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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

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

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 52.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

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European foreword

This document (prEN 71-5:2024) has been prepared by Technical Committee CEN/TC 52 “Safety of toys”, the secretariat of which is held by DS.

This document is currently submitted to the CEN Enquiry.

This document will supersede 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.

Annex E provides details of significant technical changes between this document and the previous edition.

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) (under development);*
- *Part 16: Certain chlorinated phosphorus flame retardants (TCEP, TCPP, TDCP) in toy materials (under development);*
- *Part 17: Certain isothiazolinones (MIT, CIT, BIT) in aqueous toy materials (under development);*

- *Part 18: Phenol in aqueous (content) and polymeric (migration) toy materials* (under development);
- *Part 19: Migration of bisphenol A from toy materials* (under development);
- *Part 20: Microbiological safety of toys containing accessible aqueous media* (under development).

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 documents 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 (parts 1 and 2), *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 categorisation of projectile toys within EN 71-1*,
- CEN/TS 17973, *Safety of toys — Categorization of slime type materials*, and
- CEN ISO/TR 8124-8, *Safety of toys — Part 8: Age determination guidelines*.

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

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.

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.

prEN 71-7:2024, *Safety of toys — Part 7: Finger paints — Requirements and test methods*

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 22854:2021, *Liquid petroleum products — Determination of hydrocarbon types and oxygenates in automotive-motor gasoline and in ethanol (E85) automotive fuel — Multidimensional gas chromatography method (ISO 22854:2021)*

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, 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, 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

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

Note 2 to entry: *Plaster of Paris (gypsum) moulding sets* are for example used for preparing figures and plates.

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*

Note 1 to entry: Examples for these models are motorcars, aeroplanes, houses and ships.

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**

products 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 enable “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 main purpose of slime kits is to obtain a play slime self-made from single components. It is not the intention of a slime kit to be used in an experimental or scientific way.

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 acetyl citrate	77-90-7
Tris(2-ethylhexyl) acetyl citrate	144-15-0

During heating of these materials at the maximum permitted temperature and duration, the limits given in Table 2 shall not be exceeded for the emission of the listed toxic substances when tested according to 11.3.

Table 2 — Limits for the emission of substances from oven-hardening plasticised PVC modelling clay sets and polystyrene granules sets during heating

Substance	Limit mg/kg
Benzene	1
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	—

6.1.2 Marking

The primary packaging shall in addition to the marking required in Clause 9 bear the following warnings:
“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.”.

6.2 Embedding sets

6.2.1 General

Only preservatives permitted in foodstuffs (see [7]) and/or cosmetics, except those preservatives which are only allowed in cosmetic products that are rinsed-off after use, (see [8]) shall be used.

Other substances classified as dangerous substances (see [5]) shall not be used in *embedding sets*.

NOTE Substances such as gelatine or agar could be utilized with suitable preservation.

6.2.2 Packaging

The name(s) of any preservative(s) used shall be indicated on the primary packaging.

6.2.3 Marking

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

“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.

6.2.4 First aid information

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

- “If swallowed: Wash out mouth with water, drink some fresh water. Do not induce vomiting. Seek immediate medical advice.”.

6.2.5 Safety rules

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

- “Do not place the preserved material in the mouth.”.

7 Adhesives, paints, lacquers, varnishes, thinners and cleaning agents (solvents) supplied or recommended in model sets

7.1 General

Adhesives, paints, lacquers, varnishes, thinners and cleaning agents (solvents) supplied in *model sets* shall comply with the requirements in Clause 7. The instructions included in the set shall mention only *adhesives, paints, lacquers, varnishes, thinners and cleaning agents (solvents)* that comply with the requirements in Clause 7.

7.2 Adhesives

7.2.1 Water-based adhesives

7.2.1.1 General

Water-based *adhesives* shall consist of water and basic materials. Only basic materials given in Table 4 shall be used. Additionally, water-based *adhesives* may contain special materials given in Table 5 or Table 7, preservatives, fillers and modifiers.

Only preservatives permitted in foodstuffs (see [7]) and/or cosmetics, except those preservatives which are only allowed in cosmetic products that are rinsed-off after use, (see [8]) shall be used.

