MÄNGUASJADE OHUTUS. OSA 3: TEATUD ELEMENTIDE MIGRATSIOON

Safety of toys - Part 3: Migration of certain elements



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN sisaldab Euroopa 71-3:2013+A2:2017 ingliske	standardi EN	This Estonian standard EVS-EN 71-3:2013+A2:2017 consists of the English text of the European standard EN 71-3:2013+A2:2017.
Standard on jõustunud avaldamisega EVS Teatajas	sellekohase teate	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorgani Euroopa standardi rahv kättesaadavaks 09.08.2017.	uslikele liikmetele	Date of Availability of the European standard is 09.08.2017.
Standard on kät Standardikeskusest.	tesaadav Eesti	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile <u>standardiosakond@evs.ee</u>.

ICS 97.200.50

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2017

EN 71-3:2013+A2

ICS 97.200.50

English Version

Safety of toys - Part 3: Migration of certain elements

Sécurité des jouets - Partie 3 : Migration de certains éléments

Sicherheit von Spielzeug - Teil 3: Migration bestimmter Elemente

This European Standard was approved by CEN on 18 August 2014 and includes Amendment 2 approved by CEN on 18 April 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Cont	ents	Page
Europ	ean foreword	5
-	luction	
1	Scope	
2	Normative references	
3	Terms and definitions	
4	Requirements	
4.1	Toy material categories (see H.4)	
4.2	Specific requirements	
5	Principle	
6	Reagents and apparatus	
6.1	Reagents	
6.2	Apparatus	
7 7.1	Sampling and sample preparation Selection of test portions	
7.1 7.2	Standards preparation	
7.2 7.3	Sample preparation	
7.4	Migration procedure	
8	Methods of analysis	18
9	Calculation of results	18
9.1	General elements	
9.2	Chromium (III) and Chromium (VI)	
9.3	Organic tin	
10	Test report	21
	x A (informative) Significant technical changes between this European Standard and the previous version	22
Annex	x B (informative) Method performance	24
B.1	Method performance	
B.2	Use of measurement uncertainty in compliance assessment	
В.3	Information on round robin test	
Annex	« C (normative) Sieve requirements	
Annex	x D (informative) Preparation and analysis of test portion	27
Annex	x E (informative) Method of analysis for general elements	28
E.1	Principle	28
E.2	Working solutions	
E.2.1	Working solutions ICP-MS	28
E.2.2	Working solutions ICP-OES	

E.3	Procedure	31
E.4	Analysis	31
E.4.1	General	31
E.4.2	Limit of detection and quantification	32
Anne	x F (informative) Methods of analysis for speciation of Chromium (III) and (VI)	34
F.1	Principle	34
F.2	Reagents	34
F.3	Apparatus	35
F.4	Procedure	36
F.5	Analysis	36
F.5.1	General	36
F.5.2	LC-ICP-MS conditions	36
F.5.3	Limit of detection and quantification	37
Figur	e F.1 — Example of chromatogram of 0,6 ppb Chromium (III) and (VI)	38
Anne	x G (informative) Method of analysis for organic tin (see H.10)	39
G.1	Principle	39
G.2	Terms and definitions	
G.3	Reagents	40
G.4	Apparatus	43
G.5	Procedure	43
G.5.1	Sample derivatisation	43
G.5.2	Calibration standards	43
G.6	Analysis	
G.6.1	General	44
G.6.2	Example of GC conditions	46
G.6.3	Example of MS conditions	47
G.6.4	Limit of detection and quantification	47
G.6.5	Example of a GC/MS chromatogram	48
Anne	x H (informative) Rationale	49
H.1	General	
H.2	Mouthing behaviour of children (Scope)	
Н.3	Skin contact (Scope)	49
H.4	Toy categories (4.1)	50
H.5	Test portions (7.1, 7.3.3.2, 7.3.3.3, 7.3.3.6)	50
H.6	Size of test pieces (7.3.3.2, 7.3.3.3, 7.3.3.4)	50
H.7	Textile threads	50

H.8	Chromium (VI) migration (7.4)	50
H.9	Filtration of migration solutions (7.4.2.1, 7.4.2.2, 7.4.3.1, 7.4.3.3, 7.4.3.5)	51
H.10	Organic tin (9.3)	51
H.11	pH value	51
H.12	De-waxing (see 7.3.2)	52
Anne	x I (informative) Conformity assessment	53
I.1	General	
I.2	Chromium VI	53
Anne	x J (informative) List of other organic tin compounds	54
Anne	x ZA (informative) Relationship between this European Standard and the Essentia Requirements of EU Directive 2009/48/EC	ıl 55
Biblio	ography	
4	Requirements of EU Directive 2009/48/EC	25

European foreword

This document (EN 71-3:2013+A2:2017) has been prepared by Technical Committee CEN/TC 52 "Safety of toys", the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

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

This document supersedes A EN 71-3:2013+A1:2014 (A).

