

# **SHORT-TERM VERSUS LONG-TERM TESTS OF LEAD-FREE AND LOW-LEADED BRASS ALLOYS IN CONTACT WITH DRINKING WATER**

**- Abstract -**

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Brass alloys are common materials for fittings and connectors in drinking water distribution systems. In the course of the elimination or minimization of the lead content of these alloys, in order to minimize the migration to the drinking water, and the optimization of the corrosion resistance, new generations of lead-free or low-leaded alloys with various alloying elements are available on the market. In Germany, alloys for drinking water installations have to be tested according to DIN EN 15664 in order to ensure their hygienic harmlessness, which is assessed according to DIN 50930-6 (2013). The corrosion resistance of these lead-free and low-leaded brass alloys is tested according to various short-term lab tests, which were originally developed for the generation of leaded brass alloys with well researched corrosion mechanisms. However, due to the variety of alloying elements in comparison to the generation of leaded brass alloys, these new alloys pose the challenge of different systems with individual corrosion mechanisms and resistances. Therefore, several research projects at IKS aim to collect data from short-term and long-term tests on the corrosion resistance of lead-free and low-leaded brass alloys under different operating conditions in terms of drinking water quality and water temperature as well as heat treatment of the alloys. First results of these running projects will be presented.