INTERNATIONAL STANDARD

ISO 22444-1

First edition
2020-10

Rare earth — Vocabulary —

Part 1: Minerals, oxides and other compounds

Terres rares — Vocabulaire —

Partie 1: Minéraux, oxydes et autres composants

Reference number
ISO 22444-1:2020(E)

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 298, *Rare earth*.

A list of all parts in the ISO 22444 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Rare earth elements are widely used. Different business and industry sectors have various descriptions for rare earth elements and their compounds and alloys. Therefore, it is of vital importance to unify the terminology used in the rare earth industry.

About 250 minerals contain significant amounts of rare earth elements although there are only a few that are economically exploited at this time. Various rare earth oxides and other compounds are obtained from these rare earth minerals as they are processed through to intermediate products and on to final products.

This document specifies terms for use by producers, consumers and traders in the field of rare earth minerals, oxides and other compounds. This document will serve as a reference that will help to reduce discrepancies or trade disputes caused by inconsistencies in terms used when dealing with rare earth minerals, oxides and other compounds.

Rare earth — Vocabulary —

Part 1:
Minerals, oxides and other compounds

1 Scope

The document defines the terms for rare earth minerals, oxides and other compounds, as well as for related production processes.

This document can be used as a reference to unify technical terms in rare earth production, application, inspection, circulation, trading, scientific research and education.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
rare earth element
collective name for scandium (Sc), yttrium (Y) and the lanthanides (La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu), which was approved by the International Union for Pure and Applied Chemistry (IUPAC) in its 2005 Nomenclature of Inorganic Chemistry Recommendations[1]

Note 1 to entry: Certain terms and corresponding abbreviated terms are common such as rare earth element (REE or RE) and *rare earth oxide (REO)* (5.2.1).

Note 2 to entry: Rare earth elements are frequently referred to as being either light rare earth (LREE), medium rare earth (MREE) or heavy rare earth (HREE), with LREE including the elements between lanthanum (La) and neodymium (Nd), MREE including the elements between samarium (Sm) and gadolinium (Gd), and HREE including the elements from terbium (Tb) to lutetium (Lu) as well as scandium (Sc) and yttrium (Y).

Note 3 to entry: Didymium is commonly used to express a mixture of the elements Pr and Nd.

Note 4 to entry: Characteristics of rare earth elements are described in Annex A.

3.2
rare earth mineral
mineral containing one or more *rare earth elements* (3.1)

Note 1 to entry: Rare earths can be present as a simple compound, incorporated in the lattice of another mineral, or sorbed to another mineral, such as *bastnaesite* (4.1.1), *monazite* (4.1.2) or montmorillonite as in ionic clay deposits.