Toy Safety Directive 2009/48/EC App. C: Formaldehyde emission wood material

Practical procedure for the inspection of finished goods
Information. July 21

LEGAL REQUIREMENT

In November 2019, **COMMISSION DIRECTIVE (EU) 2019/1929** was published. This adds formaldehyde requirements for various toy materials to Appendix C of Directive 2009/48/EC on the safety of toys. Appendix C applies to toys intended for **use by children under 36 months** or other toys intended to be **placed in the mouth**. These specifications became effective on **May 21, 2021**.
An emission limit **of 0.1 ml/m³** has been set for toy materials made from **resin-bonded wood**. These include particleboard, oriented-strand board (OSB), high-density fiber board (HDF), medium density fiber board (MDF) and plywood. Solid wood and products made from glued solid wood are not mentioned. As a test method, reference is made to **EN 717-1** in the preamble of the amending directive. Here, the emission of wood-based materials is determined in the test chamber.

In Germany, an emission limit value for formaldehyde is specified additionally in the Chemicals Prohibition Ordinance (ChemVerbotsV). This requirement applies to wood-based materials placed on the market as materials (chipboard, blockboard, veneer panels, and fiber board, etc.) and furniture as finished products. Toys imported into Germany are therefore only affected by this requirement if, for example, they are a handicraft set with wooden materials or a product with an additional function as a piece of furniture.

ENSURING THE CONFORMITY OF TOYS

A safe approach is to test the relevant wood-based materials for the emission of formaldehyde before they are incorporated into the toy. Wood-based materials that meet the requirements of the Chemicals Prohibition Ordinance or the requirements for emission class E1 are also suitable for use in toys!

However, importers, distributors and market surveillance authorities usually only have ready-made toys on hand. For a correct procedure according to the directive, a disassembly of the toy with subsequent separate testing of the individual materials would be necessary. However, disassembly of the product can result in damage to the materials used and falsification of the measurement results.

Therefore, the approach of a **whole body test without destruction of the bonded/glued product** is currently discussed. This alternative seems to be more reasonable, as this test approach reflects the application scenario, too. If a whole product complies with the applicable limit value (0.1 ml/m³), it is assumed that the basic requirements (for wood materials/other materials) are met.

CURRENT STATUS OF IMPLEMENTATION OF THE DIRECTIVE'S REQUIREMENT

At present, there is no aligned procedure. For this reason, the technical committee of the ZLS for the GS mark (AK 2.6) has begun to draw up a guideline for testing practice. The BfR has also started performing comparative studies of the testing methods. We do not have any information on current activities in other EU countries.

Selection of the test standard

The test standard mentioned in the preface is not legally binding for the actual regulatory content of the directive. This essentially consists of the table of limit values and the specifications for national implementation. Therefore, the first question to be answered is that of a suitable test method, which can be applied in particular to small-particle toy materials.

Standard	Application scope	Chamber volume	Remark
EN 717-1	wood materials, articles made of wood materials	> 225 L	Application for ChemVerbotsV: Multiplication of results by factor 2 required
EN 16516	building products	> 20 L	Reference method for ChemVerbotsV
EN ISO 15234	coatings and melamine foams	max. 22 L (desiccator)	

Table 1: Different test methods for determining the emission of VOCs in the chamber.

Note: Due to the lack of correlation of the measurement results from both test methods - EN 717-1 versus EN 717-3, a separate test of the wood-based materials according to EN 717-1 is required for the demonstration of compliance with Appendix C.

Sampling of the toy

Dismantling and removal of individual wood materials can lead to the result being falsified in the direction of higher emission values due to mechanical damage to the surface as well as exposure of cut edges. For an application-related evaluation of the toy, it is therefore suggested to sample the undestroyed toy as a whole article.

Current approach

The aim of the requirements of the Toy Safety Directive is the **protection of the child**. From TÜV Rheinland's and the AK 2.6 working group's point of view, it seems to make sense, therefore, to consider an application scenario as realistic as possible.

A harmonized approach to produce comparable results is sought:

1. consideration of the undestroyed toy (finished product)
2. simplified harmonized approach for surface calculation of finished products (especially for complex toy surfaces)
3. use of the advanced test method EN 16516 is currently discussed as an alternative to EN 717-1
4. use of smaller volume test chambers for small area toys (20 L chamber or desiccator)

SERVICE OFFER TÜV RHEINLAND

As a useful service to confirm conformity, we can offer our customers a test according to the current state of the technical discussion in the working group. We assume that both the German and the European authorities will adopt this method after publication.

The surface of a toy is often not sufficient to test according to the specifications of EN 717-1. It may be necessary to provide a large number of individual items for testing. Advance information on the dimensions of the products (width, height, depth of the total product) enables a better estimation of the required test chamber capacities as well as the required number of articles. This ensures a smooth handling of the projects.

Further information on current legal changes can also be found on our homepage at www.tuv.com or https://www.tuv.com/regulations-and-standards/en/

For further technical information please contact:

Infobox: For more information on formaldehyde and VOC testing, see: https://www.tuv.com/world/en/voc-and-formaldehyde-emission-testing.html

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