TECHNICAL REPORT

ISO TR 6306

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Chemical analysis of steel — Order of listing elements

Analyse chimique des aciers — Ordre de report des éléments

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of ISO technical committees is to prepare International Standards. In exceptional circumstances a technical committee may propose the publication of a technical report of one of the following types:

— type 1, when the necessary support within the technical committee cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development requiring wider exposure;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical reports are accepted for publication directly by ISO Council. Technical reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 6306, which is a technical report of type 3, was prepared by Technical Committee ISO/TC 17, *Steel.*

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
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Introduction

The sequence in which elements are listed in steel specifications and analysis reports has never been standardized and varies considerably between different organizations. Although this has always been a potential source of confusion, the cost and temporary inconvenience of standardizing the order has not been considered worthwhile.

The modern tendency towards international standardization and the use of computers for storing, processing and retrieving information has greatly increased the case for standardizing the order of listing elements. This is particularly so when data from several sources are processed by a single computer. Consequently, there is a growing awareness of the long-term advantages of national and international standardization.

Some measure of international agreement has already been achieved in steel specifications developed by ISO/TC 17/SC 4 (Heat treatable and alloy steels) for the first five elements and this has been incorporated into the recommendations given in this Technical Report.

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Chemical analysis of steel — Order of listing elements

1 Scope

This Technical Report sets out a recommended order for listing elements determined in steels and most other iron-based alloys, excluding foundry irons, where the priorities are different.

2 Recommendations

The elements are divided into four groups. These groups have no real technical significance but they are considered to provide the easiest means of readily remembering the recommended order.

Group 1 includes the five elements that are regarded as the most important in all types of steel, in the order recommended by ISO/TC 17/SC 4. Also included in this group are the three elements of next greatest importance in alloy steels. These follow the first five arranged in alphabetical order of their chemical symbols.

Group 2 includes another 13 elements that are commonly determined in a wide variety of commercial steels. These are arranged in alphabetical order of their chemical symbols.

Group 3 is reserved for any element not assigned a place in the set order. When more than one such element is determined they should be arranged in alphabetical order of their chemical symbols.

Group 4 is reserved for hydrogen.

The recommended order thus becomes:

— **C Si Mn P S Cr Mo Ni**

— **Al As B Co Cu N Nb Pb Sn Ti V W Zr**

— Other elements determined, in alphabetical order of their chemical symbols

— **H**

With the exception of hydrogen, elements should be reported in per cent by mass [% (m/m)] irrespective of the content.

Hydrogen should be reported in micrograms per gram (μg/g).

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Descriptors : steels, tests, chemical analysis, test results, data representation.

Price based on 1 page