

Seminar

Wednesday 10. April 13.30

Room 1540-116



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Biodegradation of dispersed oil in temperate and cold seawater

Abstract: Biodegradation of crude oil in seawater (SW) is mainly associated with small droplet dispersions and solubilized compounds. Efficient treatment of oil spills with chemical dispersants may therefore enhance oil biodegradation. At SINTEF, we have performed biodegradation studies of chemically dispersed oil, but also with oil immobilized to hydrophobic adsorbents. A variety of studies have been performed with oils of different properties, local SW with different temperatures, as well as SW from different sources. Lately, the studies have also included biodegradation of aggregated oil (oil-

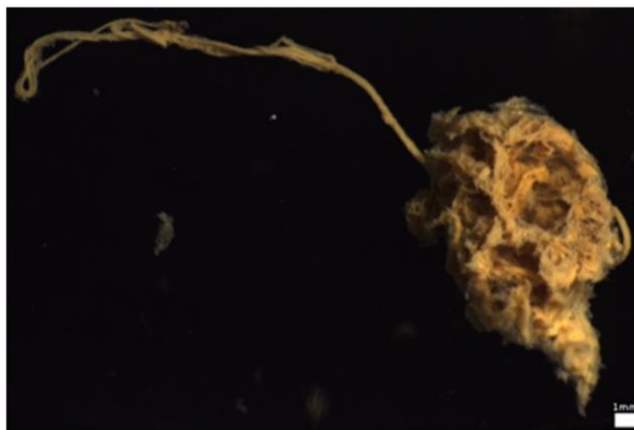


Fig. 1. A 'floc' generated during biodegradation of a naphthenic oil at 5 °C in unpolluted seawater. A size indicator (scale 1 mm) is included.
Photo: Emlyn Davies, SINTEF.

related marine snow), as well as studies in frazil and solid marine ice. The studies have included both determinations of biotransformation rates and microbial communities associated with degradation. The work performed has mainly been conducted in close collaboration with the Norwegian University of Science and Technology (NTNU).

About SINTEF: SINTEF is one of Europe's largest independent research institutions, with more than 2000 employees. SINTEF is a broad, multidisciplinary research organisation with expertise in the fields of technology, the natural sciences, medicine and the social sciences. We conduct contract R&D as a partner for the private and public sectors, often in close collaboration with Norwegian universities. In our group (SINTEF Ocean, Department of Environment and New Resources) a main research area is accidental and regular oil discharges to marine environments, including fate and effects, oil response and environmental monitoring and modelling of the discharges.

About myself: Senior scientist working mainly with biodegradation studies of oil discharges to the marine environment (spills and produced water). Other research topics include ecotoxicity studies, and environmental impacts of emissions from CO₂-capture facilities.