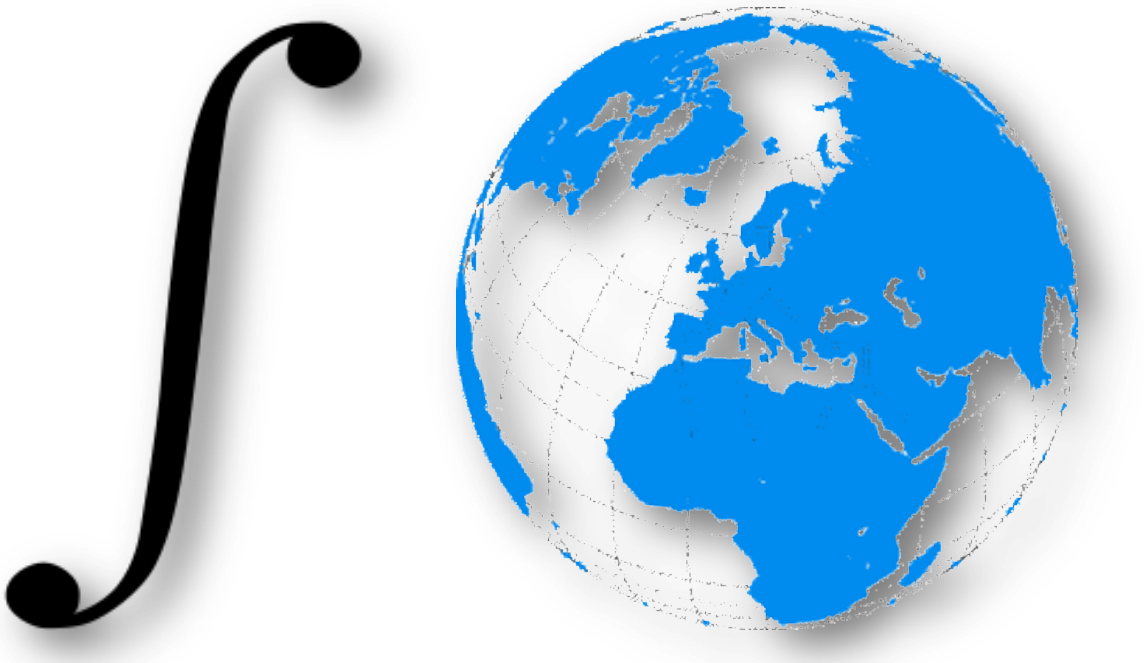
THE HOLISTIC APPROACH TO ENVIRONMENT

THE HOLISTIC APPROACH TO ENVIRONMENT



4(2014)4

Content 4(2014)4

Original Scientific Paper

V. Foltin, J. Rajzinger

Drive Towards Environmentally Friendly Inhibitors for Natural Gas Hydrate Formation Prevention 145-151

M. Brčić Kuljiš

Justice for Disabled Persons 153-170

Preliminary Communication

G. Hazra, P. Paban Malik, P. Mitra, T. Das

Effect of Different Modifiers on Melting Points, pH Under Leaching and Leaching Rates in Simulated Nuclear Waste Glasses in Borosilicate and Phosphate Systems 171-180

P. Kracík, L. Šnajdárek, J. Rospíšil

Long-Term Liquid Transfer Measurements of Falling Film Heat at Horizontal Tube Bundle 181-186

Professional Paper

J. Moskalík, M. Baláš, M. Lisý

Methods for Cleaning of Gas from Gasification of Stalk 187-193

The effect of demulsifier and dewatering agent on separation of phases from oily wastewater

Utjecaj dodatka deemulgatora i sredstva za obezvodnjavanje na razdvajanje faza u zauljenoj otpadnoj vodi

Marina Trgo*, Jelena Perić, Nediljka Vukojević Medvidović

Faculty of Chemistry and Technology, University of Split, Teslina 10/V, 21000 Split, Croatia

***corresponding author: tel +385 21 329 454**
fax: +385 21 329 461
e-mail: mtrgo@ktf-split.hr

Abstract

Environmental pollution with crude oil and its derivates has become a growing problem due to their toxic and carcinogenic effects on live organisms. Proper collection and treatment of oily wastewaters is very important for prevention and disabling of harmful effects on the environment. The most important step in the oily wastewater treatment process is separation of oil and aqueous phase. Consequently, it is important to examine the conditions which enable the maximum separation effect and provide satisfactory quality of the aqueous phase before discharge into natural recipients. This paper examines the effects of temperature and addition of demulsifier and dewatering agent on phase separation in oily wastewaters. The best separation rate and the highest quantity of the aqueous phase are achieved with the addition of the demulsifier in concentrationin concentration of 500 mg/l and the dewatering agent in concentration of 500 mg/l at 60°C. The quality of the aqueous phase after separation shows low values of mineral oils and high COD (Chemical Oxygen Demand) values due to the remaining demulsifier and dewatering agent in aqueous phase. For that reason it is necessary to use additional treatments, such as adsorption on active carbon or biological treatment before discharge into natural waters.

Key words: oily wastewater, demulsifier, dewatering agent.

Zagađenje okoliša sirovom naftom i njenim derivatima postaje sve veći problem zbog toksičnog i kancerogenog djelovanja na žive organizme. Odgovarajuće prikupljanje i obrada zauljenih otpadnih voda je ključna u spriječavanju i smanjenju njihovog štetnog utjecaja na okoliš. U cilju učinkovitije obrade ovakvih voda nužno je ispitati uvjete pri kojima se postiže najbolje odvajanje uljne od vodene faze, kao i kakvoću vode koja se nakon pročišćavanja ispušta u okoliš. U ovom radu je ispitan utjecaj dodatka demulgatora i sredstva za obezvodnjavanje na separaciju uljne od vodene faze pri različitim temperaturama. Najveća brzina razdvajanja faza i najveći volumen izdvojene vodene faze je postignut kod dodatka deemulgatora u koncentraciji od 500 mg/l i sredstva za obezvodnjavanje u koncentraciji od 500 mg/l pri temperaturi od 60°C. Vodena faza nakon odvajanja sadrži nisku koncentraciju mineralnih ulja i visoke vrijednosti KPK (kemijske potrošnje kisika) zbog zaostalog deemulgatora i sredstva za obezvodnjavanje. Iz tog je razloga nužno primijeniti dodatno pročišćavanje ovakve vode, npr. biološkom obradom ili adsorpcijom na aktivnom ugljenu, prije ispusta u prirodne recipijente.

Ključne riječi: zauljena otpadna voda, deemulgator,

sredstvo za obe