

Overview of testing requirements for various types of building components approved for use with drinking water

Table 1. Schematic overview

Building component	Typical items	Migration method	Requirement
Solely made from metal	Fittings, manifolds, pipes, ball valves	Lead and cadmium: NKB4 Nickel: NKB4 or optionally EN 16058	Table 2
Solely made from plastic/elastomers*	Hoses and hose sets, PEX pipes, fittings	EN12873-1 Flavour and odour: EN 1420	Table 3
Made from both metal and plastic/elastomers	Taps, ball valves, water meters, hose sets	The entire building component is tested according to NKB4 (for nickel optionally EN 16058) as far as metals are concerned and according to EN 12873-1 and EN 1420 as far as plastic/elastomers are concerned. The test method is determined together with the laboratory.	The entire building component must meet the requirements in Table 2. The parts of plastic/elastomers must meet the requirements in Table 3.
Special devices	Filters, ion exchange and osmosis systems, and similar	Test method for certain water treatment devices M01.	Table 2, table 3, and specific requirements for migration of silver and for bacterial count.

* The health-related properties of the building component can alternatively be documented with a German DVGW certificate or a KTW certificate or a Dutch ATA approval/The Kiwa Water Mark.

Table 2. Building components and subassemblies of metal in contact with drinking water

Typical individual components: metal fittings, other metal inserts in connecting hoses, body, spout, connecting sleeve, connection pipe fixed/factory-fitted on mixer, e.g. of copper.

Materials	Testing for:	Migration method	Analysis method	Test requirements
Brass and other metals than mentioned below	Lead Cadmium Nickel (only if the component is chrome or nickel plated or TEA plated)	Lead, cadmium and nickel: NKB4 or other relevant NKB-test. Nickel: Optionally DS/EN 16058.	Lead, cadmium and nickel: Must be analysed according to an accredited method for the analysis of water samples for the determination of these metals. The method must have detection limits, which can show that the required values are respected.	Lead: See the relevant schedule of materials. Cadmium: 2 µg Nickel (NKB4): 80 µg Nickel (DS/EN 16058): 20 µg
Stainless steel alloys EN 1.4000-1.4999	Are not to be tested or approved, but can be voluntary approval.			
Electrogalvanized steel or hot-dipped galvanized steel	Cannot/must not be tested/approved.			
Copper, pure	Cannot/must not be tested/approved. If connecting pipes or other individual components of pure copper are welded/fixed to a mixer, this mixer may as an exception be tested together with these individual components of pure copper.			

Table 3. Building Components and subassemblies of plastic/elastomers in contact with drinking water

Typical individual components: O-rings, gaskets and seat rings > 4 cm², hoses, valve inserts, temperature controller inserts.

Materials*	Is tested for:	Migration method	Analysis method	Test requirements
POM PEX PE PP Nylon TPE EPDM Nitrile rubber (NBR) Chloroprene rubber (Neoprene) Fluorized rubber (FKM) Silicone Butyl rubber Other types of plastic/elastomers	<p>Toxicological assessment and test programme for relevant substances. Is carried out based on the recipe of the plastic/elastomer type.</p> <p>Colour: Relevant for e.g. coloured components.</p> <p>Turbidity: Relevant for e.g. coloured components.</p> <p>Flavour and odour: Always relevant.</p> <p>TOC (VOC + NVOC): Typically always relevant.</p> <p>Phenols: Typically always relevant.</p> <p>Other substances: Toxicological assessment of the recipe.</p>	<p>Colour: DS/EN 12873-1.</p> <p>Turbidity: DS/EN 12873-1.</p> <p>Flavour and odour: EN 1420.</p> <p>TOC (VOC + NVOC): DS/EN 12873-1.</p> <p>Phenols: DS/EN 12873-1.</p> <p>Other substances: DS/EN 12873-1.</p>	<p>Colour: Performed accredited, see below.</p> <p>Turbidity: Performed accredited, see below.</p> <p>Flavour and odour: EN 1622.</p> <p>TOC (VOC + NVOC): Performed accredited, see below.</p> <p>Phenols: DS 281:1975 or DS/EN/ISO 14402.</p> <p>Other substances: Must be carried out according to an accredited method, if there is a laboratory that can perform the analysis accredited. If such a laboratory does not exist, other testing methods are acceptable if they provide a satisfactory level of protection and are deemed adequate by the Secretariat. A laboratory, which carries out a non-accredited analysis, must have a quality control system corresponding to EN ISO/IEC 17025:2005.</p>	<p>Colour: No changes in relation to blind test.</p> <p>Turbidity: No changes in relation to blind test.</p> <p>Flavour and odour: No significant change in relation to blind test.</p> <p>TOC (VOC + NVOC): For installations with a length of over 2 m: 0.3 mg/l or 1 mg/m²/day.</p> <p>For installations no more than 2 metres long, and small components: 1.5 mg/l or 15 mg/m²/day.</p> <p>Phenols: No measured phenols.</p> <p>Other substances: < 10 % of the difference between the quality requirement for drinking water at entry point into property and taps if quality requirements for the substances have been set out in in Annex 1a-d of the Executive Order on water quality and inspection of water supply systems. For other substances not mention in this Executive Order, a toxicological assessment of the test result must be performed.</p>

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