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Safety of toys - Part 7: Finger paints - Requirements and test methods

Sicherheit von Spielzeug - Teil 7: Fingermalfarben - Anforderungen und Prüfverfahren

Sécurité des jouets - Partie 7: Peintures au doigt - Exigences et méthodes d'essai

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English version

Safety of toys - Part 7: Finger paints - Requirements and test methods

Sécurité des jouets - Partie 7: Peintures au doigt -
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Sicherheit von Spielzeug - Teil 7: Fingeralfarben -
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 11 April 2002.

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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 Management Centre has the same status as the official versions.

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

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

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Foreword

This document EN 71-7:2002 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of an identical text or by endorsement, at the latest by February 2003, and conflicting national standards shall be withdrawn at the latest by February 2003.

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(s).

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

This European Standard 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 symbol for age warning labelling

This standard is part 7 of the European Standard for safety of toys, EN 71.

This part should be read in conjunction with parts 1, 2 and 3, particularly the introduction and clauses 1 and 2 of EN 71-1:1998.

With this part in force, the requirements for finger paints in part 3 are superseded.

This standard contains six annexes:

- Annex A (normative) List of colourants allowed for use in finger paints
- Annex B (normative) List of preservatives allowed for use in finger paints
- Annex C (informative) Ingredients used in the manufacture of finger paints
- Annex D (normative) Method for the detection of certain azo colourants and determination of primary aromatic amines
- Annex E (informative) Rationale
- Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

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

Introduction

It is recognised that finger paints when compared to other toy products present different risks: the ingestion of paint material and the possibility for prolonged skin contact. Therefore, the safety limitations expressed in other parts of EN 71 are not wholly appropriate.

In order to accommodate this risk and to reduce the risks associated with potential ingestion of paint, this part of this European Standard specifies the ingredients that may be used in the manufacture of finger paints, and specifies certain limitations on impurities, preservatives, migration of certain elements and other attributes.

It is intended to reduce the risks which may be presented to a child when finger paints are used as intended or in a foreseeable way, bearing in mind the normal behaviour of children.

Chemical Abstract Service Registry Number (CAS), European Inventory of Existing Chemical Substances Number (EINECS) or Colour Index Number given in the tables are provided for information purposes only.

This European Standard is intended to complete the general valid safety requirements of Directive 88/378/EEC by special requirements for finger paints, to facilitate the proof of compliance with these general specifications.

1 Scope

This part of EN 71 specifies requirements for the substances and materials used in finger paints and applies to finger paints only.

Additional requirements are specified for markings, labelling and containers.

2 Normative references

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This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 71-3:1994, *Safety of toys - Part 3: Migration of certain elements.*

prEN 13690, *Fruit and vegetable juices - Determination of the ethanol content of fruit juices - Method using gas chromatography.*

EN ISO 787-9, *General methods of test for pigments and extenders - Part 9: Determination of pH value of aqueous suspension (ISO 787-9:1981)*.

3 Terms and definitions

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

3.1

finger paints

paste and/or jelly like, coloured preparations specially designed for children, directly applicable to suitable surfaces with the fingers and hands

NOTE In addition to water, finger paints essentially consist of colourants, extenders, binders, humectants, preservatives, surfactants and embittering agent.

3.2

colourant

colouring chemical compounds (dyes and pigments)

3.3

extender

substance consisting of insoluble particles used to increase volume, maximise some technical feature or influence optical qualities

3.4

humectant

substance that delays the drying process

3.5

binding agent

water soluble or miscible, non volatile component(s) that bind(s) the paint to the surface to which it has been applied

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3.6

preservative

substance that prevents the growth of undesirable micro-organisms

3.7

surfactant

surface active substance

3.8

embittering agent

substance that gives the product a bitter taste

4 Requirements

4.1 General

Finger paints shall not contain dangerous substances or preparations in amounts which may harm the health of children using them.

The use of ingredients in annex A and annex B is considered to meet this general requirement.

NOTE 1 Directives 67/548/EEC and 99/45/EC refer (see Bibliography).

NOTE 2 Differing legal requirements may exist in non EU countries.

4.2 Colourants

4.2.1 The use of colourants listed in annex A is permitted. Annex A consists of colourants falling in one or more of the following categories:

- food colourants;
- colourants permitted for the use in cosmetics, without limitation in the field of application and which fulfil the requirements given there;
- other pigments (listed as substances 1 – 35) which meet the general requirements of 4.1.

