



SLOVENSKI STANDARD
SIST EN 71-5:2026

01-marec-2026

Nadomešča:
SIST EN 71-5:2015

Varnost igrač - 5. del: Kemijske igrače (kompleti), razen kompletov za kemijske poskuse

Safety of toys - Part 5: Chemical toys (sets) other than experimental sets

Sicherheit von Spielzeug - Teil 5: Chemisches Spielzeug (Sets) ausgenommen Experimentierkästen

Sécurité des jouets - Partie 5 : Jouets chimiques (coffrets) autres que les coffrets d'expériences

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ICS:

97.200.50 Igrače

Toys

SIST EN 71-5:2026

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 71-5

December 2025

ICS 97.200.50

Supersedes EN 71-5:2015

English Version

**Safety of toys - Part 5: Chemical toys (sets) other than
experimental sets**

Sécurité des jouets - Partie 5 : Jouets chimiques
(coffrets) autres que les coffrets d'expériences

Sicherheit von Spielzeug - Teil 5: Chemisches Spielzeug
(Sets) ausgenommen Experimentierkästen

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Ref. No. EN 71-5:2025 E

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EN 71-5:2025 (E)

European foreword

This document (EN 71-5:2025) 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of an identical text or by endorsement, at the latest by June 2026 and conflicting national standards shall be withdrawn at the latest by December 2026.

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 EN 71-5:2015.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Additional information on the background and rationale for various requirements of this document is given in Annex D.

This document constitutes the fifth part of the EN 71 series of standards on safety of toys.

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 (this document);*
- *Part 7: Finger paints — Requirements and test methods;*
- *Part 8: Activity toys for domestic use;*
- *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, cosmetic kits and gustative games;*
- *Part 14: Trampolines for domestic use;*
- *Part 15: Formamide in foam toy materials (content);*

- Part 16: Certain chlorinated phosphorus flame retardants (TCEP, TCPP, TDCP) in toy materials;
- Part 17: Certain isothiazolinones (MIT, CIT, BIT) in aqueous toy materials;
- Part 18: Phenol in aqueous (content) and polymeric (migration) toy materials;
- Part 19: Migration of bisphenol A from toy materials;
- Part 20: Microbiological safety of toys containing accessible aqueous media.

It is up to the user of the standard to determine whether or not a toy is included in the scope of several of the above parts of the EN 71 series, and to apply each applicable standard accordingly. Normative references from one part of the EN 71 series to another, are therefore normally not provided in the individual parts.

NOTE 1 In addition to the above parts of EN 71, the following deliverables have been published:

- CEN/TR 15071, *Safety of toys — National translations of warnings and instructions for use in the EN 71 series*,
- CEN/TR 15371 (all parts), *Safety of toys — Interpretations*,
- CEN/TR 16918, *Safety of toys — Children's mouthing behaviour in contact with toys*,
- CEN/TR 17695, *Safety of toys — Mechanical and physical properties — Guidance on categorization of projectile toys within EN 71-1*,
- CEN/TS 17973, *Safety of toys — Categorization of slime type materials*,
- CEN/TR 18217, *Safety of toys — Migration of certain elements from polymers*,
- CEN/TR 18240: *Safety of toys — Mechanical and physical properties — Guidance on the requirements for food-imitating toys in EN 71-1*, and
- CEN ISO/TR 8124-8, *Safety of toys — Part 8: Age determination - First age grade for the appropriate play of toys*.

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

The following significant changes have been implemented in this new edition:

Clause/Paragraph/ Table/Figure	Change
3	New terms " <i>slime kit</i> ", " <i>preservative</i> " and " <i>booster substance</i> " have been added.
8	A new clause with requirements for <i>slime kits</i> was added.
10.3	The advice for adult supervision has been slightly revised and e.g. also includes specific requirements on advice for adult supervision for certain <i>slime kits</i> .
10.4	The safety rules have been slightly revised.
Annex D	A new rationale (D.6) including guidance on giving adequate advice for adult supervision has been added. The rationale on primary packaging (D.2) has been slightly revised.

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Clause/Paragraph/ Table/Figure	Change
Annex E	A new annex with a non-exhaustive list of colourants which need to be in compliance with both the general and specific purity requirements has been added.
Annex F	A new annex on <i>booster substances</i> has been added. References to this annex have been added in the subclauses of those chemical toys for which <i>preservatives</i> and consequently <i>booster substances</i> are of relevance.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

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Introduction

This document is intended to reduce the risks which can present health hazards to a child when the *chemical toys* are used as intended or in a foreseeable way, bearing in mind the behaviour of children.

When using these *chemical toys*, potential risks should be kept to a minimum by inclusion of appropriate information to give special attention to possible hazards, risks and other problems.

