



## Current applications of electrocoagulation in water treatment: a review

Junfei Liu<sup>a,b</sup>, Guocheng Zhu<sup>a,\*</sup>, Peng Wan<sup>c</sup>, Zhongyi Ying<sup>d</sup>, Bozhi Ren<sup>a</sup>,  
Peng Zhang<sup>b</sup>, Zhenghua Wang<sup>a</sup>

<sup>a</sup>Hunan Provincial Key Laboratory of Shale Gas Resource Utilization, Hunan University of Science and Technology, Xiangtan 411201, China, email: zhuguoc@hnust.edu.cn (G. Zhu), liujunfeibenben@163.com (J. Liu), 564975554@qq.com (B. Ren), 771688@qq.com (Z. Wang)

<sup>b</sup>College of Civil Engineering, Hunan University of Science and Technology, Xiangtan 411201, China, email: zhangpeng388@126.com

<sup>c</sup>Department of Chemical Engineering, University of Missouri, Columbia, MO 65211, USA, email: pwb4c@mail.missouri.edu

<sup>d</sup>College of Environment and Resources, Chongqing University of Science and Technology, Chongqing 401331, China, email: yzy317@126.com

Received 28 April 2016; Accepted 25 November 2016

---

### ABSTRACT

Electrocoagulation (EC) is known as an environmentally friendly technology for treatment of water or wastewater through a combination process of coagulation, oxidation and flotation. The rapid development of industry and agriculture, as well as the ineffective disposal of waste, may lead to a substantial increase in the loadings of water treatment. EC can be used for treatment of different types of water such as tannery and dyeing wastewater, organic wastewater, sewage, drinking water and heavy metal wastewater. An effective EC reactor system can show a good treatment efficiency but it requires a good design and operation of EC. Recently, the EC has been developed rapidly toward development of new electrodes and applicable operation modes, and thus more efficient EC systems for treatment of various water pollutants have emerged. In the present work, a brief overview of the recent research dealing with the application of electrodes and the coupling processes of EC with other technologies are presented.

*Keywords:* Electrocoagulation; Coagulation–flocculation; Water treatment; Electrodes

---

\* Corresponding author.