

PD CEN ISO/TS 80004-4:2014



BSI Standards Publication

Nanotechnologies — Vocabulary

Part 4: Nanostructured materials

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee NTI/1, Nanotechnologies.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Text affected
31 January 2015	This corrigendum renumbers DD ISO/TS 80004-4:2011 as PD CEN ISO/TS 80004-4:2014

English Version

Nanotechnologies - Vocabulary - Part 4: Nanostructured materials (ISO/TS 80004-4:2011)

Nanotechnologies - Vocabulaire - Partie 4: Matériaux nanostructurés (ISO/TS 80004-4:2011)

Nanotechnologien - Fachwörterverzeichnis - Teil 4: Nanostrukturierte Materialien (ISO/TS 80004-4:2011)

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Foreword

The text of ISO/TS 80004-4:2011 has been prepared by Technical Committee ISO/TC 229 “Nanotechnologies” of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 80004-4:2014 by Technical Committee CEN/TC 352 “Nanotechnologies” the secretariat of which is held by AFNOR.

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Endorsement notice

The text of ISO/TS 80004-4:2011 has been approved by CEN as CEN ISO/TS 80004-4:2014 without any modification.

Introduction

With increasing scientific knowledge and a growing number of technical terms in this field, the purpose of this Technical Specification is to define important terms for nanostructured materials.

Nanostructured materials are characterized by internal structures or surface structures at the nanoscale. Nano-objects (material with one, two or three external dimensions in the nanoscale) can be nanostructured.

A material should not be classified as nanostructured based solely on its crystalline properties (three-dimensional arrangements of atoms or molecules forming a crystallite, short range order of atoms in amorphous or quasi-amorphous phases, grain boundaries, intragranular interfaces, dislocations, etc.). In contrast, materials with a grain size distribution having a significant fraction of grains in the nanoscale (nanocrystalline), voids and pores in the nanoscale, or precipitations in the nanoscale (i.e. nano-objects in a solid matrix) are sufficient features for materials to be classified as “nanostructured” (see ISO/TS 80004-1:2010, 2.4, nanomaterial). Similarly, almost all materials always have surfaces with morphological and chemical heterogeneities in the nanoscale. Only surfaces that have been intentionally modified or textured to have morphological or chemical heterogeneities in the nanoscale identify materials as “nanostructured”.

Five categories of nanostructured materials are covered in this Technical Specification (see Figure 1):

- 1) nanostructured powder;
- 2) nanocomposite;
- 3) solid nanofoam;
- 4) nanoporous material;
- 5) fluid nanodispersion.

For some of these five categories, a number of subcategory terms are also defined. The category and subcategory terms are not comprehensive; additional categories and subcategories will be added in later revisions of this Technical Specification.

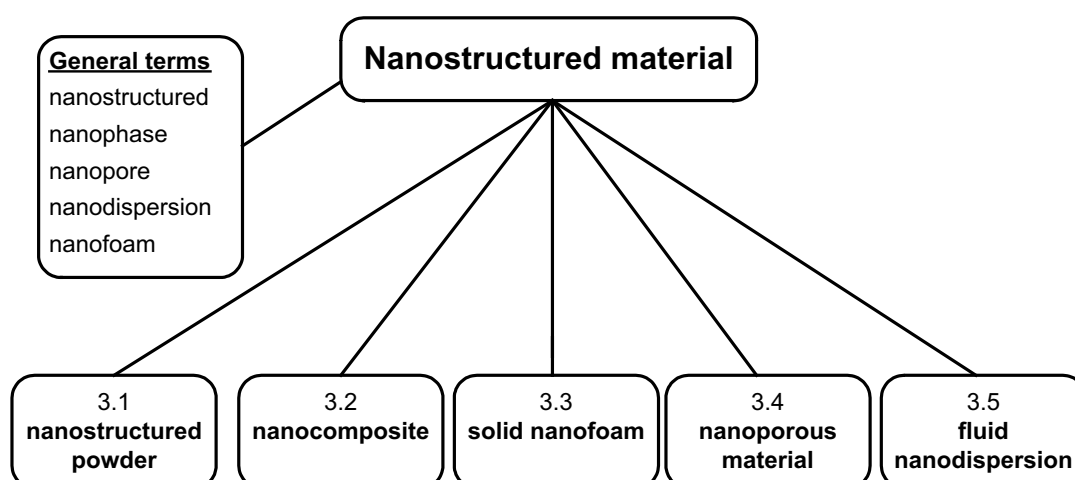


Figure 1 — Categories of nanostructured materials defined in this Technical Specification