

Pitting Corrosion of Copper in Drinking Water Systems in Germany: Results of a Research Project

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ABSTRACT

Since 2005, information about pitting corrosion problems of copper tubes became more frequent in some water supply areas in Germany. The damages were observed in cold as well as hot drinking water systems. Worst affected were installations constructed by half-hard copper tubes. A great amount of the damaged copper tubes showed corrosion phenomena which were not known and described in the literature yet.

In general, the real cause of these damages could not be clarified neither in cold nor hot water systems. Especially at the beginning of the year 2015 an ongoing full-scale experts-discussion was started in Germany

- to clarify the reason of these damages and
- to form an opinion on the necessity to start a research project.

But the discussions showed that there was a lot of missing basic information. Also the significance of the observed copper pitting corrosion problems was apprehended quite differently due to the different perspectives of the involved groups (e.g. copper industry, plumbing companies, water supplier, customer and operators of drinking water installations).

Against this background, the DVGW (technical-scientific association for the German gas and water industry) decided to start a research program to increase the data base. The research program based on an interview of the DVGW-associated water suppliers (questionnaire) and the investigation of damaged copper tubes for typing the corrosion phenomena.

The presentation focusses on the results of this research project with special regard to the initial step of pitting corrosion of copper.