

THE AOX DEHALOGENATION BY ZERO-VALENT NANOIRON IN WASTE WATER

DEHALOGENACE AOX NULMOCNÝM ŽELEZEM V PRŮMYSLOVÝCH ODPADNÍCH VODÁCH

Lenka Lacinová 1), Tomáš Lederer 2)

*1) Technical University of Liberec, Faculty of Mechatronics,
Informatics and Interdisciplinary Studies, Institute of Novel Technologies and Applied
Informatics, Studentská 2, 461 17 Liberec, Studentská 2, 461 14 Liberec, Czech Republic,
e-mail: lenka.lacinova@tul.cz*

2) AQUATEST a.s., Geologická 4, 152 00 Praha 5, Czech Republic

Abstract:

AOX (Asorbable Organically Bound Halogens) is group of halogenated compounds (both plain molecules as trichlormethane, chlorphenols, chlorbenzenes and complex molecules as furanes and dioxines). Some of this compounds are toxic, carcinogenic and have the bioaccumulative effect. This compounds have the anthropogenic origin, main AOX producers are paper mills, less textile and chemical industries.

There were cooperation of VITO (Belgium) and AQUATEST (CR) on project AQUFIT4USE. One part of this project was testing new way of dehalogenation of AOX by different type of zero valent iron in different type of waste water.

In this articles are presented some information and results of concentration and kinetic batch tests, which was provided on 15 waste water samples with using 5 types of zero valent iron (granular, 2 types of powder iron and 2 types of nanoiron) in laboratory TUL.

The best effectiveness of AOX dehalogenation and dehalogenation velocity was for nanoiron, effectiveness varied by type of waste water. Next step will be design of pilot plant reactor and long-term testing in this reactor.

Keywords:

AOX, zero valent iron, waste water