

New Technology for Ship Bilge and Oily Water Separation

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Abstract

Bilge and oily water (BOW) during vessel's operation are the most large-tonnage type of waste and for their treatment all ships, in accordance with regulatory requirements [14], have to be equipped with special equipment – oily water separators. At sea vessel's operating conditions three main directions of BOW cleaning are now used: physical, chemical and biological. The analysis of BOW separation methods based on these three directions has shown that it is very difficult to obtain secondary petrochemical products. In the article authors offer a new method for BOW separation which is based on the use of a hydrodynamic process of supercavitation with artificial ventilation of the cavitation cavern. With local origin in the flow of a supercavitating cavern, there will always be saturated water vapor inside of it. The process of permanent water vapor selection from the cavern will ultimately contribute to the production of highly concentrated mixture of secondary petroleum products from initial mixture of BOW. During the study of BOW separation process it was found that decreasing of the working pressure inside the working chamber of the cavitation separator have to be always compensated by an increase in the temperature of the processed multiphase flow.

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