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# Toy safety requirement

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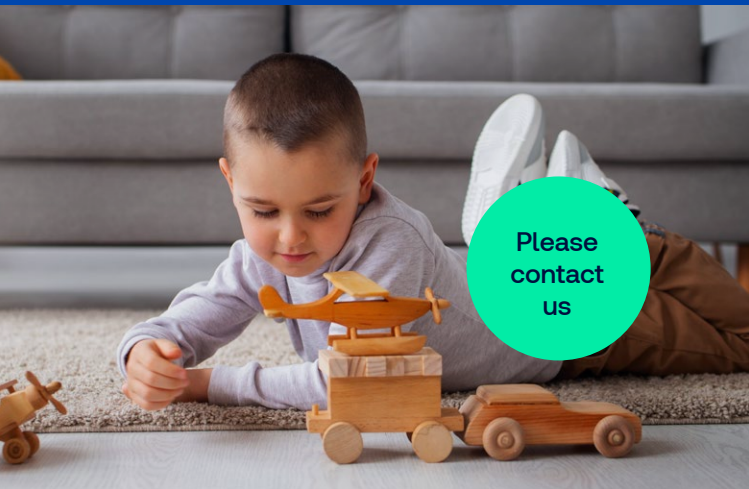

# Why choose TÜV SÜD?

TÜV SÜD offers a one-stop solution for testing, auditing, certification and advisory on regulatory testing standards for the toy industry. Our global network of accredited laboratories provides testing services in line with the various regulatory standards and directives. We can support you from the beginning of the product lifecycle, starting at the design stage prior to prototyping. Combined with our in-depth understanding of standards, we help you achieve safety compliance and save on costly rework.

# Contents



# Introduction

The European Union and the United States are two major markets for toys. The toy safety requirements are comparatively more stringent than other countries or regions. While there are overlaps in the toy regulatory requirements in the EU and US, there are also some differences in scope and limits. This leaflet will provide you with an overview and comparison of some highlighted requirements in these two markets.

For example, the reporting obligation in the EU, if an article contains any Substances of Very High Concern (SVHC) on the candidate list exceeding 0.1% by weight, the supply chain communication is required. In case the tonnage threshold of such SVHC is over 1 tonne/year, then notification to the European Chemical Agency (ECHA). As part of the EU Waste Framework Directive (WFD), ECHA has built a database for storing safe-use information for SVHC present in articles placed on the market in the EU, both waste operators and consumers can access such information. From 5 January 2021, all manufacturers, importers, and distributors within the EU are required to make submissions to the SCIP database for any article that contains SVHC in concentration above 0.1% by weight. In the US, there is similar reporting obligation of hazardous substances in children's products in Washington, Maine, Vermont and Oregon states. If you operate a business in California and your products may expose Californians to any chemical that are listed under Proposition 65, you should provide clear and reasonable warnings on the products or pass along the written notice with warning materials.

On 28 July 2023, the EU Commission published its legislative proposal to revise the Toy Safety Directive. The proposal follows the evaluation of the Toy Safety Directive published in 2020, which identified several areas where the existing rules could be strengthened. The draft legislation includes proposed reforms that could influence other European Union sector-specific product rules. For instance, the proposal requires a Digital Product Passport to provide certain compliance information.

On 13 October 2023, ASTM released the long-awaited revised ASTM F963-23. The revisions reflect changes approved by the F15.22 Subcommittee on Toy Safety in recent years. It is expected that CPSC will accept and incorporate this latest version into the federal toy policy.

**In this leaflet, we highlighted essential toy requirements in the EU and the US. Certain test parameters with high market concern are elaborated and compared in later appendix.**

## Highlights of toy related requirements in the EU and US

| Test item | EU | US |
|---|---|---|
| Physical and mechanical, labeling (see appendix 1, 2) | EN 71-1:2014+A1:2018 | ASTM F963-23 |
| Cleanliness of stuffing material | EN 71-1:2014+A1:2018 | ASTM F963-23 |
| Flammability | EN 71-2:2020 | ASTM F963-23 |
| Soluble elements (see appendix 3) | EN 71-3:2019+A1:2021 | ASTM F963-23 |
| Kerosene and polychlorinated biphenals in stuffed toys | - | Regulations of Connecticut State Agencies, Sec. 21a-336-1<br>Limit: not detected |
| Nitrosamines and nitrosatable substances | EN 71-12:2016*<br>Limits:<br>i) Nitrosamines: 0.05 mg/kg for elastomer; 0.02 mg/kg for finger paint<br>ii) Nitrosable substances: 1 mg/kg for elastomer and finger paint | ASTM F963-23<br>A test sample of nipples shall not contain more than 10 ppb in each of three aliquots of any one nitrosamine. In addition, the total nitrosamines shall not exceed 20 ppb. |
| Total lead | REACH annex XVII – entry 63<br>i) In general consumer products:<br>Limits:<br>- total lead: 500 mg/kg, or<br>- the rate of lead release: 0.05 µg/cm2/h<br>ii) In jewellery<br>Limit: 500 mg/kg<br>iii) < 0.1% by weight of PVC material (effect from 29 November 2024) | CPSIA section 101, ASTM F963<br>Limits:<br>i) Surface coating: 90 mg/kg<br>ii) Substrate: 100 mg/kg<br><br>California Health and Safety Code Section 25214.1-2 for children's jewellery<br>Limits:<br>i) Surface coating: 90 mg/kg<br>ii) Substrate: 100 mg/kg<br><br>Illinois Lead Prevention Act<br>Limit: 40 mg/kg<br><br>New York ECL<br>Limit: 40 mg/kg in children’s jewellery |