4.2.2 Colourants which are not classified as carcinogenic, mutagenic, toxic to reproduction, very toxic, toxic, harmful, corrosive, irritant or sensitising, may also be used in finger paints.

NOTE Directive 67/548/EEC refers.

4.2.3 Finger paints shall not contain azo colourants that by cleavage of one or more azo groups can produce primary amines listed in Tables 3 and 4 when tested in accordance with 5.2.

4.3 Preservatives

Finger paints shall be preserved using only the preservatives listed in annex B, when tested in accordance with 5.3. The maximum concentrations specified in the column "maximum allowed concentration" of Table B.1 and the limitations and requirements specified in the column "Limitations and requirements" of Table B.1 shall be observed.

4.4 Limits for the migration of certain elements

The migration of elements from finger paints shall not exceed the limits given in Table 1 (after application of the analytical correction given in Table 2) when tested in accordance with EN 71-3 (see also 5.4).

Table 1 — Limits for the migration of certain elements from finger paints

Element	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Maximum migration in finger paint (mg/kg)	10	10	350	15	25	25	10	50

Table 2 — Analytical correction

Element	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical correction (%)	60	60	30	30	30	30	50	60

4.5 Limits for primary aromatic amines

4.5.1 The single primary aromatic amines listed in Table 3 shall not be determinable when tested in accordance with 5.5.

Table 3 — Primary aromatic amines which shall not be determinable in finger paints

Primary aromatic amines	CAS number
Benzidine	CAS 92-87-5
2-Naphthylamine	CAS 91-59-8
4-Chloro-2-methyl-aniline (4-Chloro-o-toluidine)	CAS 95-69-2
4-Aminobiphenyl	CAS 92-67-1

4.5.2 With the exception of those amines listed in Table 3, finger paints shall not contain primary aromatic amines in a total amount exceeding 20 mg/kg, with no individual primary aromatic amine exceeding 10 mg/kg, when tested in accordance with 5.5. The limitation does not apply to aromatic aminocarboxylic acids or aminosulfonic acids.

Table 4 gives examples of other primary aromatic amines of concern.

Table 4 — Other primary aromatic amines of concern (examples)

Primary aromatic amine	CAS number
o-Aminoazotoluene (4-o-tolyazo-o-toluidine)	CAS 97-56-3
2-Amino-4-nitro-toluene (5-Nitro-o-toluidine)	CAS 99-55-8
4-Chloroaniline	CAS 106-47-8
2,4-Diaminoanisole	CAS 615-05-4
4,4'-Diaminodiphenylmethane (4,4'-Methylenedi-o-toluidine)	CAS 101-77-9
3,3'-Dichlorobenzidine	CAS 91-94-1
3,3'-Dimethoxybenzidine	CAS 119-90-4
3,3'-Dimethylbenzidine	CAS 119-93-7
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	CAS 838-88-0
p-Cresidine (6-Methoxy-m-toluidine)	CAS 120-71-8
2,2'-Dichloro-4,4'-methylenedianiline (4,4'-Methylene-bis-2-chloroaniline)	CAS 101-14-4
4,4'-Oxydianiline	CAS 101-80-4
4,4'-Thiodianiline	CAS 139-65-1
o-Toluidine	CAS 95-53-4
2,4-Xylidine	CAS 95-68-1
2,6-Xylidine	CAS 87-62-7
4-Amino-3-fluorophenol	CAS 399-95-1
6-Amino-2-ethoxynaphthalene	not available
2-Methoxyaniline (o-anisidine)	CAS 90-04-0
4-Aminoazobenzene	CAS 60-09-3
4-Methyl-m-phenylenediamine (Toluene-2,4-diamine)	CAS 95-80-7
2,4,5-Trimethylaniline	CAS 137-17-7

4.6 Taste and smell

Finger paints shall not be sweetened, flavoured or fragranced. An embittering agent in accordance with the following list shall be added in order to minimise the ingestion of paint:

- sucrose octaacetate (CAS 126-14-7);
- naringin (CAS 10236-47-2);
- denatonium benzoate (CAS 3734-33-6).

NOTE The relative bitterness of these substances is approximately 1:10:3000 (naringin : sucrose octaacetate : denatonium benzoate). The following levels have been found suitable: naringin 1 %; sucrose octaacetate 0,1 %; denatonium benzoate 0,000 4 % (4 mg/kg).

For the preparation of an embittering solution, only ethanol shall be used. The concentration of ethanol in the final product shall not exceed 0,5 % when tested in accordance with 5.6.

