



## Changes in the chemical requirements for toys

22 July 2016

### **Chemicals controlled in several directives and regulations**

The Toy Safety Directive (TSD) is the basic legal framework for the regulation of toy safety. In terms of chemical requirements, there are also other directives and regulations to take into account: the REACH regulation restricts the use, for example, of certain phthalates, polycyclic aromatic hydrocarbons known as PAHs, benzene, cadmium, etc.; RoHS restricts certain substances in electrical/electronic products including toys; the Regulation on Persistent Organic Pollutants (POPs) also includes toys, and so on. It is also the case that many of the chemical requirements of the TSD can be amended after the decision of a special committee, without having to revise the entire Directive. It can be difficult to keep up with the changes taking place in terms of chemicals in toys.

This article summarizes some important changes which recently entered into force, some which are enacted and some that are under discussion. In many cases, the limits are set so low that the substances are not to be added intentionally to the toy material.

### **Changes that recently entered into force**

On December 21, 2015, two new restrictions in the TSD entered into force. They apply to toys intended for children under 3 years and other toys intended to be placed in the mouth:

- Tris (2-chloroethyl) phosphate (TCEP), tris (2-chloroisopropyl) phosphate (TCPP) and tris (1,3-dichloroisopropyl) phosphate (TDCP) can be used as flame retardants in polymer materials. These substances may not be present in concentrations higher than 5 mg/kg of the toy material.
- Bisphenol A is used to produce polycarbonate and epoxy resins and may be present at only trace residual amounts in these materials. It has also been known to have been used as an additive in PVC material. Bisphenol A is restricted to ensure that it does not leach (migrate) from toy materials in concentrations higher than 0.1 mg/l, as measured by the methods of EN 71-10: 2005 and EN 71-11: 2005.

On 27 December 2015, a new restriction in the REACH Regulation's Annex XVII entered into force.

- None of eight named polycyclic aromatic hydrocarbons (PAHs) may be present in concentrations higher than 0.5 mg/kg of rubber and plastic components in toys. The restriction applies to those toys/components that come into direct and prolonged, or short term repetitive, contact with the skin or the mouth. PAHs are found as impurities in the raw materials used to manufacture plastic and rubber products. The substances are usually not added intentionally to the products and have no particular function in the plastic material or rubber parts.

NOTE: This restriction also applies to other consumer goods with the limit of 1 mg/kg.

## Changes enacted

As of 24 May 2017, the following new TSD restrictions enter into force. The restrictions apply to toys intended for children under 3 and other toys intended to be placed in the mouth:

- 1,2-benzisothiazol-3 (2H) -one (BIT) is a preservative that can be used in aqueous toy material (finger paint, bubbles, etc.). The substance may cause sensitization by skin contact. From 24 May 2017, it shall not occur in concentrations higher than 5 mg/kg in such water-based toy materials.
- Formamide can be used in the manufacturing of foam toys; for example, puzzle mats. From 24 May 2017, there will be an emission limit value of formamide at 20 micrograms/m<sup>3</sup> for foam toy materials. The emission limit does not apply if the total content of formamide in the foam material is less than 200 mg/kg. The restriction is aimed at toys for indoor use, which have a total foam area of 0.45 m<sup>2</sup> or more.

As of 24 November 2017, there will be a further restriction in effect for toys intended for children under 3 and other toys intended to be put in the mouth:

- Chloromethylisotiazolinone (CMI) and methylisothiazolinone (MI), both as separate components and CMI/MI, 3: 1, also known as Kathon, may be used as preservatives in aqueous based toy materials. The content limits which come into force for such toy material on 24 November 2017 are: CMI: 0.75 mg/kg, MI: 0.25 mg/kg and for CMI/MI: 1 mg/kg.

## Changes under discussion

The TSD specifies limits on the migration of certain elements from toy materials. Migration limits for both lead and hexavalent chromium are under discussion. For lead, authorities are considering a reduction by a factor of about 7 compared to the current limits.

For the specific values that can be inserted in the TSD for toys intended for children under three years or other toys intended to be mouthed, the following changes are considered:

- The limit for the migration of bisphenol A, which recently entered into force (0.1 mg/l) (for toys intended for children under three years or other toys intended to be placed in the mouth), will likely be lowered. A reduction to 0.04 mg/l is currently being considered.
- For the substance phenol, authorities are considering low migration limits for toys composed of polymeric materials as well as total phenol content limit when used as a preservative.

## About TIE

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