
Varnost igráč – 10. del: Organske kemijske spojine – Priprava vzorcev in ekstrakcija

Safety of toys - Part 10: Organic chemical compounds - Sample preparation and extraction

Sicherheit von Spielzeug - Teil 10: Organisch-chemische Verbindungen - Probenvorbereitung und Extraktion

Sécurité des jouets - Partie 10: Composés organiques chimiques - Préparation et extraction des échantillons

<https://standards.iteh.ai/catalog/standards/sist/b9b5c796-68f4-47df-85e4-c2eb46171c98/sist-en-71-10-2006>

Ta slovenski standard je istoveten z: EN 71-10:2005

ICS:

97.200.50 Igrače

Toys

SIST EN 71-10:2006

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 71-10

December 2005

ICS 97.200.50

English Version

Safety of toys - Part 10: Organic chemical compounds - Sample preparation and extraction

Sécurité des jouets - Partie 10: Composés chimiques organiques - Procédures de préparation d'échantillon et d'extraction

Sicherheit von Spielzeug - Teil 10: Organisch-chemische Verbindungen - Probenvorbereitung und Extraktion

This European Standard was approved by CEN on 6 October 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

SIST EN 71-10:2006

<https://standards.iteh.ai/catalog/standards/sist/b9b5c796-68f4-47df-85e4-c2eb46171c98/sist-en-71-10-2006>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

page

Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements (see B.6)	6
5 Sample preparation.....	9
6 Migration – Sampling and extraction.....	9
6.1 Simulant (see B.7).....	9
6.2 Apparatus	9
6.3 Sampling.....	9
6.4 Extraction (see B.8).....	10
7 Inhalation – Sampling, extraction and analysis.....	10
7.1 <i>First-action method</i> for solvents.....	10
7.2 <i>Final-action method</i> for solvents	10
8 Specific sampling and extraction procedures	10
8.1 Textiles – Flame retardants, colourants and primary aromatic amines.....	10
8.2 Leather – Colourants, primary aromatic amines and preservatives	11
8.3 Wood – Colourants, primary aromatic amines and wood preservatives	13
8.4 Paper – Colourants and primary aromatic amines	14
8.5 Aqueous liquids - Colourants, primary aromatic amines and preservatives	14
8.6 Solid toy materials intended to leave a trace - Colourants and primary aromatic amines.....	16
8.7 Modelling clay, play clay and similar - Colourants, primary aromatic amines and preservatives.....	16
8.8 Balloon-making compounds – Colourants and primary aromatic amines	17
8.9 Imitation tattoos with adhesive - Colourants, primary aromatic amines and preservatives	18
Annex A (normative) <i>First-action method</i> for colourants and primary aromatic amines.....	20
Annex B (informative) Rationale.....	22
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 88/378/EEC.....	24
Bibliography.....	25

Foreword

This European Standard (EN 71-10:2005) 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 June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

This European Standard 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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this European Standard.

This European Standard constitutes part 10 of the European Standard on Safety of Toys.

This part should be read in conjunction with parts 9 and 11.

This European Standard defines the sample preparation and extraction procedures used to address potential exposure to organic compounds from ingestion, mouthing, inhalation, skin contact with solids and skin and eye contact with liquids.

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

EN 71-10:2005 (E)**Introduction**

The European Standard EN 71 for 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 6: *Graphical symbols for age warning labelling*
- Part 7: *Finger paints – Requirements and test methods*
- Part 8: *Swings, slides and similar activity toys for indoor and outdoor family 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*

The standards EN 71-9, EN 71-10 and EN 71-11 were mandated by the European Commission (M/229) to address the risks presented by organic compounds in toys by taking into account the potential exposure and toxicological effects of those substances considered to present the greatest risk to health.

This European Standard specifies the procedures for preparing and extracting samples of toy materials prior to analysis by the methods described in EN 71-11.

This part should be read in conjunction with EN 71-9, which contains requirements for certain organic compounds in toys, and EN 71-11, which specifies methods of analysis.

This European Standard takes into account the opinion of the Toxicology Section of the Scientific Advisory Committee published in 1992 (EUR 13976), which recommended that certain groups of chemical compounds used in toys and toy materials need to be given special attention. In drafting this European Standard CEN/TC 52 has considered organic chemicals that can be classified within the following groups:

- Solvents
- Preservatives
- Plasticisers (excluding phthalate plasticisers)¹
- Flame retardants
- Monomers
- Biocides (wood preservatives)
- Processing aids
- Colouring agents

During the development of this European Standard, CEN/TC 52 has considered the requirements set out in Council Directive 82/711/EEC as amended and its supporting standards.

