

Oleo-Furan Sulfonate (OFS) SURFACTANTS from Biomass

Scientific Achievement

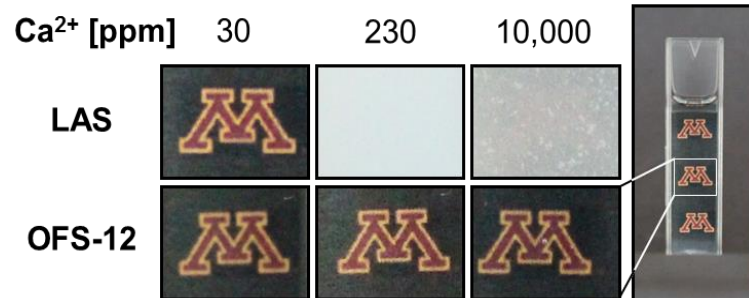
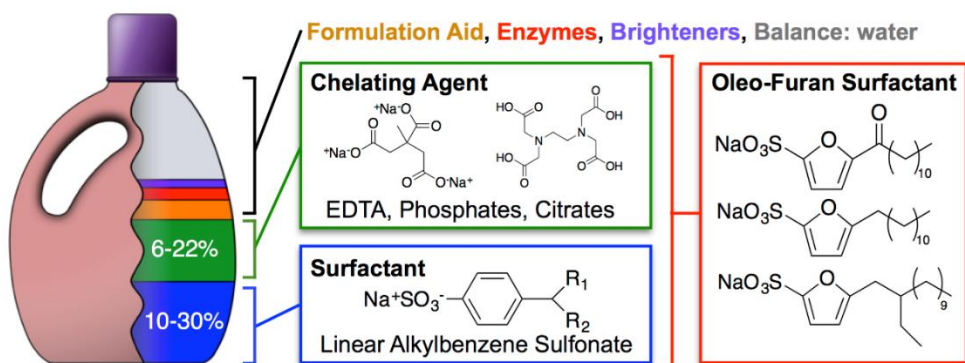
Combination of sugar-derived furans and seed-oil-derived fatty acids produce an entirely new class of surfactants with unprecedented hard-water stability and critical micelle concentration for straight-chain surfactants.

Significance and Impact

- First class of ionic surfactants that are hard-water stable to 10,000 ppm Ca^{2+} or Mg^{2+}
- OFS can replace conventional surfactants in detergents as well as chelants, thus eliminating 1/4 to 1/3 of all chemicals in laundry detergent
- Startup company: Sironix Renewables (www.sironixrenewables.com)

Research Details

- Self-pillared pentasil (SPP) zeolites selectively react furans and fatty acids to alkylfurans which are OFS precursors
- New OFS surfactants are hard water stable, which means they remain clear in high Ca^{2+} concentration water. Conventional LAS rapidly clouds and requires chelating agents.



SIRONIX
RENEWABLES

D.S. Park et al, *ACS Central Science*, 2016; 2(11), 820