Table 4 — Basic materials for water-based adhesives and water-based paints or lacquers

Chemical substance	CAS-Number	EINECS-Number
Acrylic homo and copolymers	—	—
Hydrophilic polyurethane containing neither free isocyanate-groups nor aromatic amino-compounds	—	—
Polymers and copolymers of monomers permitted for materials intended to come into contact with foodstuffs	—	—
Polyvinyl homo and copolymers	—	—
Poly(vinyl alcohol)	9002-89-5	209-183-3
Polyvinylpyrrolidone homo and copolymers	—	—

The basic materials shall be appropriate for food contact (see [9]). The migration solvent shall be water, grade 3 according to EN ISO 3696:1995. The contact time shall be approximately 60 min at approximately 40 °C.

7.2.1.2 Liquid adhesives for paper and wood

7.2.1.2.1 General

Special materials for *adhesives* for paper and wood shall be in accordance with Table 5.

Table 5 — Special materials for adhesives for paper and wood and water-based paints and lacquers

Chemical substance	CAS-Number	EINECS-Number
Cellulose ethers (e.g. carboxymethylcellulose, methylcellulose)	9004-67-5	—
Dextrin	9004-53-9	232-675-4
Gum arabic	9000-01-5	232-519-5
Starch or modified starch	9005-25-8	232-679-6

Special additives for *adhesives* for paper and wood shall be in accordance with Table 6.

Table 6 — Special additives for liquid adhesives for paper and wood

Chemical substance	CAS-Number	EINECS-Number
Butyl glycolate (Butyl hydroxyacetate) ^a	7397-62-8	230-991-7
Caprolactam ^b	105-60-2	203-313-2
Glycerol	56-81-5	200-289-5
Polyacrylamide	9003-05-8	—
Poly(acrylic acid)	9003-01-4	—
Polyethylene glycol	25322-68-3	—
Poly(methacrylic acid)	25087-27-7	—
Polypropylene glycol	25322-69-4	—
Sodium salts of fatty acids (C ₁₄ upwards)	—	—
Sorbitol	50-70-4	200-061-5
2-(2-Butoxyethoxy)ethyl acetate ^c	124-17-4	204-685-9
Xylitol	87-99-0	201-788-0
^a The maximum content of butyl glycolate shall be less than 3 % (mass fraction). ^b The maximum content of caprolactam shall be less than 5 % (mass fraction). ^c The maximum content of 2-(2-butoxyethoxy)ethyl acetate shall be less than 3 % (mass fraction).		

The polymers given in Table 6 shall be appropriate for food contact (see [9]). The migration solvent shall be water grade 3 according to EN ISO 3696:1995. The contact time shall be approximately 60 min at approximately 40 °C.

7.2.1.2.2 Packaging

The capacity of the containers for water-based *adhesives* in a set shall not be more than 100 ml. The name(s) of any preservative(s) used shall be indicated on the primary packaging.

7.2.1.2.3 Marking

The *adhesive* container shall in addition to the marking required in Clause 9 bear the following warnings:
“Warning. Not suitable for children under (*) years. For use under adult supervision.”.

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

7.2.1.2.4 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 skin contact: Wash affected area with plenty of water.”;
- “In case of eye contact: Wash out eye with plenty of water, holding eye open. Seek immediate medical advice.”.

7.2.1.3 Adhesive sticks and pastes for paper

7.2.1.3.1 General

Special materials for *adhesive* sticks and pastes for paper shall be in accordance with Table 5, Table 6 and Table 7.

Table 7 — Special material for adhesive sticks and pastes for paper

Chemical substance	CAS-Number	EINECS-Number
Acrylic homo and copolymers	—	—
Hydrophilic polyurethane containing neither free isocyanate-groups nor aromatic amino-compounds	—	—
Polymers and copolymers of monomers permitted for materials intended to come into contact with foodstuffs	—	—
Polyvinyl homo and copolymers	—	—
Poly(vinyl alcohol)	9002-89-5	209-183-3
Polyvinylpyrrolidone homo and copolymers	—	—
Dextrin	9004-53-9	232-675-4
Starch or modified starch	9005-25-8	232-679-6

The special materials shall be appropriate for food contact (see [9]). The migration solvent shall be water grade 3 according to EN ISO 3696:1995. The contact time shall be approximately 60 min at approximately 40 °C.

7.2.1.3.2 Packaging

The mass of the *adhesive* stick in a set shall not exceed 50 g.

7.2.1.3.3 Marking

The packaging, if any, or the *adhesive* stick container shall in addition to the marking in Clause 9 bear the following warning:

“Warning. Not suitable for children under (*) years. For use under adult supervision.”.

(*) The age shall not be below 3 years.

7.2.1.3.4 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 skin contact: Wash affected area with plenty of water.”;
- “In case of eye contact: Wash out eye with plenty of water, holding eye open. Seek immediate medical advice.”.