¹ Phthalate plasticisers were specifically excluded from the scope of mandate M/229.

1 Scope

This Part 10 of the European Standard EN 71 for safety of toys specifies sample preparation and extraction procedures for establishing the release or content of organic compounds from those toys for which requirements exist in EN 71-9.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. 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, *Safety of toys – Part 1: Mechanical and physical properties*

EN 71-9, *Safety of toys – Part 9: Organic chemical compounds – Requirements*

EN 71-11:2005, *Safety of toys – Part 11: Organic chemical compounds – Methods of analysis*

EN 20105-A03, *Textiles – Tests for colour fastness – Part A03: Grey scale for assessing staining*

ISO 105-F10, *Textiles – Tests for colour fastness – Part F10: Specification for adjacent fabric: Multifibre*

3 Terms and definitions

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

3.1 (see B.2)

accessible

contact with the articulated probe when tested in accordance with the 'accessibility-of-a-part-or-component' test in EN 71-1

3.2

accessible liquid

liquid in or on a toy or accompanying a toy to which the child is likely to become exposed during normal or foreseeable use of the toy

NOTE Liquid paints, bubble liquids, ink in pens, liquids provided with toys for squirting are examples of accessible liquids

3.3 (see B.3)

first-action method

method of analysis designed to show the compliance of a toy or toy material with the requirements of EN 71-9 for a particular compound or group of compounds

3.4

final-action method

method of analysis for use when compliance cannot be demonstrated by a *first-action method*

3.5 (see B.4)

laboratory sample

single toy in the form in which it is marketed or intended to be marketed

EN 71-10:2005 (E)

3.6

mouth-actuated toy

toy which relies on an action of the mouth to operate and which therefore is designed to come into contact with the mouth during play. Inflatable toys are not considered mouth-actuated toys unless they rely on an action of the mouth after inflation

NOTE Toy whistles, toy imitation novelty teeth are examples of mouth-actuated toys

3.7 (see B.5)

mouthed

licked, sucked and chewed

3.8

paper

material, marketed as either paper or card, with a maximum mass per unit area of 400 g/m²

3.9

polymeric

consisting of plastic, synthetic rubber, natural rubber, silicone polymer but not other natural polymers

3.10

resin-bonded wood

wood-based material

NOTE Plywood, particle board, chipboard and medium-density fibreboard (MDF) are examples of resin-bonded wood

3.11

test portion

portion of the *laboratory sample* prepared for analysis

3.12

textile

woven or knitted fabrics, non-woven fibrous material

NOTE Felt is an example of non-woven fibrous material

3.13

toy material

material from which toys and toy components are made

4 Requirements (see B.6)

Toys, toy components and *toy materials* specified in columns 1 and 2 of Table 1 shall be sampled and analysed in accordance with Clause 5 and the clauses of this European Standard specified in columns 3 to 12 of Table 1.

If a clause number relating to a *first-action method* is given in Table 1 for a particular toy / toy component and *toy material*, compliance with EN 71-9 may be shown by the analysis of the *toy material* by that method alone for the relevant group of organic compounds. A *first-action method* shall not be used to show non-compliance with the requirements of EN 71-9.

Table 1 – Applicable sampling and preparation clauses

	SPECIFIC TOY/TOY COMPONENT	Toy material	Requirements									
			Flame retardants	Colourants and Primary aromatic amines		Monomers - migration	Solvents - migration	Solvents - inhalation		Wood preservatives	Preservatives	Plasticisers
			Procedure	First action	Final action	Procedure	Procedure	First action	Final action	Procedure	Procedure	Procedure
1	Toys intended to be <i>mouthed</i> by children under 3 years of age	POLYMERIC ^a				6	6					6
2	Toys, or <i>accessible</i> components of toys, with a mass of 150 g or less intended to be played with in the hands by children under 3 years of age	POLYMERIC ^a				6	6					6
3		WOOD			8.3.1 & 8.3.2					8.3.3		
4		PAPER			8.4.1 & 8.4.2							
5	Toys and <i>accessible</i> components of toys intended for children under 3 years of age	TEXTILE	8.1.1	8.1.2	8.1.3 & 8.1.4							
6		LEATHER			8.2.1 & 8.2.2						8.2.3	
7	Mouthpiece components of <i>mouth-actuated</i> toys	POLYMERIC ^a				6	6					6
8		WOOD			8.3.1 & 8.3.2					8.3.3		
9		PAPER			8.4.1 & 8.4.2							
10	Inflatable toys with a surface greater than 0,5 m ² when fully inflated	POLYMERIC ^a						7.1	7.2			
11	Toys worn over the mouth or nose	POLYMERIC ^a				6		7.1	7.2			
12		TEXTILE		8.1.2	8.1.3 & 8.1.4			7.1	7.2			
13		PAPER			8.4.1 & 8.4.2							

