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# Experimental investigation of convective heat transfer from sewage in heat exchange pipes and the construction of a fouling resistance-based mathematical model

Jialin Song<sup>1\*</sup>, Zhibin Liu<sup>2</sup>, Zhongjiao Ma<sup>1</sup> and Jili Zhang<sup>1</sup>

<sup>1</sup>Faculty of Infrastructure Engineering , Dalian University of Technology, No.2, Linggong Road, Ganjingzi District, Dalian, Liaoning Province, 116024, China;

<sup>2</sup>School of Civil Engineering, Dalian Minzu University, No.18, Liaohe West Road, Jinzhou New District, Dalian, Liaoning Province, 116600, China;

\*Corresponding author: Jialin Song; Tel.: +86-13842077986; Fax: +86-411-84706762; Email address: songjialin0320@qq.com;

## Highlights

1. A test system for exploring the properties of convective heat transfer in sewage pipes is established.
2. The heat exchange pipes is tested by using original sewage in a practical engineering.
3. Parameters governing the growth of fouling in sewage heat exchangers built upon test evidence are obtained.
4. A predictive model for fouling resistance is established and verified.

**Abstract:** In sewage-source heat pump systems, the properties of sewage flow and heat transfer in heat exchange pipes and the growth characteristic of fouling resistance are very important design parameters of sewage heat exchangers. A test system is set up to investigate the convection and heat transfer properties of original sewage in the heat exchanger tube in practical engineering. The growth process, growth related influencing factors and the growth law of fouling in the sewage-source heat pump system are obtained by analyzing the test data.

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