7.2.2 Solvent-based adhesives

7.2.2.1 General

Solvent-based *adhesives* shall consist of

- basic material in accordance with Table 4 or the relevant subclauses under 7.2.2, and/or
- special materials in accordance with Table 5 and Table 7; and/or
- substances from Tables 6 and 11 with the limits given there; and/or
- fillers, and/or
- modifiers with a maximum content of 3 % (mass fraction) in the final *adhesive*, and/or
- plasticisers
 - o which shall be appropriate for food contact (see [9]) or be in accordance with Table 12 and
 - o which shall have a maximum plasticiser content of 8 % (mass fraction) in the final *adhesive*.

For solvent-based *adhesives* containing petroleum fractions, the *n*-hexane content shall not exceed 0,5 % (mass fraction).

The final mixture containing petroleum fractions shall not be classified with H372.

NOTE The classifications are detailed in Regulation (EC) No. 1272/2008 [5].

2,2-Bis(4-hydroxyphenyl)propane diglycidyl ether (BADGE), bis(hydroxyphenyl)methane diglycidyl ether (BFDGE) and Novolac glycidyl ethers (NOGE), together with their derivatives shall not be used as modifiers for *adhesives*.

NOTE Key

BADGE - 2,2-bis(4-hydroxyphenyl)propane diglycidyl ether, Bisphenol-A diglycidyl ether [1675-54-3];

BFDGE - bis(hydroxyphenyl)methane diglycidyl ether, Bisphenol-F diglycidyl ether [39817-09-9];

NOGE - Novolac glycidyl ethers [28064-14-4] and [9003-36-5].

7.2.2.2 Multi-purpose adhesives

Basic materials for multi-purpose *adhesives* shall be in accordance with Table 8.

Table 8 — Basic materials for multi-purpose adhesives

Chemical substance	CAS-Number	EINECS-Number
Acrylic homo and copolymers	—	—
Cellulose nitrate	9004-70-0	—
Polyvinyl homo and copolymers	—	—
Vinyl acetate homo and copolymers	—	—

7.2.2.3 Contact adhesives

Basic materials for contact *adhesives* shall be in accordance with Table 9.

Table 9 — Basic materials for contact adhesives

Chemical substance	CAS-Number	EINECS-Number
Polymers and copolymers of monomers permitted for materials intended to come into contact with foodstuffs	—	—
Poly(chlorobutadiene)	9010-98-4	—
Polyurethane	73561-64-5	—

7.2.2.4 Special adhesives

Basic materials for special *adhesives* shall be in accordance with Table 10.

Table 10 — Basic materials for special adhesives

Chemical substance	CAS-Number	EINECS-Number
Acrylic homo and copolymers	—	—
Polymers and copolymers of monomers permitted for materials intended to come into contact with foodstuffs	—	—
Polystyrene	9003-53-6	—
Vinyl chloride copolymers	—	—

The basic materials shall be appropriate for food contact (see [9]). The migration solvent shall be water, grade 3 according to EN ISO 3696:1995. The contact time shall be approximately 60 min at approximately 40 °C.

Table 11 — Solvents in solvent-based adhesives

Chemical substance/mixture	CAS-Number	EINECS-Number
Acetone (Dimethyl ketone)	67-64-1	200-662-2
Cyclohexane ^a	110-82-7	203-806-2
Pentan-3-one (Diethyl ketone)	96-22-0	202-490-3
Ethyl acetate	141-78-6	205-500-4
Ethanol (Ethyl alcohol)	64-17-5	200-578-6
Isopropyl acetate	108-21-4	203-561-1
Propan-2-ol (Isopropyl alcohol)	67-63-0	200-661-7
Methyl acetate	79-20-9	201-185-2
Butan-2-one (Methyl ethyl ketone)	78-93-3	201-159-0
3-Methylbutan-2-one (Methyl isopropyl ketone)	563-80-4	209-264-3
<i>n</i> -Butyl acetate	123-86-4	204-658-1
<i>n</i> -Propyl acetate	109-60-4	203-686-1
1-Methoxypropan-2-ol ^b	107-98-2	203-539-1
1,1-Dimethoxyethane	534-15-6	208-589-8
Petroleum fraction (35 to 160) °C ^c	64742-89-8	265-192-2
Hydrocarbons, C9 –C16, hydrotreated, dearomatized	93763-35-0	297-854-1
^a The maximum content of cyclohexane shall be less than 3 % (mass fraction). ^b The maximum content of 1-methoxypropan-2-ol shall be less than 20 % (mass fraction). ^c The maximum content of benzene shall be less than 0,1 % (mass fraction).		