4.7 pH-value

The pH-value of the final product shall be between 4 and 9 when tested in accordance with 5.7.

4.8 Binding agents, extenders, humectants and surfactants

Binding agents, extenders, humectants and surfactants that are classified as carcinogenic, mutagenic, toxic to reproduction, very toxic, toxic, harmful, corrosive, irritant or sensitising shall not be used. See annex C for a list of acceptable compounds.

5 Test methods

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5.1 General

In order to determine whether the requirements in clause 4 are met, the following test methods shall be applied:

5.2 Colourants

The detection of azo colourants that by cleavage of one or more azo groups can produce primary aromatic amines listed in Tables 3 and 4 shall be in accordance with the test method described in annex D.

5.3 Preservatives

Test methods are in accordance with those used for cosmetic products in the relevant EU Directives, where available.

NOTE Directives 82/434/EEC, 83/514/EEC, 85/490/EEC, 90/207/EEC, 93/73/EEC, 95/32/EEC and 96/45/EEC refer.

5.4 Migration of certain elements

Test methods shall be in accordance with EN 71-3:1994, 8.9.

5.5 Primary aromatic amines

The determination of free primary aromatic amines shall be in accordance with the test method described in annex D.

5.6 Ethanol

Test method shall be in accordance with prEN 13690.

5.7 pH-value

Test method shall be in accordance with EN ISO 787-9.

6 Product information

6.1 General

Markings shall be visible, easily legible, indelible and in the national language(s) of the country of sale.

The container shall bear the manufacturer's / distributor's information and warning, as given in 6.2.2.

The other packaging information should also be included on the container.

6.2 Marking

6.2.1 Manufacturer's identification

The container shall bear the name and address, tradename and/or mark of the manufacturer, his authorised representative or the importer. The name and address may be abbreviated provided that the abbreviation enables identification of the manufacturer, his authorised representative or the importer.

6.2.2 Labelling phrases

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The container shall bear the following notation:

WARNING — "Warning! Children under 3 years of age should be supervised by adults."

The container shall indicate the preservative(s) and embittering agent(s) used.

NOTE Preservatives should be identified by their chemical name, INCI (name) or E number, where available.

7 Containers

Containers which are likely to lead to or promote confusion with foodstuffs shall not be used.

Annex A (normative)

List of colourants allowed for use in finger paints

Table A.1 — Colourants

No.	Colourant	CI number ¹⁾	Colour	Limitations, requirements and information
1	Pigment Green 8	10 006	Green	³⁾
2	Pigment Yellow 1	11 680	Yellow	⁴⁾
3	Pigment Yellow 3	11 710	Yellow	⁴⁾
4	Pigment Yellow 74	11 741	Yellow	
5	Pigment Yellow 154	11 781	Yellow	
6	Pigment Orange 38	12 367	Orange	
7	Pigment Red 188	12 467	Red	
8	Pigment Red 170	12 475	Red	
9	Pigment Brown 25	12 510	Brown	
10	Pigment Red 208	12 514	Red	
11	Pigment Violet 32	12 517	Violet	
12	Pigment Yellow 151	13 980	Yellow	
13	Pigment Yellow 12	21 090	Yellow	
14	Pigment Yellow 14	21 095	Yellow	
15	Pigment Yellow 13	21 100	Yellow	³⁾
16	Pigment Yellow 17	21 105	Yellow	
17	Pigment Orange 13	21 110	Orange	
18	Pigment Orange 34	21 115	Orange	
19	Pigment Violet 19	73 900	Violet	³⁾
20	Pigment Violet 23	51 319	Violet	³⁾
21	Pigment Yellow 138	56 300	Yellow	
22	Pigment Yellow 139	56 298	Yellow	
23	Pigment Red 168	59 300	Red	
24	Pigment Orange 43	71 105	Orange	⁴⁾
25	Pigment Red 122	73 915	Red	³⁾
26	Pigment Green 7	74 260	Green	⁵⁾
27	Pigment Green 36	74 265	Green	
28	Pigment White 19	77 005	White	
29	Pigment Brown 24	77 310	Brown	
30	Pigment Yellow 53	77 788	Yellow	
31	Pigment Yellow 155	200310	Yellow	
32	Pigment Red 214	200660	Red	
33	Pigment Red 242	20067	Red	
34	Pigment Red 48:4	15 865:4	Red	
35	Pigment White 7	77975	White	
36	Solvent Orange 1	11920	Orange	