



BSI Standards Publication

Safety of toys

Part 3: Migration of certain elements

This is a preview of "BS EN 71-3:2013+A3:2...". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 71-3:2013+A3:2018. It supersedes BS EN 71-3:2013+A2:2017, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee CW/15, Safety of toys.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2018
Published by BSI Standards Limited 2018

ISBN 978 0 580 98912 4

ICS 97.200.50

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2013.

Amendments/corrigenda issued since publication

Date	Text affected
31 July 2013	Implementation of corrigendum July 2013: Additional National Foreword text
31 October 2014	Implementation of CEN amendment A1:2014
31 October 2014	Implementation of corrigendum October 2014: Additional National Foreword text for A1
28 February 2018	Implementation of CEN amendment A2:2017
31 July 2018	Implementation of CEN amendment A3:2018

This is a preview of "BS EN 71-3:2013+A3:2...". [Click here to purchase the full version from the ANSI store.](#)

EUROPÄISCHE NORM

June 2018

ICS 97.200.50

Supersedes EN 71-3:2013+A2:2017

English Version

Safety of toys - Part 3: Migration of certain elements

Sécurité des jouets - Partie 3: Migration de certains
élémentsSicherheit von Spielzeug - Teil 3: Migration bestimmter
Elemente

This European Standard was approved by CEN on 29 Mai 2013 and includes Amendment 1 approved by CEN on 18 August 2014, Amendment 2 approved by CEN on 18 April 2017 and Amendment 3 approved by CEN on 15 March 2018.

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: Rue de la Science 23, B-1040 Brussels

This is a preview of "BS EN 71-3:2013+A3:2...". Click here to purchase the full version from the ANSI store.

Contents	Page
European foreword	5
Introduction	7
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Requirements	9
4.1 Toy material categories (see H.4)	9
4.2 Specific requirements	9
5 Principle	10
6 Reagents and apparatus	11
6.1 Reagents	11
6.2 Apparatus	11
7 Sampling and sample preparation	12
7.1 Selection of test portions	12
7.2 Standards preparation	12
7.3 Sample preparation	12
7.3.1 General	12
7.3.2 Category I: Dry, brittle, powder like or pliable and Category II: Liquid or sticky	12
7.3.3 Category III: Scraped-off	13
7.4 Migration procedure	14
7.4.1 General	14
7.4.2 Category I: Dry, brittle, powder like or pliable and Category II: Liquid or sticky	14
7.4.3 Category III: Scraped-off	15
8 Methods of analysis	17
9 Calculation of results	17
9.1 General elements	17
9.1.1 Calibration curve	17
9.1.2 Calculation of migration	18
9.1.3 Interpretation of results	18
9.2 Chromium (III) and Chromium (VI)	18
9.2.1 Calibration curve	18
9.2.2 Calculation of migration	18
9.2.3 Interpretation of results	19

This is a preview of "BS EN 71-3:2013+A3:2...". Click here to purchase the full version from the ANSI store.

9.3	Organic tin	19
9.3.1	Calibration curves	19
9.3.2	Calculation of migration of single organic tin compound	19
9.3.3	Calculation of migration of organic tin	20
9.3.4	Interpretation of results	20
10	Test report	20
Annex A (informative) Significant technical changes between this European Standard and the previous version		21
Annex B (informative) Method performance		23
B.1	Method performance	23
B.2	Use of measurement uncertainty in compliance assessment	23
B.3	Information on round robin test	23
Annex C (normative) Sieve requirements		25
Annex D (informative) Preparation and analysis of test portion		26
Annex E (informative) Method of analysis for general elements		27
E.1	Principle	27
E.2	Working solutions	27
E.3	Procedure	29
E.4	Analysis	29
Annex F (informative) Methods of analysis for speciation of Chromium (III) and (VI)		32
F.1	Principle	32
F.2	Reagents	32
F.3	Apparatus	33
F.4	Procedure	34
F.5	Analysis	34
Annex G (informative) Method of analysis for organic tin (see H.10)		37
G.1	Principle	37
G.2	Terms and definitions	38
G.3	Reagents	38
G.4	Apparatus	41
G.5	Procedure	41
G.6	Analysis	42
Annex H (informative) Rationale		47
H.1	General	47
H.2	Mouthing behaviour of children (Scope)	47
H.3	Skin contact (Scope)	47
H.4	Toy categories (4.1)	48

This is a preview of "BS EN 71-3:2013+A3:2...". [Click here to purchase the full version from the ANSI store.](#)

H.5	Test portions (7.1, 7.3.3.2, 7.3.3.3, 7.3.3.6)	48
H.6	Size of test pieces (7.3.3.2, 7.3.3.3, 7.3.3.4)	48
H.7	Textile threads.....	48
H.8	Chromium (VI) migration (7.4)	48
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)	49
H.10	Organic tin (9.3)	49
H.11	pH value	49
H.12	De-waxing (see 7.3.2).....	50
Annex I (informative) Conformity assessment.....		51
I.1	General	51
I.2	Chromium VI	51
Annex J (informative) List of other organic tin compounds		52
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/48/EC aimed to be covered		53
Bibliography.....		54

This is a preview of "BS EN 71-3:2013+A3:2...". Click here to purchase the full version from the ANSI store.

European foreword

This document (EN 71-3:2013+A3:2018) 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 December 2018, and conflicting national standards shall be withdrawn at the latest by December 2018.

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

This document supersedes $\boxed{A_3}$ EN 71-3:2013+A2:2017 $\langle A_3 \rangle$.

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

This document includes Amendment 2 approved by CEN on 2017-04-18.

This document includes Amendment 3 approved by CEN on 2018-03-15.

The start and finish of text introduced or altered by amendments is indicated in the text by tags $\boxed{A_1}$ $\langle A_1 \rangle$, $\boxed{A_2}$ $\langle A_2 \rangle$ and $\boxed{A_3}$ $\langle A_3 \rangle$.

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;*

This is a preview of "BS EN 71-3:2013+A3:2...". Click here to purchase the full version from the ANSI store.

- *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 15371-1, *Safety of toys - Interpretations - Part 1: Replies to requests for interpretation of EN 71-1, EN 71-2, EN 71-8 and EN 71-14* and CEN/TR 15371-2, *Safety of toys - Interpretations - Part 2: 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

This is a preview of "BS EN 71-3:2013+A3:2...". [Click here to purchase the full version from the ANSI store.](#)

Introduction

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 minimize 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 categorized 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 are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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)*