* Only applicable to toys or parts of toys intended for use by children under 36 months or intended to be placed in the mouth.

## Highlights of toy related requirements in the EU and US (con't)

| Test item | EU | US |
|---|---|---|
| Cadmium | EN 71-3<br>Limits: see appendix 3<br>REACH annex XVII – entry 23<br>Limit:<br>i) Plastic, paint, jewelry, hair accessories: 100 mg/kg;<br>ii) Painted articles: 1000 mg/kg | ASTM F963-23<br>Limits:<br>i) Soluble cadmium for accessible substrates: 75 mg/kg;<br>ii) Soluble cadmium for small part metal: 200 µg unless total content < 75 mg/kg.<br><br>California Health and Safety Code Section 25214.1-2 for children's jewelry<br>Limit:<br>i) Surface coating: 75 mg/kg (soluble)<br>ii) Substrate: 300 mg/kg<br><br>Washington CPSA<br>Limit: 40 mg/kg<br>Various state laws:<br>Limit: 75 ppm for children's jewelry (total and/or soluble) |
| Phthalates<br>(see appendix 4, 7) | REACH annex XVII – entry 51, 52, 72 | CPSIA section 108, 16 CFR 1307<br>Various state laws: California, Vermont, Washington, TPCH etc. |
| Azo dyes | REACH annex XVII – entry 43, 72<br>Textile and leather: 30 mg/kg | - |
| PAHs<br>(see appendix 5) | REACH annex XVII – entry 50, 72<br>Limit: 0.5 mg/kg | - |
| Organotin compounds | REACH annex XVII – entry 20<br>Limit: 1000 mg/kg | - |
| Benzene | REACH annex XVII – entry 5<br>Limit: 5 mg/kg | - |
| Nickel release | REACH annex XVII – entry 27<br>Limits:<br>i) Body piercing components: 0.2 µg/cm2/week;<br>ii) Parts with direct and prolonged<br>skin contact: 0.5 µg/cm2/week | ASTM F2923 for children's jewelry<br>Limits:<br>i) Body piercing components: 0.2 µg/cm2/week.<br>ii) Parts with direct and prolonged skin contact: 0.5 µg/$cm^2$/ week. |
| Chromium VI | REACH annex XVII - entry 47<br>Limit: 3 mg/kg in leather | - |

## Highlights of toy related requirements in the EU and US (con't)

| Test item | EU | US |
|---|---|---|
| Flame retardants | i) Toy directive 2009/48/EC appendix C*<br>Limit:<br>5 mg/kg each of TCEP, TCPP, TDCP<br>ii) REACH annex XVII - entries 4, 7, 8<br>Limit: Not used for textile articles<br>iii) REACH annex XVII - entry 45<br>Limit: 1000 mg/kg of OctaBDE<br>iv) Regulation (EU) 2019/1021 (POPs)<br>Limits:<br>- sum of PBDEs: 500 mg/kg<br>- HBCDD: 0.01% by weight | Federal: 40 CFR 751.407 - PIP (3:1) (not used)<br>Various state laws: in California, Washington, New York, Minnesota, Vermont, etc. |
| Bisphenol A | Toy directive 2009/48/EC appendix C*<br>Limit: 0.04 mg/l | Restricted in various states including California, Vermont, Minnesota, etc. |
| Phenol | Toy directive 2009/48/EC appendix C*<br>i) Polymeric materials<br>Limit: 5 mg/l (migration limit);<br>ii) Aqueous toy materials<br>Limit: 10 mg/kg (content limit) | - |
| Aniline | Toy directive 2009/48/EC appendix C*<br>i) Textile: 30 mg/kg after reductive cleavage<br>ii) Leather: ≤ 30 mg/kg after reductive cleavage<br>iii) Finger paints ≤ 10 mg/kg as free aniline and ≤ 30 mg/kg after reductive cleavage | - |
| Formamide | Toy directive 2009/48/EC appendix C*<br>Limit: 200 mg/kg (content limit)<br>If content limit is exceeded, shall perform emission testing for a maximum of 28 days from commencement.<br>Limit: 20 $\mu g/m^3$ (emission limit) | - |

* Only applicable to toys or parts of toys intended for use by children under 36 months or intended to be placed in the mouth.

