

WP: Corrosion in Water Systems

Mission

Water plays a central role in our societies, both as a basis for human nutrition and a central media for industry, such as in heating and cooling systems and other industrial applications.

Drinking Water is the central part of human nutrition and its purity without risks to health is essential for human life. Huge technical effort is employed to collect, purify and distribute drinking water to virtually every household in Europe and other developed countries. In many cases, salted or brackish water need to be treated in desalination plants in order to make it drinkable. At the other end, used water with specific corrosivity, need to be transported, cleaned and purified, and released into the environment.

Industrial water systems face similar challenges, whereas the drinkable aspect of the water is not into focus in that case. Closed heating or cooling systems often lead to different environments and different needs of approaching corrosion challenges.

Many different materials are in use for the various components within the different types of water systems. Some of them were ruled out nowadays like lead for drinking water, but may be still present in some installations, others are new materials like polymers. Some installations are near to or at the end of their life and must be replaced, others are quite new. The use of different materials, different ways of installations or different repair methods as well as additional water conditioning methods e.g., disinfection or simply insufficient maintenance can lead to corrosion problems.

Corrosion of water systems is a major issue which can affect the structural integrity of water systems for all applications and may lead to tremendous costs and water losses. In the case of drinking water, it may also affect the purity of the water and thus the health of the consumer.

The working party aims at creating a discussion area as well as using the European network of experts to collect the present understanding in the field of corrosion of water systems and installations, identify the needs for further research, both in basics and application, evaluate existing testing methods, promote new investigation methods, and foster normative work on an international basis.

The working party devotes its activities to the following general topics:

1. Research

- Identification of the most important fields for further research and development.
- Improvement of the understanding of the failure mechanisms specific for the different materials used in water installations, where appropriate cooperation with other EFC Working Parties is intended.

2. Investigation and Testing

- Evaluation and optimization of existing and new methods for investigation and testing of the corrosion resistance of materials.
- Emphasis shall be put on the evaluation and further development of short term testing for life time prediction.

3. Knowledge transfer

- Review, systematization and dissemination of the state of the art of corrosion resistance and application limits of the respective materials.
- Organization of workshops, seminars, and symposia with respect to basic understanding and industrial application. This shall include failure analysis and repair strategies.
- Transfer of Knowledge to all interested parties, e.g. Countries, organisations (WCO)

This Working Party actually deals with following items of major interest:

- Test methods
- Performance of copper alloys in respect of leaching and corrosion
- Corrosion in heating and cooling systems as well as other industrial systems
- Corrosion in sewage systems and sewage plants
- Corrosion by disinfectants
- Inhibitors in drinking water installations
- Maintenance of distribution networks
- Qualification of stainless steels
- Corrosion in desalination plants