If the product contains Petroleum fraction (35 to 160) °C, the viscosity of the product shall exceed 20,5 mm²/s when tested in accordance with EN ISO 3104:2023 or EN ISO 3219-2:2021.

Table 12 — Plasticisers in solvent-based adhesives and solvent-based paints, lacquers, thinners and cleaning solvents

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

7.2.2.5 Packaging

The capacity of the containers for solvent-based *adhesives* in a set shall not be more than 15 g.

7.2.2.6 Marking

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

“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.

The individual container shall be marked according to 9.3.

7.2.2.7 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 skin contact: Wash affected area with plenty of water.”;
- “In case of eye contact: Wash out eye with plenty of water, holding eye open. Seek immediate medical advice.”;
- “In case of inhalation: Remove person to fresh air.”.

7.2.2.8 Safety rules

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

- “Keep away from ignition sources.”;
- “Do not allow adhesive to come into contact with the skin, the eyes and the mouth.”;
- “Do not swallow material.”;
- “Do not inhale fumes.”.

7.3 Water-based paints or lacquers

7.3.1 General

Water-based paints or lacquers shall consist of water and basic materials. Only basic materials given in Table 4 shall be used. Additionally, *water-based paints or lacquers* may contain special materials given in Table 5, special additives given in Table 6 and organic solvents and film-forming agents given in Table 13, colouring agents, preservatives, fillers and modifiers.

The content of organic solvents and film-forming agents shall not exceed 6 % (mass fraction). Only preservatives permitted in foodstuffs (see [7]) and/or cosmetics, except those preservatives which are only allowed in cosmetic products that are rinsed-off after use, (see [8]) shall be used.

Table 13 — Organic solvents and film-forming agents

Chemical substance/mixture	CAS-Number	EINECS-Number
Di(2-methylpropyl)ester of aliphatic dicarboxylic acids (C ₂₀ to C ₃₃) ^a	—	—
Ethanol (Ethyl alcohol)	64-17-5	200-578-6
Mixture of aliphatic esters and alcohols (C ₁₂ to C ₁₄) ^a	—	—
1-Methoxypropan-2-ol	107-98-2	203-539-1
Propan-1,2-diol (Propylene glycol)	57-55-6	200-338-0
2-Methylpentane-2,4-diol (Hexylene glycol)	107-41-5	203-489-0
Propan-2-ol (Isopropyl alcohol)	67-63-0	200-661-7
^a maximum 2 % (mass fraction) as film-forming agents		

7.3.2 Packaging

The content of the container in a set shall not exceed 100 ml.

The name(s) of any preservative(s) used shall be indicated on the primary packaging.

7.3.3 Marking

The packaging or the container 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 5 years.

7.3.4 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 skin contact: Wash affected area with plenty of water.”;
- “In case of eye contact: Wash out eye with plenty of water, holding eye open. Seek immediate medical advice.”;
- “In case of inhalation: Remove person to fresh air.”.

7.3.5 Safety rules

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

- “Do not allow material to come into contact with the eyes.”;
- “Do not place material in the mouth.”;
- “Do not inhale vapours.”.

7.4 Solvent-based paints, lacquers, thinners and cleaning solvents

7.4.1 General

Solvent-based paints and lacquers shall consist of solvents and basic materials. Only basic materials given in Table 14 and solvents given in Table 13 and Table 15 shall be used. Paints and lacquers shall not contain more than 2 % (mass fraction) of 2-methylpropan-1-ol or *n*-butanol and not more than 20 % (mass fraction) of 1-methoxypropan-2-ol. Additionally, solvent-based paints and lacquers may contain colourants, fillers and modifiers. The content of modifiers shall not exceed 3 % (mass fraction).

For solvent-based paints and lacquers prepared with nitrocellulose the content of plasticiser shall not exceed 5 % (mass fraction).

Plasticisers shall be appropriate for food contact (see [9]) or be in accordance with Table 12.

Thinners and cleaning solvents shall contain only substances and mixtures given in Tables 13 and 15 except film-forming agents. 2-Methylpropan-1-ol, *n*-butanol and 1-methoxypropan-2-ol shall not be used in *thinners and cleaning agents*.

For solvent-based paints, lacquers, *thinners and cleaning solvents* containing petroleum fractions the *n*-hexane content shall not exceed 0,5 % (mass fraction). *n*-Hexane shall only occur in these solvents as a contaminant of petroleum fractions.