# Highlights of toy related requirements in the EU and US (con't)

| Test item | EU | US |
|---|---|---|
| Formaldehyde | Toy directive 2009/48/EC appendix C*<br>Limits:<br>i) Polymeric materials: 1.5 mg/l (migration limit);<br>ii) Resin-bonded wood materials: 0.1 ml/m3 (emission limit);<br>iii) Textile materials: 30 mg/kg;<br>iv) Leather materials: 30 mg/kg;<br>v) Paper materials: 30 mg/kg;<br>vi) Water-based materials: 10 mg/kg<br><br>REACH annex XVII - entry 72<br>Limit: see appendix 6<br><br>REACH annex XVII - entry 77<br>a) ≤ 0.062 mg/m3 for wood-based articles and furniture, the interior of road vehicles;<br>b) ≤ 0.08 mg/m3 for articles other than wood-based articles and furniture. | 40 CFR 770, CARB ATCM<br>Limits:<br>i) Hardwood plywood (laminated product exempted until 22 March 2024): 0.05 ppm;<br>ii) Medium-density fiberboard: 0.11 ppm;<br>iii) Thin medium-density fiberboard (≤ 8mm in thickness) : 0.13 ppm;<br>iv) Particleboard: 0.09 ppm. |
| Short-chain chlorinated paraffins (SCCPs) | Regulation (EU) 2019/1021 (POPs)<br>Limit: 0.15 % by weight in articles | - |
| Preservatives (BIT, reaction mass of CMI and MI (3:1), CMI, MI) | Toy directive 2009/48/EC appendix C*<br>Limits:<br>i) BIT: 5 mg/kg;<br>ii) CMI: 0.75 mg/kg;<br>iii) MI: 0.25 mg/kg;<br>iv) CMI and MI in a ratio of 3:1 (Katone): 1 mg/kg. | - |
| Pentachlorophenol (PCP) and its salts and esters | Regulation (EU) 2019/1021 (POPs)<br>Limit: 5 mg/kg | - |
| Nonylphenol ethoxylates (NPE) | REACH annex XVII - entry 46a<br>Textile articles expected to be washed in water during their normal lifecycle: 100 mg/kg | - |
| Microplastics | REACH annex XVII Entry 78<br>Synthetic polymer microparticles shall not be placed on the market<br>- as substances on their own or,<br>- where the synthetic polymer microparticles are present to confer a sought-after characteristic, in mixtures in a concentration equal to or greater than 0.01 % by weight. | - |

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## Highlights of toy related requirements in the EU and US (con't)

| Test item | EU | US |
|---|---|---|
| Specific CMRs (carcinogenic, mutagenic and reproductive toxic) substances (see appendix 6) | Specific CMRs (carcinogenic, mutagenic and reproductive toxic) substances (see appendix 7) | - |
| Hazardous substances in electrical and electronic Equipment | RoHS directive 2011/65/EU | California state adopted regulations restricting hazardous substances in lighting and certain electronic devices, in line with EU RoHS |
| Batteries | Regulation (EU) 2023/1542 | i) US public law 104–142, mercury-containing and rechargeable battery management act<br>ii) Various state laws also restricted mercury contents in button cells |
| Toy standard for electric toy safety | EN IEC 62115:2020<br>EN IEC 62115:2020/A11:2020 | ASTM F963-23, 16 CFR 1505, UL 696 |
| Microbiological safety | Toy directive 2009/48/EC, EP | ASTM F963-23, USP, CTFA |
| Toxicological risk assessment (TRA) | Toy directive 2009/48/EC | ASTM F963-23<br>16 CFR 1500.3 (b)(5) and 1500.3 (b)(7)-(9) |
| Radio controlled frequency | RED 2014/53/EU | FCC Part 15 Radio Frequency Devices |
| Toxicological risk assessment (TRA) | Toy directive 2009/48/EC | ASTM F963-23<br>16 CFR 1500.3 (b)(5) and 1500.3 (b)(7)-(9) |
| LHAMA evaluation in art materials | - | 16 CFR 1500.14(b)(8)<br>ASTM D4236-94(R2021) |
| Heavy metals in packaging material (see appendix 8) | Directive 94/62/EC | Model Legislation of Toxics in Packaging Clearinghouse (TPCH) |
| Per- and polyfluoroalkyl substances (PFAS) | i) REACH annex XVII - entry 68 PFCAs<br>ii) Regulation (EU) 2019/1021 (POPs) - PFOA, PFOS, PFHxS | 40 CFR 721: LCPFACs<br><br>Various state laws, such as California Proposition 65, TPCH, chemical reporting obligations, disclosure of cookware, regulations for food packaging, juvenile products, clothing, carpet and rugs. |
| Polystyrene foam materials ban | - | Sale prohibition of pool or beach toy in San Francisco. |

