

Short Description

ASSESSMENT OF AQUATIC EFFECTS OF PALM-BASED

ALPHA-SULPHONATED METHYL ESTERS (SME)

Surfactants are used for a variety of purposes but primarily in commercial detergents, personal care and household cleaning products. They represent a particularly interesting product group because they were originally made from renewable resources, whereas today the major part is of petrochemical origin. MPOB has a technology to produce an anionic surfactant from palm oil, known as SME. This paper discussed the ecotoxicity of palm-based SME in tropical and temperate environments, its effect on tropical and temperate test species and its biodegradability. Two commercial SMEs were used for comparison.

Based on the study, the toxicities of palm-based SME were consistent throughout the production period, i.e. around 1.00-1.41 mg litre⁻¹. Its toxicity was comparable to two commercial palm-based SMEs whether they were tested in temperate or tropical environment. When tested under tropical conditions, the SMEs were found to be less toxic. The toxicity is related to the carbon chain length of methyl esters used to produce SME. Higher carbon chain length will cause an increase in the toxicity of SME. SME with 14 – 16 carbon chain number was slightly less toxic than SME with 16 – 18 carbon chain number. However, their toxicities were still within the same toxicity range, i.e. moderately toxic.

Palm-based SME is not expected to cause environmental concern due to only 10% - 30% of it is used in detergent products, its biodegradability was more than 80% in only eight days and the dilution in aquatic environment will cause the local predicted environmental concentration to be very low. The use of palm-based SME will help to stimulate Malaysia's agricultural economies and lessen our dependence on imported petroleum-based surfactants.

This short description describes the article by Razmah Ghazali; Zulina Abdul Maurad; Parthiban Siwayanan; Mohtar Yusof and Salmiah Ahmad. (2006). **Assessment of aquatic effects of palm-based alpha sulphonated methyl esters (SME)**. *J. Oil Palm Res.*18(2): 225 - 230.

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