The final mixture containing petroleum fractions shall not be classified with H372.

NOTE The classifications are detailed in Regulation (EC) No. 1272/2008 [5].

Pressurized containers (aerosols) shall not be used for paints, lacquers, *thinners or cleaning solvents*.

Table 14 — Basic materials

Chemical substance	CAS-Number	EINECS-Number
Acrylic polymers	—	—
Alkyd polymers	—	—
Nitrocellulose	9004-70-0	—

Table 15 — Solvents

Chemical substance/mixture	CAS-Number	EINECS-Number
Glycerol triacetate	102-76-1	203-051-9
2-Methylpropan-1-ol (<i>iso</i> -Butanol)	78-83-1	201-148-0
Butan-2-one (Methyl ethyl ketone)	78-93-3	201-159-0
1-Methoxypropan-2-ol	107-98-2	203-539-1
1-methoxypropan-2-yl acetate	108-65-6	203-603-9
Butan-1-ol (<i>n</i> -Butanol)	71-36-3	200-751-6
3-Methoxybutyl acetate	4435-53-4	224-644-9
Petroleum fraction (35 to 160) °C	64742-89-8	265-192-2
Hydrocarbons, C9 -C16, hydrotreated, dearomatized	93763-35-0	297-854-1

If the product contains Petroleum fraction (35 to 160) °C, the viscosity of the product shall exceed 20,5 mm²/s when tested in accordance with EN ISO 3104:2023 or EN ISO 3219-2:2021.

7.4.2 Packaging

The maximum content of the container in a set shall not exceed:

- 15 ml for liquids with a flash point < 23 °C and initial boiling point > 35 °C;
- 50 ml for liquids with a flash point ≥ 23 °C.

NOTE For information regarding packaging and labelling, including child-resistant fastenings, see [5] and EN ISO 8317 [2].

7.4.3 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.

7.4.4 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 skin contact: Wash affected area with plenty of water.”;
- “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.”;
- “In case of inhalation: Remove person to fresh air.”.

7.4.5 Safety rules

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

- “Keep away from ignition sources.”;
- “Do not allow product to come into contact with the skin and the eyes.”;
- “Do not place material in the mouth.”;
- “Do not inhale vapours.”.

8 Slime kits

8.1 Chemical substances

NOTE 1 In principle, there are 2 different types of slime kits in the market: ones based on chemical, and others based on physical crosslinking systems. Chemical crosslinking systems typically use specific elements (e.g. boron) for crosslinking polymer chains.

NOTE 2 Element-based slime kits typically contain a polymeric component and potentially an element-based activator component. Kits based on physical crosslinking contain e.g. natural polymers, like Agar-Agar, Guar gum

etc. or starch-based compounds which are intended to be mixed with water. Further components could be e.g. colourants, preservatives, humectants, fragrances, and other additives for creative effects.

The requirements apply to the provided ingredients as well as to the final play slime (mixed according to the instructions). If the provided ingredients already fulfil the requirements for the final play slime it can be concluded that both, the provided ingredients, and the final play slime, comply with the requirements.

Only preservatives according to prEN 71-7:2024, Annex B in concentrations given there or preservatives which are permitted for use in food or leave-on cosmetics shall be used.

Besides colourants listed in prEN 71-7:2024, Annex A, and those that are permitted for use in food or leave-on cosmetics, colourants and colouring materials may be supplied in slime kits if they do not fulfil the criteria of any of the following hazard classes:

- “acute toxicity” (hazard class 3.1),
- “skin corrosion/irritation” (hazard class 3.2),
- “serious eye damage/eye irritation” (hazard class 3.3),
- “respiratory or skin sensitisation” (hazard class 3.4),
- “germ cell mutagenicity” (hazard class 3.5),
- “carcinogenicity” (hazard class 3.6),
- “reproductive toxicity” (hazard class 3.7),
- “specific target organ toxicity — single exposure” (hazard class 3.8),
- “specific target organ toxicity — repeated exposure” (hazard class 3.9),
- “aspiration hazard” (hazard class 3.10).

NOTE 3 The classification is detailed in Regulation (EC) No. 1272/2008 (Annex I, Part 3: Health Hazards).

NOTE 4 EN 71-3 specifies requirements for the migration of certain elements which also apply to slime kits.

8.2 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 5 years.

Individual containers and individual packaging shall be marked with the content (e.g. substance name, mixture name or material name or another identifying element).

8.3 First aid information

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

- “If swallowed: Wash out mouth with water, drink some fresh water. Do not induce vomiting. Seek immediate medical advice.”