* Only applicable to toys or parts of toys intended for use by children under 36 months or intended to be placed in the mouth.

# Appendix 1 - physical and mechanical requirements highlight (EU and US )

| Test item | | EU (EN 71-1:2014+A1:2018) | US (ASTM F963-23, 16 CFR 1500.51-53) | | |
|---|---|---|---|---|---|
| Age grade (months) | | - | 0 to ≤ 18 | > 18 to ≤ 36 | > 36 to ≤ 96 |
| Abuse test | Torque test | 0.34 Nm | 2 in-lbf | 3 in-lbf | 4 in-lbf |
| | Tension test | Accessible dimension ≤ 6 mm : 50 N<br>Accessible dimension > 6 mm : 90 N<br>Protective components : 60 N<br>Seams: 70 N | 10 lbf | 15 lbf | 15 lbf |
| | Compression test | 110 N | 20 lbf | 25 lbf | 30 lbf |
| | Drop test | 850 mm x 5 times | 4.5 ft x 10 times | 3.0 ft x 4 times | 3.0 ft x 4 times |
| | Tip over test (for large and bulky toys) | 3 times | 3 times | | |
| | Flexure test | Metallic wires and other metallic components that are designed and intended to be bent: ≤ 70 N x 30 cycles<br>Metallic wires likely to be bent: ≤ 70 N x 1 cycle | 10 lbf x 30 cycles | 15 lbf x 30 cycles | 15 lbf x 30 cycles |
| | Impact test | 1 kg from height of 100 mm | N/A | | |
| | Tumble test for wheeled Toys (for toy weigh between 3-10 lb) | N/A | 6 steps for 4 attitudes x 2 times tip over | | |
| | Bite test (for mouth toys) | N/A | 25 lbf | 50 lbf | 100 lbf |
| | Soaking test (for glued wooden toys and glue plastic decals) | At 20℃ for 4 min x 4 times | N/A | | |

* Only applicable to toys or parts of toys intended for use by children under 36 months or intend

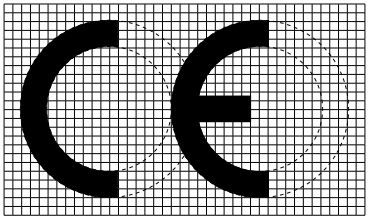
## Appendix 2 - labeling requirements (EU)

**General information**

- Toy shall bear
  - the name and address of manufacturer and/or importer
  - the product identification: type, batch, serial or model number or other element allowing their identification

**CE mark**

The CE marking shall be affixed visibly, legibly and indelibly to the toy, to an affixed label or to the packaging. The CE marking shall be at least 5 mm high and shall consist of the initials 'CE' taking the following form.



**Warning statement**

- Small part warning
  Toys which are not intended for but might be dangerous for children under 36 months shall be accompanied by a warning, such as:
  "Warning. Not suitable for children under 36 months" or "Warning. Not suitable for children under three years“ together with a brief indication of the specific hazard calling for this restriction.

**Example:** "Warning. Not suitable for children under 36 months. Small parts"
The phrase: "Not suitable for children under 36 months“ or "Not suitable for children under three years" may be substituted by the symbol as follow:




## Labeling requirements (US)

**CPSIA**

- Tracking label
  Children’s products that are designed or intended primarily for use by children ages 12 or younger must have distinguishing permanent marks that are
  - Affixed to the product and its packaging and
  - Provide certain identifying information.

**ALL** tracking labels must contain certain basic information, including:

1. Manufacturer or private labeler name;
2. Location and date of production of the product;
3. Detailed information on the manufacturing process, such as a batch or run number, or other identifying characteristics; and
4. Any other information to facilitate ascertaining the
5. specific source of the product.

## ASTM F963-23

- **Warning statement**
  Safety labeling shall consist of:
  1. an alert symbol (an exclamation mark within an equilateral triangle);
  2. a signal word (CAUTION or WARNING);
  3. text that describes the hazard that is present.
  and may contain text about what to do or not to do to avoid injury (e.g. “Keep out of baby’s reach”).

