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SOUTH AFRICAN NATIONAL STANDARD

The identification and classification of dangerous goods for transport by road and rail modes

WARNING
This document references other documents normatively.

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Table of changes

Change No.	Date	Scope

Acknowledgement

The South African Bureau of Standards wishes to acknowledge the valuable assistance derived from publications of the United Nations.

Foreword

This South African standard was prepared by National Committee, SABS/TC 1060/SC 02, *National committee for standards for dangerous goods including hazardous chemical substances and dangerous goods – Classification, operational requirements and information*, in accordance with procedures of the South African Bureau of Standards, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in September 2022.

This document supersedes SANS 10228:2012 (edition 6).

This document is referenced in the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the National Road Traffic Act, 1996 (Act No. 93 of 1996), and the National Health Act, 2003 (Act No. 61 of 2003).

Reference is made in 7.2 to the "relevant national authority". In South Africa this means the Chief Inspector of Explosives of the South African Police Service in terms of the Explosives Act, 2003 (Act No. 15 of 2003).

Reference is made in 13.2.1.1 to the "relevant national legislation". In South Africa this means the Nuclear Energy Act, 1999 (Act No. 46 of 1999), the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999), and the Hazardous Substances Act, 1973 (Act No. 15 of 1973).

Reference is made in 13.2.1.2 and 13.2.1.2(a) to the "relevant national legislation". In South Africa this means the Nuclear Energy Act, 1999 (Act No. 46 of 1999).

Reference is made in 13.2.1.2(d) to the "relevant national authority". In South Africa this means the National Nuclear Regulator (NNR).

Reference is made in 13.2.1.3 to the "relevant national legislation". In South Africa this means the Hazardous Substances Act, 1973 (Act No. 15 of 1973).

Reference is made in 13.2.1.3(b) to the "relevant national department". In South Africa this means the Minister of Health in terms of the relevant notice in the Government Gazette.

Reference is made in 13.2.2 to the "relevant national authorities". In South Africa this means the National Nuclear Regulator (NNR), Directorate: Health Technology of the Department of Health and the South African Nuclear Energy Corporation Limited (NECSA).

Reference is made in the note to clause 18 to the "relevant national legislation". In South Africa this means the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

Compliance with this document cannot confer immunity from legal obligations.

Contents

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The identification and classification of dangerous goods for transport by road and rail modes

1 Scope

1.1 This standard covers the identification of dangerous goods that are capable of posing a significant risk to health and safety, or to property and the environment. This standard applies to road and rail modes of transport.

1.2 This standard covers the classification and proper shipping names for dangerous goods that are regulated in order to prevent, as far as possible, accidents to persons or property and damage to the environment. The purpose of this standard is to facilitate safe transport and seamless international trade.

1.3 This standard is based on the 21st Revision of the United Nations' *Recommendations on the Transport of Dangerous Goods* which forms the framework for all transport modal regulations as well as regional and national road and rail regulations.

1.4 Dangerous goods are classified into 9 classes with subclasses which are applicable to all transport modes.

1.5 The International Maritime Dangerous Goods Code (IMDG) is applicable in as far as shipping of dangerous goods is concerned.

2 Normative references

The following referenced documents, in whole or in part, 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. Information on currently valid national and international standards can be obtained from the South African Bureau of Standards.

2.1 Standards

SANS 10229-1, *Transport of dangerous goods – Packaging and large packaging for road and rail transport – Part 1: Packaging.*

2.2 Other publications

United Nations' Recommendations on the Transport of Dangerous Goods.

3 Definitions

For the purposes of this document, the definitions given in the United Nations' *Recommendations on the Transport of Dangerous Goods* (i.e. 1.2.1, 2.1.1, 2.2.1, 2.3.1, 2.4.1, 2.5.1, 2.6.1, 2.7.1, 2.8.1 and 2.9.1) apply.

4 Dangerous Goods List (DGL)

4.1 Alphabetic list of dangerous goods

4.1.1 The United Nations' *Recommendations on the Transport of Dangerous Goods* provides an alphabetical index of substances and articles which tabulates an alphabetical list of dangerous goods with the proper shipping name and the UN number.

4.1.2 Appendix A from the United Nations' *Recommendations on the Transport of Dangerous Goods* provides a list of generic or N.O.S. proper shipping names and also tabulates the class or division, the subsidiary risk and the UN number.

4.2 Training and security

4.2.1 Chapter 1.3 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

4.2.2 Chapter 1.4 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

4.2.3 Chapter 2.1 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

5 Classification system, packing group allocation and subsidiary risk

5.1 Classification system

Sub-chapters 2.0.1 to 2.0.3 from the United Nations' *Recommendations on the Transport of Dangerous Goods* provide a layout of the structure of the classification system.

5.2 Tests and criteria

The test methods for the classification of dangerous goods are identified in the United Nations' *Recommendations on the Transport of Dangerous Goods*.

5.3 Numerical list of Dangerous Goods

5.3.1 Chapter 3.3 of the United Nations' *Recommendations on the Transport of Dangerous Goods* identifies the relevant special provisions relating to individual articles or substances, with reference to SANS 10229-1.

