

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 629

CHEMICAL ANALYSIS OF STEELS
DETERMINATION OF MANGANESE
(SPECTROPHOTOMETRIC METHOD)

1st EDITION

November 1967

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BRIEF HISTORY

The ISO Recommendation R 629, *Chemical Analysis of Steels — Determination of Manganese — (Spectrophotometric Method)*, was drawn up by Technical Committee ISO/TC 17, *Steel*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1955 and led, in 1965, to the adoption of a Draft ISO Recommendation.

In February 1966, this Draft ISO Recommendation (No. 914) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Argentina	Hungary	Romania
Australia	India	Spain
Austria	Israel	Sweden
Belgium	Italy	Switzerland
Brazil	Japan	Turkey
Canada	Korea, Rep. of	U.A.R.
Chile	Netherlands	United Kingdom
Czechoslovakia	New Zealand	U.S.A.
Denmark	Norway	U.S.S.R.
France	Poland	Yugoslavia
Germany	Republic of South Africa	

One Member Body opposed the approval of the Draft:

Portugal

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1967, to accept it as an ISO RECOMMENDATION.

CHEMICAL ANALYSIS OF STEELS
DETERMINATION OF MANGANESE
(SPECTROPHOTOMETRIC METHOD)

1. SCOPE

- 1.1 This ISO Recommendation describes a spectrophotometric method for the determination of manganese in steels.
- 1.2 The method is applicable to manganese contents between 0.01 and 4%.

2. PRINCIPLE OF THE METHOD

After solution of the steel, the manganese is oxidized to the permanganate ion by sodium periodate and determined spectrophotometrically.

3. REAGENTS *

- 3.1 **Water free from organic matter.** Bring to the boil demineralized water acidified with 10 ml per litre of sulphuric acid (3.4), add several crystals of sodium periodate (3.2) and keep boiling for 10 minutes.
- 3.2 **Sodium periodate**, pure for analysis.
- 3.3 **Potassium permanganate**, pure for analysis (purity over 99.5%).
- 3.4 **Sulphuric acid** ($d=1.83$ approximately).
- 3.5 **Nitric acid** ($d=1.40$ approximately).
- 3.6 **Perchloric acid** ($d=1.67$ approximately).

NOTE. — 60% perchloric acid ($d=1.54$ approximately) may also be used (1000 ml of perchloric acid $d=1.67$ are equivalent to 1270 ml of perchloric acid $d=1.54$).

* Verify by blank tests that the relevant reagents are free from manganese. Wherever necessary, the results should be corrected accordingly.