All labeling statements shall comply with the type size requirements based on the computed area of the principal display panel according to the standard. For these purposes, Signal Word means the word “Warning” and the words “Safety Warning”; Statement of Hazard means “Choking Hazard”; Other Material means all other remaining statements.

| Area, in.$^2$ | 0-2 | +2-5 | +5-10 | +10-15 | +15-30 | +30-100 | +100-400 | +400 |
|---|---|---|---|---|---|---|---|---|
| **Type Size—Signal Word** | 3/64 in. | 1/16 in. | 3/32 in. | 7/64 in. | 1/8 in. | 5/32 in. | 1/4 in. | 1/2 in. |
| **Type Size—Statement of Hazard** | 3/64 in. | 3/64 in. | 1/16 in. | 3/32 in. | 3/32 in. | 7/64 in. | 5/32 in. | 1/4 in. |
| **Type Size—Other Material** | 1/32 in. | 3/64 in. | 1/16 in. | 1/16 in. | 5/64 in. | 3/32 in. | 7/64 in. | 5/32 in. |

### Small part warning

For toys and games intended for children at least 3 years old but less than 6 years of age, and which contain as-received small part(s), the labeling shall read:

⚠ WARNING:
CHOKING HAZARD—Small parts.
Not for children under 3 yrs.

## Appendix 3 - migration of certain elements requirements of EN 71-3 and ASTM F963

The European commission set out the migration limit values for 19 elements for different toy materials under Toy safety directive, and the harmonised standard EN 71-3 adopted the same set of limits. The limit values are revised from time to time depending on the latest scientific research outcome.

In the United States, the limits for 8 soluble heavy metals are laid down in the toy standard ASTM F963 mandated under Consumer Product Safety Improvement Act (CPSIA).

| | EN 71-3:2019+A1:2021 (mg/kg) | | | ASTM F963-23 (mg/kg) | |
|---|---|---|---|---|---|
| **Elements** | **CAT. 1** dry, brittle, powder-like or pliable toy material | **CAT. 2** liquid or sticky toy material | **CAT. 3** scraped-off toy material | **General** | **Modelling clay** |
| Aluminium | 2250 | 560 | 28130 | - | - |
| Antimony | 45 | 11.3 | 560 | 60 | 60 |
| Arsenic | 3.8 | 0.9 | 47 | 25 | 25 |
| Barium | 1500 | 375 | 18750 | 1000 | 250 |
| Boron | 1200 | 300 | 15000 | - | - |
| Cadmium | 1.3 | 0.3 | 17 | 75* | 50 |
| Chromium | - | - | - | 60 | 25 |
| Chromium (III) | 37.5 | 9.4 | 460 | - | - |
| Chromium (VI) | 0.02 | 0.005 | 0.053 | - | - |
| Cobalt | 10.5 | 2.6 | 130 | - | - |
| Copper | 622.5 | 156 | 7700 | - | - |
| Lead | 2 | 0.5 | 23 | 90 | 90 |
| Manganese | 1200 | 300 | 15000 | - | - |
| Mercury | 7.5 | 1.9 | 94 | 60 | 25 |
| Nickel | 75 | 18.8 | 930 | - | - |
| Selenium | 37.5 | 9.4 | 460 | 500 | 500 |
| Strontium | 4500 | 1125 | 56000 | - | - |
| Tin | 15000 | 3750 | 180000 | - | - |
| Organic tin | 0.9 | 0.2 | 12 | - | - |
| Zinc | 3750 | 938 | 46000 | - | - |

* Soluble cadmium for small part metal: 200 µg unless total content < 75 mg/kg.

## Appendix 4 - phthalates requirements in the EU and US

Phthalates are generally used as plasticisers and could be found as impurities. However, they are known to reduce fertility and can be very harmful to children. Currently in the EU, the use of 7 phthalates in toys and childcare articles is restricted under REACH Regulation (EC) No 1907/2006.

In the United States, there are 8 phthalates being prohibited in toys and childcare articles under CPSC regulations. The final rule 16 CFR 1308 determines that seven specified plastics as follows are exempted from third party testing.

However, manufacturer still have to ensure that these plastics meet the phthalates requirement.

1. Polypropylene (PP)
2. Polyethylene (PE)
3. Acrylonitrile butadiene styrene (ABS)
4. High-impact polystyrene (HIPS)
5. General purpose polystyrene (GPPS)
6. Medium-impact polystyrene (MIPS)
7. Super high-impact polystyrene (SHIPS)

It is noticeable that addition phthalates are required for toys sell in California State, while most of the phthalates are also restricted in the EU.

## Comparison of restricted phthalates in the EU and US

| | | EU | US | California State |
|---|---|---|---|---|
| Chemical name | Abbreviation | REACH AnnexXVII | CPSIA section108, 16 CFR 1307 | HSC code, Proposition 65 |
| Bis (2-ethylhexyl) phthalate | DEHP | √ | √ | √ |
| Dibutyl phthalate | DBP | √ | √ | √ |
| Benzyl butyl phthalate | BBP | √ | √ | √ |
| Di-isodecyl phthalate | DIDP | √ | | √ |
| Di-n-octyl phthalate | DNOP/DnOP | √ | | √ |
| Diisononyl phthalate | DINP | √ | √ | √ |
| Diisobutyl phthalate | DIBP | √ | √ | |
| Di-n-hexyl phthalate | DnHP/DHP/DHEXP | | √ | √ |
| Dipentyl phthalate | DPP/DPENP | | √ | |
| Dicyclohexyl phthalate | DCHP | | √ | |

## Scope and limits of phthalates for toys and childcare articles

| Country/Region | Scope | Phthalate | Limit |
|---|---|---|---|
| **EU** | Any plasticised material | DEHP, DBP, BBP, DIBP | 0.1% by weight (sum or individual) |
| | Any plasticised material that can be placed into mouth | DINP, DIDP, DNOP | |
| **US CPSIA** | Any phthalates-containing material | DEHP, DBP, BBP, DINP, DIBP, DPENP, DHEXP, DCHP | 0.1% by weight (each) |
| **US California** | Any phthalates-containing material | DEHP, DBP, BBP, DINP, DIDP, DNOP, DnHP | 0.1% by weight (each)* |

*For California Proposition 65, should also observe the reformulation in specific settlement or judgement.

## Appendix 5 - PAHs requirement (EU and Germany)

Toys placing on the EU market have to comply with the PAH requirement under REACH Regulation. For toys that would also be placed on the Germany market and bear the voluntary GS mark, in addition to REAC requirement, they need to fulfill the AfPS PAH Decision which has its own scope, test parameters and limits.

### REACH Annex XVII - entry 50

| Substance name | CAS No. | Limit (mg/kg) |
|---|---|---|
| | | Rubber or plastic components that come into direct (prolonged or short-term repetitive) contact with the human skin or the oral cavity, under normal or reasonabl foreseeable conditions of us |
| | | Toys and childcare articles |
| Benzo[a]pyrene (BaP) | 50-32-8 | ≤ 0.5 |
| Benzo[e]pyrene (BeP) | 192-97-2 | ≤ 0.5 |
| Benzo[a]anthracene (BaA) | 56-55-3 | ≤ 0.5 |
| Chrysene (CHR) | 218-01-9 | ≤ 0.5 |
| Benzo[b]fluoranthene (BbFA) | 205-99-2 | ≤ 0.5 |
| Benzo[j]fluoranthene (BjFA) | 205-82-3 | ≤ 0.5 |
| Benzo[k]fluoranthene (BkFA) | 207-08-9 | ≤ 0.5 |
| Dibenzo[a,h]anthracene (DBAhA) | 53-70-3 | ≤ 0.5 |

# AfPS GS 2019:01 Decision on PAH for GS-Mark Certification

| Substance name | CAS No. | Limit (mg/kg) | | | | |
|---|---|---|---|---|---|---|
| | | Category 1 | Category 2 | | Category 3 | |
| | | Materials, that are intended to be taken in the mouth, or materials in toys or articles for use by children up to 3 years of age with intended long-term skin contact (longer than 30s) | Materials, not covered in Cat.1, with intended or foreseeable contact to skin longer than 30 s (long-term skin contact) or repeated short-term skin contact | | Materials, that do not fall in Cat. 1 or 2, with intended or foreseeable contact to skin up to 30 s (short-term skin contact) | |
| | | Toys and childcare articles | a. Use by children^ | b. Other consumer products | a. Use by children^ | b. Other consumer products |
| Benzo[a]pyrene (BaP) | 50-32-8 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[e]pyrene (BeP) | 192-97-2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[a]anthracene (BaA) | 56-55-3 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[b]fluoranthene (BbFA) | 205-99-2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[j]fluoranthene (BjFA) | 205-82-3 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[k]fluoranthene (BkFA) | 207-08-9 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Chrysene (CHR) | 218-01-9 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Dibenzo[a,h]anthracene (DBAhA) | 53-70-3 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Benzo[g,h,i]perylene | 191-24-2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 1 |
| Phenanthrene | 85-01-8 | Sum: < 1 | Sum: < 5 | Sum: < 10 | Sum: < 20 | Sum: < 50 |
| Pyrene | 129-00-0 | | | | | |
| Anthracene | 120-12-7 | | | | | |
| Fluoranthene | 206-44-0 | | | | | |
| Naphthalene | 91-20-3 | < 1 | < 2 | < 2 | < 10 | < 10 |
| Sum of 15 PAH above | | < 1 | < 5 | < 10 | < 20 | < 50 |

^ A "child" is legally defined as a person before reaching the age of 14 years; the use by children includes both active and passive direct contact.


