

Expanding capacity for oleo alcohols provides additional product and supply security

The Higher Olefins and Derivatives (HODer) business has responded to market demand by expanding its capability to produce oleo-based surfactants. By utilising substantial ethoxylation capacity it has increased processing of oleo alcohol feedstocks.



Shell's Geismar, Louisiana, alcohols production complex is the largest in the world and has the capacity to process additional volume of oleo alcohols.

Alternative alcohols



Despite their natural image, oleo alcohol ethoxylates derived from palm kernel oil still undergo several petrochemical processing steps.

While petrochemical intermediates, such as those based on Shell's NEODOL* range of alcohols and ethoxylates, still dominate the global surfactants market and offer differentiated performance in many applications, there has been increasing demand for oleo alcohol derivatives from some sectors of the 'soap' industry.

This has been largely driven by the perception that the plant origin of oleo alcohols – they are principally sourced from palm kernel oil – makes them 'greener' than petrochemical alternatives.

"For some product applications oleo alcohol-based surfactants provide an environmental marketing opportunity because of a perceived 'natural' image," says Jack Perini, Global Business Manager Alcohol and Ethoxylates. "In reality they undergo petrochemical processing much like their olefin-derived equivalents.

"As one of the world's leading producers of alcohol ethoxylates, however, we recognise this is a market trend and there is a demand for this type of product in certain applications. We are responding to that and are committed to providing oleo ethoxylates as part of our portfolio.

"We operate the world's largest integrated ethylene oxide, olefins and alcohols facility at Geismar, Louisiana,

and have the capability to produce both synthetic and oleo alcohol ethoxylates."

Oleo feedstocks can be processed in the same way as alcohols derived from alpha internal olefins. Shell has been using oleo feedstocks for more than ten years, although not marketing them directly to customers, and has invested to expand this capability.

"Our production capacity has been increased to support our commitment to grow this business and from 2009 we will be offering a number of distinct oleo alcohol ethoxylate grades under a new NEODOL LM** brand name," says Perini.

"These grades will be incorporated into the NEODOL portfolio and will benefit from our existing manufacturing, supply chain and logistics expertise. We're using 50 years of experience in alcohols to expand our ability to serve the broader ethoxylates market and to confirm our position as the large-scale ethoxylator of choice," he says.

INCREASED CAPACITY

Plant modifications and investments carried out at Geismar have doubled oleo alcohol ethoxylate capacity to more than 50 kt per year, while raising overall ethoxylation capacity to almost 400 kt per year.

Perini says there are good business reasons to offer customers an oleo

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alternative, and that current market conditions make the timing right. "The growth in the surfactants market is being driven by the oleo alcohols sector, but the demand is not backed up by the industry's ethoxylation capacity.

"We are one of few integrated producers with the capacity to provide the critical processing that transforms oleo alcohols into more commonly used ethoxylates."

Having more oleo-based products in the portfolio could help to open up new growth opportunities in personal care and cosmetics, where 'natural' marketing credentials are most used.

Diversifying the portfolio will also enhance the supply risk management for the wider surfactants customer base. "Both feedstock markets can be subject to supply and price volatility, due to high oil prices on the one hand and competing demands on agricultural land from palm oil crops for biofuels and food production on the other," says Perini.

"A second source of alcohol feedstock provides additional supply security for customers by increasing the overall amount of alcohol available and allowing us to offer alternative products."

He says oleo products will be used to strengthen the existing product offering. "Alcohol ethoxylates based on alpha olefins are unique molecules and will remain the mainstay of the portfolio. Their partially branched molecular structure offers differentiated performance properties and formulation flexibility for more advanced surfactant blends."

Unlike olefin-based alcohols, which can be produced with both odd and even numbers, plants can only produce even numbered carbon chain molecules.

"Oleo alcohol ethoxylates are 99% linear and so essentially play in the

commodity surfactants sector. They are interchangeable with equivalent petrochemical grades, however, meaning customers can adapt to using both types for these bulk molecules," he says.

Having the flexibility to switch feedstocks for these bulk grades could free up mid-range cuts of NEODOL alcohols for alternative applications or additional internal olefin precursors.

"In challenging market conditions it's becoming increasingly important to have flexibility in feedstocks and derivative outlets," he says. "By utilising more oleo-derived feedstocks we can do this without jeopardising the supply of commodity surfactants to key customers."

TOLL ETHOXYLATION

As a result of the increase in ethoxylation capacity the business expects to take on more toll ethoxylation work on behalf of other surfactant suppliers.

"We can offer a one-stop-shop for oleo and petrochemical alcohol ethoxylation, with the benefit of a totally back-integrated value chain from ethylene and ethylene oxide, through alpha and internal olefins, to alcohol production and derivatisation.

"This strategy is about being committed to our customers in the global alcohol and ethoxylates market and responding to their changing needs and demand growth. We are capitalising on the key competencies and synergies we enjoy as global leaders in integrated ethoxylates production.

"The introduction of NEODOL LM means greater supply security and product options for traditional high volume surfactant customers, while also expanding our offering to new customers."

*NEODOL and **NEODOL LM are registered Shell trademarks.



For more information on NEODOL visit:
shell.com/chemicals/neodol

Jack Perini, Global Business Manager Alcohol and Ethoxylates - "we are committed to providing oleo ethoxylates as part of our portfolio".