Chemical Abstract Service Registry Number (CAS) and European Inventory of Existing Chemical Substances Number (EINECS) given in various tables are provided for information purposes only.

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EN 71-5:2025 (E)**1 Scope**

This document specifies requirements and test methods for toy materials (substances and mixtures) used in *chemical toys* (sets) other than *experimental sets*. These substances and mixtures are:

- those classified as dangerous by the EU legislation applying to dangerous substances and dangerous mixtures [5];
- substances and mixtures which in excessive amounts could harm the health of the children using them and which are not classified as dangerous by the above-mentioned legislation; and
- any other chemical substance(s) and mixture(s) delivered with the *chemical toy*.

NOTE The terms “substance” and “mixture” are defined in the REACH regulation No. (EC)1907/2006 and in the CLP regulation (EC) No. 1272/2008.

Additionally, requirements are specified for markings, warnings, safety rules, contents list, instructions for use and first aid information.

This document applies to:

- *plaster of Paris (gypsum) moulding sets*;
- *oven-hardening plasticised PVC modelling clay sets*;
- *polystyrene granules sets*;
- *embedding sets*;
- *adhesives, paints, lacquers, varnishes, thinners and cleaning agents (solvents)*, supplied or recommended in *model sets*;
- *slime kits*.

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 ISO 3104:2023, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity (ISO 3104:2023)*

EN ISO 3219-2:2021, *Rheology — Part 2: General principles of rotational and oscillatory rheometry (ISO 3219-2:2021)*

EN ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

EN ISO 22854:2025, *Liquid petroleum products — Determination of hydrocarbon types and oxygenates in automotive-motor gasoline and in ethanol (E85) automotive fuel — Multidimensional gas chromatography method (ISO 22854:2025)*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

chemical toy

toy intended for the direct handling of chemical substances and mixtures and which is used in a manner appropriate to a given age-group and under the supervision of an adult

[SOURCE: EN 71-4:2020+A1:2025, 3.1]

3.2

experimental set

chemical toy where the experimental and explorative character in playing with single chemical substances and mixtures along strict instructions dominates over the creative ideas of the user

[SOURCE: EN 71-4:2020+A1:2025, 3.2]

3.3

plaster of Paris (gypsum) moulding set

toy containing moulds into which a mixture of water and gypsum is poured and allowed to harden

EXAMPLE *Plaster of Paris (gypsum) moulding sets* are for example used for preparing figures and plates.

Note 1 to entry: The gypsum consists predominantly of calcium sulphate hemihydrate $\text{CaSO}_4 \cdot 0,5 \text{H}_2\text{O}$.

3.4

oven-hardening plasticised PVC modelling clay set

toy to be used for creating all kinds of figures, brooches, fashion jewellery, etc. prepared by hardening in the oven at temperatures between 100 °C and 130 °C

3.5

polystyrene granules set

toy to be used in substitution of ceramic materials to create decorative articles or models by fusion of a polymer by heating in an oven up to a maximum of 180 °C

3.6

embedding set

toy to be used to preserve certain products in a transparent material

3.7

model set

product used to assemble and coat models which are supplied with or recommend *adhesives*, paints, lacquers, *varnishes*, *thinners* and *cleaning agents (solvents)*

EXAMPLE Examples for these models are motorcars, aeroplanes, houses and ships.

EN 71-5:2025 (E)**3.8****adhesive**

non-metallic substance capable of joining materials by surface bonding (adhesion) and the bond possessing adequate internal strength (cohesion)

3.9**water-based paint or lacquer**

water-based pigmented material which when applied in a liquid form to a surface, forms after a time a dry adherent film or coating

3.10**solvent-based paint or lacquer**

solvent-based pigmented material which when applied in a liquid form to a surface, forms after a time a dry adherent film or coating

3.11**varnish**

low viscosity lacquer

3.12**thinners and cleaning agents (solvents)**

product which are intended to obtain the required viscosity of paints and lacquers and to clean tools and brushes

3.13**slime kit**

toy containing materials intended to prepare a slime or a slime type product which is intended for play use

Note 1 to entry: *Slime kits* comprise of sets for the preparation of play slimes, based on e.g. boron as element for crosslinking as well as other compounds which exhibit "slimy" behaviour. *Slime kits* can contain liquid materials as well as solid materials, e.g. powders or particle-based material.

Note 2 to entry: The purpose of *slime kits* is to create a play slime by mixing component ingredients. It is not the intention of a *slime kit* to be used in an experimental or scientific way.

3.14**preservative**

substance that prevents the growth of undesirable micro-organisms

[SOURCE: EN 71-7:2025, 3.8]

3.15**booster substance**

substance used for increasing the efficacy of *preservatives*

[SOURCE: EN 71-7:2025, 3.11]

4 Plaster of Paris (gypsum) moulding sets

4.1 Marking

The primary packaging shall in addition to the marking required in Clause 9 bear the following:

“Warning. Not suitable for children under (*) years. For use under adult supervision. Read the instructions before use, follow them and keep them for reference.”.