Please contact us

## Appendix 6 - specific CMRs in EU REACH annex XVII - entry 72

Entry 72 to EU REACH regulation Annex XVII restricts a number of hazardous substances (carcinogenic, mutagenic or toxic for reproduction (CMRs) category 1A or 1B) in clothing, other textile articles which come into contact with human skin and footwear. In order to clarify the scope of this entry, the EC has published an explanatory guide to elaborate the requirement and provide examples for reference.

These groups of restricted substances include heavy metals, phthalates, polycyclic aromatic hydrocarbons (PAHs), formaldehyde, certain azo dyes, and so on. Some of these restricted substances are overlapped with other REACH restrictions or other EU legislations. According to the new restriction, if there is any other stricter restriction or legislation on the chemical listed in this new restriction, the stricter one will apply.

| Substance | CAS No. | Limit (by weight in homogenous materials) |
|---|---|---|
| Cadmium and its compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6) | - | Extractable Cadmium: 1 mg/kg |
| Chromium VI compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6) | - | Extractable Chromium VI: 1 mg/kg |
| Arsenic compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6) | - | Extractable Arsenic: 1 mg/kg |
| Lead and its compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6) | - | Extractable Lead: 1 mg/kg |
| Benzene | 71-43-2 | 5 mg/kg |
| Benz[a]anthracene | 56-55-3 | 1 mg/kg (each) |
| Benz[e]acephenanthrylene | 205-99-2 | |
| Benzo[a]pyrene; benzo[def]chrysene | 50-32-8 | |
| Benzo[e]pyrene | 192-97-2 | |
| Benzo[j]fluoranthene | 205-82-3 | |
| Benzo[k]fluoranthene | 207-08-9 | |
| Chrysene | 218-01-9 | |
| Dibenz[a,h]anthracene | 53-70-3 | |
| a,a,a, 4-tetrachlorotoluene; p-chlorobenzotrichloride | 5216-25-1 | 1 mg/kg |
| a,a,a-trichlorotoluene; benzotrichloride | 98-07-7 | 1 mg/kg |
| a-chlorotoluene; benzylchloride | 100-44-7 | 1 mg/kg |
| Formaldehyde | 50-00-0 | 75 mg/kg |

| Substance | CAS No. | Limit (by weight in homogenous materials) |
|---|---|---|
| 1,2-benzenedicarboxylic acid; di-C 6-8-branched alkylesters, C 7-rich | 71888-89-6 | 1000 mg/kg (individually or in combination with other phthalates in this entry or in other entries of Annex XVII that are classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 in any of the hazard classes CMR 1A or 1B) |
| Bis(2-methoxyethyl) phthalate | 117-82-8 | |
| Diisopentylphthalate | 605-50-5 | |
| Di-n-pentyl phthalate (DPP) | 131-18-0 | |
| Di-n-hexyl phthalate (DnHP) | 84-75-3 | |
| N-methyl-2-pyrrolidone; 1-methyl-2- pyrrolidone (NMP) | 872-50-4 | 3000 mg/kg |
| N,N-dimethylacetamide (DMAC) | 127-19-5 | 3000 mg/kg |
| N,N-dimethylfomamide; dimethyl fomamide (DMF) | 68-12-2 | 3000 mg/kg |
| 1,4,5,8-tetraaminoanthraquinone; C.I. Disperse Blue 1 | 2475-45-8 | 50 mg/kg |
| Benzenamine, 4,4'-(4-iminocyclohexa-2,5-dienylidenemethylene) dianiline hydrochloride; C.I.Basic Red 9 | 569-61-9 | 50 mg/kg |
| [4-[4,4'-bis(dimethylamino)benzhydrylidene] cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride; C.I. Basic Violet 3 with ≥ 0,1% of Michler's ketone (EC no. 202-027-5) | 548-62-9 | 50 mg/kg |
| 4-chloro-o-toluidinium chloride | 3165-93-3 | 30 mg/kg |
| 2-Naphthylammoniumacetate | 553-00-4 | 30 mg/kg |
| 4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate | 39156-41-7 | 30 mg/kg |
| 2,4,5-trimethylaniline hydrochloride | 21436-97-5 | 30 mg/kg |
| Quinoline | 91-22-5 | 50 mg/kg |