This document includes Amendment 1 approved by CEN on 2014-08-18.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A] (A1).

This document includes Amendment 2 approved by CEN on 2017-05-31.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{\mathbb{A}}$.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2009/48/EC.

For relationship with EU Directive 2009/48/EC, see informative Annex ZA, which is an integral part of this document.

The significant changes from the previous edition of this standard are detailed in Annex A.

EN 71, Safety of toys, consists of the following parts:

- Part 1: Mechanical and physical properties;
- Part 2: Flammability;
- Part 3: Migration of certain elements;
- Part 4: Experimental sets for chemistry and related activities;
- Part 5: Chemical toys (sets) other than experimental sets;
- Part 7: Finger paints Requirements and test methods;
- Part 8: Activity toys for domestic use;
- Part 9: Organic chemical compounds Requirements;
- Part 10: Organic chemical compounds Sample preparation and extraction;
- Part 11: Organic chemical compounds Methods of analysis;
- Part 12: N-Nitrosamines and N-nitrosatable substances;

- Part 13: Olfactory board games, gustative board games, cosmetic kits and gustative kits;
- Part 14: Trampolines for domestic use.

NOTE 1 In addition to the above parts of EN 71, the following guidance documents have been published: CEN Technical Report CEN/TR 15071, *Safety of toys* — *National translations of warnings and instructions for use in* EN 71, CEN Technical Report CEN/TR 15371, *Safety of toys* — *Replies to requests for interpretation of* EN 71-1, EN 71-2, *and* EN 71-8 and CEN/TR 15371-2, Safety of toys — Replies to requests for interpretation of the chemical standards in the EN 71-series.

NOTE 2 Words in *italics* are defined in Clause 3 (Terms and definitions).

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, and Rom. France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Dir The In and are do ntially toxic. The Toy Safety Directive (2009/48/EC) [1] specifies maximum migration limits for three categories of toy materials. The limits for the migration of certain elements are expressed in milligram per kilogram toy material and are detailed in Table 2. The purpose of the limits is to minimise children's exposure to certain potentially toxic elements.

1 Scope

This European Standard specifies requirements and test methods for the migration of aluminium, antimony, arsenic, barium, boron, cadmium, chromium (III), chromium (VI), cobalt, copper, lead, manganese, mercury, nickel, selenium, strontium, tin, organic tin and zinc from *toy materials* and from parts of toys.

Packaging materials are not considered to be part of the toy unless they have intended play value.

NOTE 1 See guidance document of the European Commission guidance document no. 12 [2] on the application of the Directive on the safety of toys – packaging.

The standard contains requirements for the migration of certain elements from the following categories of *toy materials*:

- Category I: Dry, brittle, powder like or pliable materials;
- Category II: Liquid or sticky materials;
- Category III: Scraped-off materials.

The requirements of this standard do not apply to toys or parts of toys which, due to their accessibility, function, volume or mass, clearly exclude any hazard due to sucking, licking or swallowing or prolonged skin contact when the toy or part of toy is used as intended or in a foreseeable way, bearing in mind the behaviour of children.

NOTE 2 For the purposes of this standard, for the following toys and parts of toys the likelihood of sucking, licking or swallowing toys is considered significant (see H.2 and H.3):

- All toys intended to be put in the mouth or to the mouth, cosmetics toys and writing instruments categorised as toys can be considered to be sucked, licked or swallowed;
- All the accessible parts and components of toys intended for children up to 6 years of age can be considered to come into contact with the mouth. The likelihood of mouth contact with parts of toys intended for older children is not considered significant in most cases (see H.2).

2 Normative references

The following documents, in whole or in part, are referenced in this document and are necessary for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 71-1:2011, Safety of toys — Part 1: Mechanical and physical properties

EN ISO 3696, Water for analytical laboratory use — Specification and test methods (ISO 3696)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

base material

material upon which coatings may be formed or deposited