(*) The age shall not be below 5 years.

4.2 First aid information

The instructions for use shall in addition to the general first aid information in 10.2 d) contain the following:

- “In case of eye contact: Wash out eye with plenty of water, holding eye open. Seek immediate medical advice.”;
- “If swallowed: Wash out mouth with water, drink some fresh water. Do not induce vomiting. Seek immediate medical advice.”.

4.3 Safety rules

The instructions for use shall in addition to the rules required in 10.4 contain the following safety rules:

- “Do not place the material in the mouth.”;
- “Do not inhale dust or powder.”;

NOTE Basically plaster of Paris (gypsum) is not a harmful material, but if the powder is inhaled or swallowed, it can form hard clots in the lungs or in the stomach.

- “Do not apply to the body.”.

5 Oven-hardening plasticised PVC modelling clay sets

5.1 Chemical substances

These modelling clay sets shall consist of PVC (polyvinylchloride) and plasticisers and may contain modifiers, fillers (e.g. China clay) and colourants. Only plasticisers given in Table 1 shall be used.

The maximum content of plasticisers in the mixture shall not exceed 30 % (mass fraction).

The vinyl chloride monomer content shall be below 1 mg/kg (see [9]).

Table 1 — Plasticisers in oven-hardening plasticised PVC modelling clay sets

Chemical substance	CAS-Number
Adipic acid polyesters	various
Alkylsulfonic acid esters (C ₁₂ to C ₂₀) of phenol	91082-17-6
Di-isononyl cyclohexane-1,2-dicarboxylate (DINCH)	166412-78-8
Tributyl acetylacrylate	77-90-7
Tris(2-ethylhexyl) acetylacrylate	144-15-0

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Modelling clay material shall meet the limits for the substances specified in Table 2 (see [6]).

Table 2 — Limits for certain substances in oven-hardening plasticised PVC modelling clay and polystyrene granules

Substance	Limit mg/kg
Benzene	5
Toluene	15
Xylenes	25

5.2 Marking

The primary packaging shall in addition to the marking required in Clause 9 bear the following warning:

“Warning. Not suitable for children under (*) years. For use under adult supervision. Read the instructions before use, follow them and keep them for reference.”.

(*) The age shall not be below 8 years.

5.3 First aid information

The instructions for use shall in addition to the general first aid information in 10.2 d) contain the following:

- “In case of accidental overheating and inhalation of poisonous gases: Remove person to fresh air and seek immediate medical advice.”.

5.4 Safety rules

The instructions for use shall in addition to the rules required in 10.4 contain the following safety rules:

- “Do not place the material in the mouth.”;
- “Do not exceed a hardening temperature of 130 °C or harmful gases may be produced.”;
- “Do not exceed a hardening time of 30 minutes.”;
- “The hardening process is not part of the function of the toy and should be carried out by the supervising adult.”;
- “Use a domestic oven thermometer, e.g. bimetal, to measure the temperature.”;
- “Do not use a glass thermometer.”;
- “Do not heat the material and cook food at the same time in a domestic oven”;
- “Do not use a microwave oven.”.

6 Moulding sets

6.1 Polystyrene granules sets

6.1.1 Chemical substances

These sets shall contain uncoloured and coloured polystyrene granules in accordance with Table 3.

Table 3 — Polystyrene

Chemical substance	CAS-Number	EINECS-Number
Polystyrene with monomer content of styrene \leq 500 mg/kg	9003-53-6	—

Additional limits for substances in polystyrene granules sets are specified in Table 2 (see [6]).

6.1.2 Marking

The primary packaging shall in addition to the marking required in Clause 9 bear the following warning: “Warning. Not suitable for children under (*) years. For use under adult supervision. Read the instructions before use, follow them and keep them for reference.”.

(*) The age shall not be below 10 years.

6.1.3 First aid information

The instructions for use shall in addition to the general first aid information in 10.2 d) contain the following:

- “In case of accidental overheating and inhalation of poisonous gases: Remove person to fresh air and seek immediate medical advice.”.

6.1.4 Safety rules

The instructions for use shall in addition to the rules required in 10.4 contain the following safety rules:

- “Do not exceed a melting temperature of 180 °C.”;
- “The melting process is not part of the function of the toy and should be carried out by the supervising adult.”;
- “Use a domestic oven thermometer, e.g. bimetal, to measure the temperature.”;
- “Do not swallow material.”;
- “Do not heat the material and cook food at the same time in a domestic oven.”;
- “Do not use a glass thermometer.”;
- “Do not exceed the maximum recommended processing period.”;
- “Do not use a microwave oven.”.