

Detergents and household cleaning products contain surfactant as the main ingredient that plays a vital role in the overall cleaning process. Natural feedstock, such as oleochemical-based alcohols and methyl ester, offer possibilities as surfactants. Methyl ester sulphonates (MES) (Figure 1) is an oleochemical-based anionic surfactant derived from palm oil through sulphonation process. It has good surface-active properties and excellent detergency in cleaning products (Figure 2). MES biodegrades rapidly in the environment.



Figure 1. Methyl ester sulphonates (MES) flakes.



Figure 2. Cleaning products.

Research on MES in MPOB started since early 1980s. The research aims at adding value to oil palm and its products and to find new applications. Apart from good performance, the sustainability of MES production is a valuable trait and can be assessed using Life Cycle Assessment (LCA) approach.

LCA is a process to evaluate the environmental burdens associated with a product, process or activity by identifying and quantifying the energy and materials used and the wastes released to the environment. The LCA is also to assess the impact of those energy and materials used and wastes released, and to identify and evaluate opportunities for environmental improvements.

OBJECTIVES

- To identify potential environmental impacts associated with the production of MES at a pilot plant or commercial scale.
- To address the environmental hotspots from MES production.

METHODOLOGY

The system boundary of LCA for the production of MES is set up based on the requirement of the assessment. The assessment follows the ISO 14040 and 14044 requirements.

BENEFITS

- LCA is a recognised tool for gaining credibility in sustainable claims.
- A marketing tool to promote utilisation of palm-based MES globally.
- Market advantage for environmental-friendly products.

SERVICES OFFERED

- Setting of system boundary and functional unit.
- Collection and compilation of inventory data to produce Life Cycle Inventory (LCI).
- On-site verification of data.
- Conducting Life Cycle Impact Assessment (LCIA).
- Interpretation of LCIA results.
- Calculations of the carbon footprint or GHG emissions.

COST OF SERVICE

The cost of the service will depend on comprehensiveness of the LCA conducted.

CLIENTS

Stakeholders associated with the oleochemical industry, including manufacturers of surfactant and detergent.

For more information, kindly contact:

Director-General
MPOB

6 Persiaran Institusi, Bandar Baru Bangi,
43000 Kajang, Selangor, Malaysia.

Tel: 03-8769 4400

Fax: 03-8925 9446

www.mpob.gov.my