

Title: A Comprehensive Study on Causes of Oil Spills and Remediation

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This review describes the recent progress concerning oil spills caused due to carelessness of workers, crashing of systems, natural disasters or vandalism, etc. by incorporating remediation techniques based on applications of superhydrophobicity, superoleophobicity and surfactants. A number of preventive measures are discussed in this study that includes- treatment of oil spillage using temporary floating barriers/booms, scattering of oil by dispersants or emulsifiers, development of nanofibrillated cellulose sponge that soaks up oil and omits water, natural disintegration of oil by bacterial species present in Spartina plant tissues, dispersion of lodestone particles that stick to the oil and isolate it from water through magnetism, development of MnO2 coated inverse wetting meshes or of Cu surfaces with laser induced microholes and CuO nanowires, biosorption involving naomaterials that help in getting rid of spilled oil, etc. Oil spill causes heavy economic loss and has long term effects on ecological system along with habitation and vegetation at coastal regions. The oil slick blocks the pathway of oxygen and harms the aquatic life. The dispersed oil combines with marine snow and form oil-related marine snow which is larger than natural marine snow and is consumed by aquatic animals, this leads to oil sedimentation. Exposure to chemicals during the containment process can cause cardiac arrest or arterial congestion in workers. Some other hazardous effects may include exposure to crude oil that causes heart electrophysiology dysfunction and nervous system breakdown in fish and collection of crude oil in intertidal region that intoxicate the intertidal species. An oil tanker spilled 240-260 million gallons oil, near Kuwait as a result of deliberate act by Iraq. Environmental Protection Agency (EPA) in the US handles law enforcement regarding oil spillage. Most laws established by it carry criminal charges. The International convention for prevention of pollution caused by ships set in 1973, modified by the protocol of 1978 which is MARPOL, governing marine pollution via discharge or spillage comes under an International regulation.

Biography

Ansh Kapoor is 20 years old and is pursuing B.Tech in Petroleum Engineering and Energy Studies from DIT University. He is also working as a training and placement officer at career services department in DIT University. He is an active volunteer at Global Peace Foundation. He is the campus ambassador at Oyesters Training. He has been regarded as the Mr. Proactive 2018 by the training and development department at DIT University. He has completed IWCF Level1 and WOCRM courses.

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