Table 1 (continued)

SPECIFIC TOY/TOY COMPONENT		Toy material	Requirements								
			Flame retardants	Colourants and Primary aromatic amines	Monomers - migration	Solvents - migration	Solvents - inhalation		Wood preservatives	Preservatives	Plasticisers
			Procedure	First action	Final action	Procedure	Procedure	First action	Final action	Procedure	Procedure
14	Toys which the child can enter	POLYMERIC^a						7.1	7.2		
15		TEXTILE						7.1	7.2		
16	Components of graphic instruments sold as toys or used in toys	POLYMERIC^a				6	6				6
17	Toys and accessible components of toys for indoor use	WOOD								8.3.3	
18	Toys and accessible components of toys for outdoor use	WOOD								8.3.3	
19	Toys and components of toys which mimic food	POLYMERIC^a				6	6				6
20	Solid toy materials intended to leave a trace	ALL			8.6						
21	Coloured <i>accessible liquids</i> in toys	LIQUID			8.5.1 & 8.5.2						8.5.3
22	Non-coloured <i>accessible liquids</i> in toys	LIQUID									8.5.3
23	Modelling clay, play clay and similar, except those chemical toys addressed by EN 71-5	ALL			8.7.1 & 8.7.2						8.7.3
24	Balloon-making compounds	ALL			8.8.1 & 8.8.2			7.1	7.2		
25	Imitation tattoos with adhesive	ALL			8.9.1 & 8.9.2		6				8.9.3
26	Imitation jewellery	POLYMERIC^a				6	6				6
^a Excluding polymeric coatings with a thickness of less than 500 µm.											

5 Sample preparation

Test portions shall be representative of the toy material in the *laboratory sample*. *Test portions* shall only be taken from *accessible* parts of the toy.

6 Migration – Sampling and extraction

6.1 Simulant (see B.7)

Water, deionized, demonstrably free of appropriate analytes.

6.2 Apparatus

6.2.1 Stainless steel tweezers

6.2.2 Extraction bottles, approximate volume 250 ml with flat base, a screw neck and provided with a PTFE-lined rubber septum.

NOTE Bottles with the following dimensions have been found to be satisfactory²

Outside diameter: 70 mm

Total height of bottle: 138 mm

Height from bottom to start of neck: 75 mm

Inside neck opening: 30 mm

The laboratory shall demonstrate that the containers and closures used do not contribute to or adsorb the substances in question. Glassware and seals on vials and bottles shall be clean, undamaged and free from defects.

6.2.3 Bottle rotator³, capable of holding and rotating the extraction bottles in an end-over-end motion at a constant speed. The distance from the centre of the rotating axis to the centre of the flask shall be approximately 150 mm.

6.3 Sampling

If the approximate surface area of the *laboratory sample* is less than 10 cm², test the sample uncut.

In other cases, select the most appropriate part of the *laboratory sample*, from which to obtain a *test portion* of (10 ± 1) cm², in such a way as to minimize the inaccessible and internal surfaces. Where possible, choose a *test portion* from a thin part of the *laboratory sample*. Remove a disc, or other shaped piece if this reduces the amount of cut edges, with a surface area of (10 ± 1) cm² using a suitable cutting instrument. Measure the approximate surface area of the *test portion* taking into account the thickness when this is greater than 1 mm. The edges of the *test portion* should be smooth in appearance.

In cases where the preparation of the *laboratory sample* leads to unrealistic results because of the cutting process, the whole uncut toy or toy component may be tested using proportionate extraction volumes and apparatus. However, sample sizes of less than 10 cm² shall be extracted using 100 ml of simulant (see B.7).

² Schott Duran is a supplier of a suitable product available commercially. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN.

³ Voor 't Labo, Belgium, is a supplier of a suitable product available commercially. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN.