Technical Specification

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Nanotechnologies — Nomenclature — General

Nanotechnologies — Nomenclature — Généralités

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Foreword

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This document was prepared by Technical Committee ISO/TC 229, *Nanotechnologies*.

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

The main purpose of this document is to provide a general terminology naming system for the use in the field of nanotechnologies for commonly used descriptors such as “nano”, “nanostructured”, “nanomaterial” and “nanotechnology”. The system of principles and rules described within gives rise to a nomenclature convention for naming nanomaterials and nanotechnology-related items to promote communication and consistency in vocabularies. This nomenclature convention has been derived from the ISO/TS 80004 series that has been developed over the last 15 years and is intended to reduce the need for new term creation, while providing guidance intended to improve communication of social and technically relevant terms.

Much of the terminology in nanotechnologies includes the use of a common group of descriptors. Many of these descriptors have been reduced and defined as qualifiers with identified usage conventions in this document to be consistent with essence of the original vocabulary in the ISO/TS 80004 series. The naming conventions provided in this document allow for the reduction of required defined terms in the ISO/TS 80004 series documents while maintaining consistency in communication. A list of all parts of the ISO 80004 series can be found on the ISO website.

In 2023, ISO/TS 80004-1:2015, ISO/TS 80004-2:2015, ISO/TS 80004-4:2011, and ISO/TS 80004-11:2017 were combined into ISO 80004-1:2023*Nanotechnologies – Vocabulary – Part 1: Core Vocabulary*. Unless terms are specifically defined as otherwise within relevant International Standards, the naming convention provided in this document apply for the field of nanotechnologies.

This document is deliberately intended to capture the essence of the naming convention that has implicitly emerged through the development of terminology in standardization and in the broader nanotechnology community. ISO 80004-1:2023 complements this document by providing consolidated terms and definitions for the nanotechnologies field. Naming convention details for more complex particles, systems and structures are planned for future nomenclature documents.

The naming convention is constructed through the inclusion of defined qualifier terms that are used to modify a target term. Instructions for and examples of the naming convention used are provided in Clause 4, while definitions of the qualifier terms are provided in Clause 3 of this document.

Nanotechnologies — Nomenclature — General

1 Scope

This document provides the principles and rules for the naming of general terms in the field of nanotechnologies. This document gives guidance for the naming of a range of concepts, materials, objects, items and phenomena using a series of identified qualifiers, following the convention described within this document.

NOTE Additional terms and definitions that relate to nanotechnologies are provided in ISO 80004-1:2023.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

3.1 General terms

3.1.1
nanoscale
length range approximately from 1 nm to 100 nm

[SOURCE: ISO 80004-1:2023, 3.1.1]

3.1.2
nanomaterial
material with any external dimension in the *nanoscale* (3.1.1) or having internal structure or surface structure in the nanoscale

Note 1 to entry: This generic term is inclusive of *nano-object* (3.1.3) and *nanostructured material* (3.1.5).

3.1.3
nano-object
discrete piece of material with one, two or three external dimensions in the *nanoscale* (3.1.1)

[SOURCE: ISO 80004-1:2023, 3.1.5]

3.1.4
nanostructure
surface or internal feature with one or more dimensions in the *nanoscale* (3.1.1)

Note 1 to entry: A feature includes but is not limited to *nano-objects* (3.1.3), structures, morphologies or other identifiable areas of nanoscale dimensions. For example, the nanostructure can be a *nanopore* (3.1.22) or a solid feature on an object.

[SOURCE: ISO 80004-1:2023, 3.1.6]