p.p.m.
4) In the determination of the iron content of iron base alloys by the
proposed method the error was about 0.4%.

Fluorometric Determination of Aluminum with Pentachrome
Blue Black R

Masayoshi Ishibashi, Tsunenobu Shigematsu and Yasuharu Nishikawa