

Alkyl ethoxylates have the general structure $RO(CH_2CH_2O)_nH$. When used in laundry products, Lynn said, the R contains from 9 to 18 carbon atoms, usually 12 to 16. Since a single ethylene oxide (EO) group does not provide sufficient solubility for use in aqueous laundering, an average of 5 to 18 EO groups is present, usually 6.5 to 13, he said.

Because the hydrophilic chain is neutral, nonionic surfactants are not inactivated by calcium as is the case with linear alkylbenzene sulfonates (LAS) or soaps. According to Lynn, detergency of nonionic surfactants is essentially hardness-insensitive. Nonionic surfactants are often characterized in terms of their hydrophile-lipophile balance (HLB) number. At low HLB, the nonionic is essentially insoluble; detergency increases with HLB until the surfactant becomes too soluble and detergency declines.

According to Lynn, the most widespread use of nonionics occurs in mixed surfactant systems. Such mixed active systems help protect the anionic against precipitation as calcium salts and also provide better performance with a wider variety of soils.

Lynn said nonionics are naturally suitable for use in liquid laundry detergents because they are miscible with water over a wide concentration range. "The ability to modify both the hydrophilic and hydrophobic parts of the nonionic molecule will frequently permit the formulation to be 'fine tuned' for optimum detergency and stability," he noted, adding that their neutrality is also useful when formulating detergents that provide softening in the wash. Because anionic surfactants and cationic softeners interact to reduce detergency by the anionic and softening by the cationic, one approach has been to use a nonionic surfactant as the cleaning active in combination with a cationic for softening.

When used alone or in mixed active systems, nonionics generally have low suds profiles. Lynn noted that this is an advantage in Europe, where front loading machines predominate. In the U.S., consumers have preferred a higher suds profile

for their top-loading washers. However, he added, the U.S. market appears to be moving in the direction of a lower suds profile.

Lynn noted that over the past several years, ethoxylation techniques have been developed, making peaked ethoxylates commercially available to detergent manufacturers. It has been suggested that these have a number of potential advantages over conventionally prepared ethoxylates. These include improved bulk handling characteristics, superior low temperature stability in heavy duty liquid detergents, improved odor, superior spray-drying efficiency and improved soil release of oily substances from synthetic fabrics when used in conjunction with soil release polymers such as methyl celluloses.

Toilet soap use in India

A report on toilet soap manufacture in India by K.S. Holla and R.R. Press of Tata Oil Mills Co. Ltd. notes that toilet soap consumption in India is expected to rise about 9.5% a year, to 374,000 metric tons (MT) by 1990, 580,000 MT by 1995 and 914,000 MT by the year 2000.

This, the authors add, will require expanding manufacturing capacity to approximately 735,000 MT by 1995 and 1,150,000 MT by the year 2000.

According to the report presented at a toilet soaps seminar conducted by the Oil Technologists' Association of India (Northern Zone) April 20, 1986, the largest growth potential is in rural markets.

The main raw native materials used in India for soap manufacturing, the report said, are rice bran oil, hardened rice bran oils and oils from mowrah, sal, neem, karanja and khakhan. Imported sources used include coconut and palm kernel oils. India currently has a total ban on the use of animal tallow. Also, groundnut is not permitted for soap manufacturing; it is solely used for edible purposes.

In urban sales of premium toilet soaps in 1984, the Liril brand

manufactured by Hindustan Lever had sales of 3,500 MT, representing 24.4% of the market share. Mysore Sandal made by Karnataka Soaps sold 1,588 MT, or 11% of the market share, and Shikakai manufactured by Swastik sold 1,500 MT, representing 10.6% of the market. For the same year, Hindustan Lever produced the three top brands of popular toilet soaps—Lifebuoy, with sales of 36,000 MT and a 38.5% market share; Lux, with sales of 17,600 MT for an 18.6% market share; and Rexona, with 11,300 MT for an 11.9% market share.

Philippine task force

The Philippine Trade and Industry Minister, Jose Concepcion Jr., has appointed a task force on soap and detergent feedstock to study the impact of using either alkylbenzene or coco fatty alcohol in domestic detergent production.

According to the United Coconut Association of the Philippines, LMG Chemicals has been promoting the use of the former, while United Coconut Chemicals (Unichem) supplies the latter. Both companies are represented on the task force, along with the Soap and Detergent Association of the Philippines (SDAP), the National Pollution Control Commission, the Board of Investments, the Philippine Coconut Authority and the Philippine Chamber of Commerce and Industry's committee on industry.

S&D committee

ASTM's Committee D-12 on Soaps and Other Detergents will hold its annual standards development meetings Sept. 16-18, 1986, in New York, New York. The meetings will mark the 50th anniversary of the committee.

Arno Cahn of Arno Cahn Consulting Services and Luther Meyers, president of Test Fabrics Inc., will speak at luncheons held Wednesday, Sept. 17, and Thursday, Sept. 18, respectively.