## Appendix 7 - toxic substances in packaging materials

Apart from the product, the toxicity of the packaging material is also a concern. In order to reduce the impact from packaging and packaging waste to the environment, the restriction of toxic substances in packaging material are laid down in EU Directive 94/62/EC and Model Legislation of Toxics in Packaging Clearinghouse (TPCH) in the United States.

| | EU | US |
|---|---|---|
| **Toxic substances** | 94/62/EC | TPCH |
| **Pb, Cd, Hg and Chromium (VI)** | Sum of four elements: ≤ 100 ppm | |
| **Phthalates** | N/A | 100 ppm (sum) |
| **PFAS** | N/A | Total fluorine: <100 ppm |

# Global toy standards

| Country/ Region | Certification | Highlights of toy standard/legislation |
|---|---|---|
| Argentina | S-mark/lot approval | IRAM NM 300 |
| Australia and New Zealand | RCM<br>(only for electrical toys) | AS/NZS ISO 8124<br>AS/NZS 62115 (voluntary in Australia but mandatory in New Zealand) |
| Brazil | INMETRO | ABNT NBR NM 300<br>ABNT NBR 16040 |
| Canada | No scheme | SOR/2011-17<br>SOR/2016-188<br>SOR/2018-83 |
| China | CCC-mark | GB 14746 - 14749<br>GB 6675<br>GB 19865/GB 27887 |
| Chile | No scheme | NCh3251<br>Decree No. 114/2005 and its amendment decree no.47/2009 |
| Colombia | No scheme | Toy Resolution No. 686/2018 |
| Ecuador | No scheme | RTE INEN 089<br>EN 71 or ISO 8124 |
| Egypt | GOEIC | ES 3123<br>ES 7093/2014<br>ES 7269/2017<br>ES 7562/2013 |
| Eurasian Economic Union<br>(Belarus, Kazakhstan, Russia,<br>Armenia and Kyrgyzstan) | EAC | TR TC 008/2011<br>TP TC 020/2011 |
| Hong Kong | No scheme | Phthalates<br>ISO 8124/EN 71/ASTM F963<br>IEC 62115 or EN 62115 |
| India | ISI standard mark | Toys (Quality Control) Order, 2020<br>IS 9873<br>IS 15644 |
| Indonesia | SNI mark | SNI ISO 8124 series<br>SNI 7617<br>SNI IEC 62115 |
| Israel | SII Type Approval | SI 562<br>SI 62115 or IEC 62115 |
| Japan | ST-mark (for all toys)<br>PSE mark<br>(for electrical toys) | Food Sanitation Law, Consumer Product Safety Act<br>ST 2016, IEC 60335 |
| South Korea | KC-mark | Special Act on the safety of children's products;<br>Common safety standards for children's products;<br>Toy Safety Standard |

## Global toy standards (con't)

| Country/ Region | Certification | Highlights of toy standard/legislation |
|---|---|---|
| Malaysia | MC-mark | MS ISO 8124 or ISO 8124 or EN 71 or ASTM F963<br>MS 1774<br>MS 62115 or EN 62115 or IEC 62115 |
| Mexico | NOM-mark | NOM-015-SCFI-2007<br>NOM-252-SSA1-2011<br>NMX-I-102-NYCE-2007<br>NOM-015-SCFI-2007<br>NOM-001-SCFI-2018 |
| Philippines | COC | PNS BHDT ISO 8124<br>PNS 1408<br>PNS 175, PNS 176<br>IEC 62115 |
| Saudi Arabia | SABER, GCC and G-mark | SASO 1063 - 1065<br>EN 71 or ISO 8124<br>SASO 62115 |
| GCC GSO (Saudi Arabia, Kuwait, Oman, Qatar, UAE, Bahrain, Yemen) | GCTS-mark | TR BD131704-01 |
| Singapore | No scheme | Phthalates<br>ISO 8124/EN 71/ASTM F963<br>IEC 62115 or EN 62115 |
| South Africa | No scheme | SANS 50071<br>SABS IEC 62115 |
| Taiwan | BSMI-mark | CNS 4797<br>CNS 14276 |
| Thailand | TISI | TIS 2236-2548<br>TIS 685 |
| Vietnam | CR-mark | TCVN 6238<br>Circular 09/2019/TT-BKHCN<br>QCVN 3:2019/BKHCN |

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Today many companies in Europe use this mark for their products because it is a symbol of trust, well-known and an excellent sales tool.

**Advantages of using the TÜV SÜD certification mark for toys**

- A symbol of safety and quality recognised by consumers.
- Provides competitive edge by creating purchase motivation as it provides confidence to consumers.
- Provides manufacturers with the confidence that their products are safe and of high quality.
- Emphasises your company's commitment to product safety and quality.
- Assures end users that the product has been independently tested by an authorised third-party company.



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