CSA Z13329:15
(ISO/TR 13329:2012, MOD)
National Standard of Canada
(reaffirmed 2020)

CSA Z13329:15
Nanomaterials — Preparation of safety data sheets (SDSs)
(ISO/TR 13329:2012, MOD)

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CSA Preface

This is the first edition of CAN/CSA-Z13329, *Nanomaterials — Preparation of safety data sheets (SDSs)*, which is an adoption, with Canadian deviations, of ISO (International Organization for Standardization) Technical Report 13329 (first edition, 2012-12-01), *Nanomaterials — Preparation of Material Safety Data Sheet (MSDS)*.

For brevity, this Standard will be referred to as "CAN/CSA-Z13329" throughout.

This Standard contains revisions and additional guidance to reflect Canadian practices and safety considerations. The title of this Standard has been changed to better reflect the subject matter. This Standard is one of a series of Standards on nanotechnologies resulting from international and Canadian contributions to the continued activity of ISO/TC 229, the ISO Technical Committee on nanotechnologies.

The preparation of SDSs is governed in Canada by the *Hazardous Products Act,* the *Hazardous Materials Information Review Act*, and occupational health and safety legislation in each federal, provincial, and territorial jurisdiction. The guidance provided by CAN/CSA-Z13329 is intended only as a supplement to the requirements of those laws.

This Technical Report was reviewed for Canadian adoption by the CSA Technical Committee on Nanotechnology — Occupational Health and Safety, under the jurisdiction of the CSA Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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This Standard is subject to review five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line:

a) *Standard designation (number);*
b) *relevant clause, table, and/or figure number;*
c) *wording of the proposed change; and*
d) *rationale for the change.*

TECHNICAL REPORT

ISO/TR 13329

First edition
2012-12-01

Nanomaterials — Preparation of Material Safety Data Sheet (MSDS)

Nanomatériaux — Préparation des feuilles de données de sécurité des matériaux (MSDS)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, 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), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 13329 was prepared by Technical Committee ISO/TC 229, *Nanotechnologies*.

Introduction

This Technical Report provides guidance on the development of safety data sheets (SDSs) for manufactured nanomaterials (and materials or products that contain manufactured nanomaterials), and provides additional information on safety issues associated with manufactured nanomaterials. It is not a stand-alone document and should be used in conjunction with ISO 11014:2009[1]. This Technical Report takes into account the *Globally harmonized system of classification and labelling of chemicals (GHS)* document on hazard communication: safety data sheets. The GHS was developed by the United Nations and is being incorporated into the laws of various regions and nations, many of which already have laws that govern the preparation of SDSs. However, implementing the guidance provided in this Technical Report is not a substitute for complying with the law. Organizations should consult with relevant national authorities to address questions about interpreting or complying with national law.

Currently, there is limited information on the hazards of most nanomaterials. In many cases the degree of risk to workers or others who might be exposed to nanomaterials is partly unknown as the toxicological effects of nanomaterials are not yet well known and exposure is difficult to measure. Most hazard information and communication systems require preparation of an SDS for hazardous chemicals, including those containing nanomaterials, for use in manufacture, storage, transport or other occupational handling activities. Yet, only a few SDSs contain specific information about nanomaterials or are specific to nanomaterials. Those that exist generally provide insufficient hazard information (see Reference [2]). There is evidence that some nanomaterials might be more hazardous, e.g. more bio-reactive or active, leading to higher toxicity, than the same material in bulk (non-nanoscale) form. Characteristics predictive of potential safety or toxicity for manufactured nanomaterials need to be determined and included in the preparation of an SDS. Although, currently, no competent authority has a legal requirement to demand an SDS for a nanomaterial that is not already classified as a hazardous chemical, it is good practice to do so since an SDS is a well-accepted and effective method for the provision of workplace health and safety information.

This Technical Report considers the precautionary approach in terms of toxicity and other risks associated with nanomaterials and thus recommends providing an SDS for nanomaterials and nanomaterial-containing products regardless of whether or not the material is classified as hazardous, unless there is existing data for the nanomaterial which demonstrates that it is non-hazardous, or if it is not envisaged that they can be released as nano-objects, or their agglomerates and aggregates greater than 100 nm (NOAA), during handling or use.

Nanomaterials — Preparation of Material Safety Data Sheet (MSDS)

1 Scope

This Technical Report provides guidance on the development of content for, and consistency in, the communication of information on safety, health and environmental matters in safety data sheets (SDS) for substances classified as manufactured nanomaterials and for chemical products containing manufactured nanomaterials. It provides supplemental guidance to ISO 11014:2009[1] on the preparation of SDSs generally, addressing the preparation of an SDS for both manufactured nanomaterials with materials and mixtures containing manufactured nanomaterials.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 27687:2008, *Nanotechnologies — Terminology and definitions for nano-objects: Nanoparticle, nanofibre and nanoplate*

ISO/TS 80004-1:2010, *Nanotechnologies — Vocabulary — Part 1: Core terms*

Globally harmonized system of classification and labelling of chemicals (GHS). United Nations Economic Commission for Europe, Fourth Edition, 2011

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 27687:2008, ISO 80004-1:2010, GHS:2011 and the following apply.

3.1
agglomerate
collection of weakly bound particles or aggregates or mixtures of the two where the resulting external surface area is similar to the sum of the surface areas of the individual components

[ISO/TS 27687:2008, definition 3.2]

Note 1 to entry: The forces holding an agglomerate together are weak forces, for example van der Waals forces, or simple physical entanglement.

Note 2 to entry: Agglomerates are also termed secondary particles and the original source particles are termed primary particles.

3.2
aggregate
particle comprising strongly bonded or fused particles where the resulting external surface area may be significantly smaller than the sum of calculated surface areas of the individual components

[ISO/TS 27687:2008, definition 3.3]

Note 1 to entry: The forces holding an aggregate together are strong forces, for example covalent bonds, or those resulting from sintering or complex physical entanglement.