5.3.2 Chapter 3.2 of the United Nations' *Recommendations on the Transport of Dangerous Goods* tabulates the information required for their identification and classification, i.e. the UN number, the name and description, the class or division, the subsidiary risk, the packing group, special provisions, limited and excepted quantities, references to the appropriate packing instructions and the special packing provisions given in SANS 10229-1.

6 General provisions

6.1 The IMDG is applicable in as far as shipping of dangerous goods is concerned.

6.2 Chapter 1.1 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

7 Class 1: Explosives

7.1 General

Chapter 2.1 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

7.2 Competent authority for the classification of explosives

The classification of all explosive articles and substances, together with their compatibility group allocation, shall be approved by the relevant national authority (see the foreword).

8 Class 2: Gases

Chapter 2.2 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

9 Class 3: Flammable liquids

Chapter 2.3 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

10 Class 4: Flammable solids; substances liable to spontaneous combustion; substances that, on contact with water, emit flammable gases

Chapter 2.4 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

11 Class 5: Oxidizing substances and organic peroxides

Chapter 2.5 from the United Nations' *Recommendations on the Transport of Dangerous Goods* (Chapter 2.5) shall be followed.

12 Class 6: Toxic and infectious substances

Chapter 2.6 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

13 Class 7: Radioactive material

13.1 General

Chapter 2.7 and sub-chapter 1.5.1 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

13.2 South African context

13.2.1 General

13.2.1.1 The total and specific activity levels of a material which, if these levels are exceeded, shall define the material as class 7 dangerous goods, are determined by the regulatory authorities responsible for the statutory control of radioactive material and are controlled in terms of the relevant national legislation (see foreword).

13.2.1.2 The following declarations have been made in terms of the relevant national legislation (see foreword):

a) 0,2 Bq/g shall be the specific activity of each radioactive nuclide in radioactive material below which the provisions of the relevant national legislation (see foreword) do not apply;

b) source material shall be any substance that contains

   1) uranium, expressed as U_3O_8, in excess of 3 kg and 0,5 % of the mass of the substance,

   2) thorium, expressed as ThO_2, in excess of 3 kg and 0,5 % of the mass of the substance, or

   3) uranium, depleted in the uranium-235 (U-235) nuclide, in excess of 3 kg;

c) special nuclear material shall be of any substance in a quantity such that it consists of, or contains more than 0,5 g of

   1) uranium-235 (U-235),

   2) uranium enriched in its U-235 nuclide, or

   3) any trans-uranium element; and

d) at the discretion of the relevant national authority (see foreword), activities that involve radioactive material intended for transport can be conducted without being subject to the requirements for obtaining nuclear authorization from the said relevant national authority (see foreword), provided that

   1) the specific activity of the radionuclides in the material involved does not exceed 100 Bq/g, or

   2) the total radioactivity involved in a year does not exceed 10 kBq, or

   3) the radiation dose does not exceed 1 mSv per year.

13.2.1.3 The relevant national legislation (see foreword) defines a group IV hazardous substance as radioactive material outside a nuclear installation that does not form part of, nor is used, nor is intended to be used, in the nuclear fuel cycle, and that has

a) an activity concentration exceeding 100 Bq/g and a total activity exceeding 4 kBq, or

b) an activity concentration not exceeding 100 Bq/g and a total activity not exceeding 4 kBq, and is used, or is intended to be used for medical, scientific, agricultural, commercial or industrial purposes. Such radioactive material together with any radioactive waste that evolves from it, has been declared a group IV hazardous substance by the relevant national department (see foreword).

13.2.2 Authorities responsible for the control of radioactive material

The relevant national authorities (see foreword) are responsible for the control of radioactive material and shall be consulted for information regarding this material and matters pertaining to it.

14 Class 8: Corrosive substances

Chapter 2.8 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

15 Class 9: Miscellaneous dangerous substances and articles, including environmentally hazardous substances

Chapter 2.9 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

16 Classification of dangerous substances and goods not listed in this standard

Sub-chapters 1.1.2.1; 3.1.1.1; 3.1.1.2, and 3.1.2.8 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

17 Classification of solutions and mixtures

Sub-chapter 3.1.3 from the United Nations' *Recommendations on the Transport of Dangerous* Goods shall be followed.

18 Classification of waste

Sub-chapters 2.0.1.2.1 and 2.0.1.5 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

NOTE Regulations promulgated in terms of the relevant national legislation (see foreword) may prescribe additional requirements.

19 Classification of empty containers

Empty containers that have not been cleaned and containers that are not gas-free shall be classified as 'UN 3509'.

20 Transport of samples

Chapter 2.0.4 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

21 Precedence of hazards

Sub-chapters 2.0.3.1 and 2.0.3.2 from the United Nations' *Recommendations on the Transport of Dangerous Goods* shall be followed.

Bibliography

Convention on the Prohibition of the Development, Production, Stockpiling and use of Chemical Weapons and on their Destruction (A/RES/47/39), adopted by the General Assembly of the United Nations in New York, United States of America, on 30 November 1992.

United Nations' Manual of tests and criteria.