

5<sup>th</sup> World Congress on

# Petrochemistry and Chemical Engineering

December 05-07, 2016 Phoenix, USA



## Mansurov Z A

*Institute of Combustion Problems, Kazakhstan*

### Burning oil layer on the surface of water

Emergency oil spills during transportation of them by water way, from offshore oil drilling rigs and other sources can rapidly result in harm to the ecosystem and leads to negative and social impact. Oil, which falls on the water surface, prevents the penetration of sufficient sun lights and reduces the level of oxygen dissolved in water and it is a great harm to the flora and fauna of water area. Therefore the development of effective methods on oil spill elimination is a task of singular importance. Burning is now one of the most common methods of oil spill on the surface of water. Burning can be used where other methods are not effective spill response, and can be done in parallel with other methods of spill after determining an appropriate method for a particular site or geographic region. This paper provides an overview of the current state of the problem, and research results on combustion of Karazhanbas and Tengiz oil on water surface were carried out. It has been established that minimum thickness of oil blanket, allowing to initiate and support combustion process, lie in the range of 3-5 mm. For ignition and maintenance of stable combustion of oil on water surface, the synthetic sorbent was suggested. It is found that, the synthetic sorbent accelerates the combustion process of oil on water surface threefold in comparison with combustion process of oil without sorbent. It is shown that the remaining mass of oil on water surface after combustion process termination, presents the bitumen substance, having a good adherence and strong adhesion that allows taking it with high efficiency by mechanical method.

### Biography

Z A Mansurov is a General Director of the Institute of Combustion Problems of the Ministry of Education and Science of the Republic of Kazakhstan, prominent scientist of Kazakhstan; Doctor of Chemistry; Professor; IHEAS Academician; Laureate of the State Prize of the Republic of Kazakhstan and of the Prize named after K. Satpayev. In 1974-1987, he worked as a junior and senior researcher and Head of the Laboratory of Physicochemical Methods of Research at S.M. Kirov Kazakh State University. In 1981, he was the first among scientists in Kazakhstan to become a research fellow at the UCL (UK). In 1990, he defended his Doctoral thesis at the Institute of Structural Macrokinetics, USSR AS. From 1992 to 2010, he served as Vice President for Research and First Vice-rector of the al-Farabi Kaz NU. He is a Chairman of Combustion and Plasma Chemistry and Physics and Chemistry of Carbon Materials International Symposiums, Chief Editor of Eurasian Chemico-Technological Journal and Combustion and Plasma Chemistry journals. In 2004, for services to Kazakhstan he was awarded Kurmet Order. Under his peer supervision, eight Doctors, 38 Masters and eight PhD theses were defended. He is the author of over 670 scientific papers, 6 monographs, 5 textbooks and 21 copyright certificates of the USSR and Kazakhstani patents.

[zmansurov@kaznu.kz](mailto:zmansurov@kaznu.kz)

### Notes: