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WORKHORSE Ingredients

Developed markets may be teetering on recession, but demand for surfactants remains steady. In fact, demand is downright buoyant in countries such as Brazil, Russia, India, China and the rest of Southeast Asia.

Tom Branna • Editorial Director

THINGS ARE GETTING ugly out there, again. In the first half of 2011, raw material costs surged, forcing household and personal product marketers to sharpen their pencils and recalculate just how much it will cost to produce all those detergents and shampoos. In the second quarter, Unilever raised its prices sharply to offset higher commodity costs. More recently, in August, there were growing signs that the US economy might be sliding toward recession. That spooked markets and sent consumer confidence levels tumbling.

Of course, industry experts are quick to point out that most categories in the household and personal care space are recession-resistant.

"The surfactant component of the home and personal care industry has been relatively inelastic under varied economic conditions," observed Mark Miller, business director, home and personal care, BASF. "For instance, while certain segments suffered in 2008, this was not the case for surfactants."

Stewart Warburton, global marketing director, home and personal care, Rhodia Novecare, agreed.

"The surfactant market has remained resilient throughout these difficult times," he explained. "Some consumers may have traded down to lower price point brands, while others may have started buying their cleansing products through different channels; they have not reduced their level of personal or household hygiene."

Still, it took several personal care categories years to reclaim 2008 levels. And when budgets get tight, shoppers opt for private label products or third-tier brands that may contain fewer ingredients and more water. That trend led to a price war within the laundry detergent market.

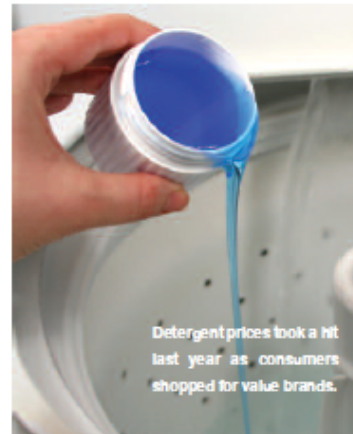
"[It] has been a challenging year for surfactants as oleo chemical feedstock rose to unprecedented highs during the first two quarters of the year," said Phil Matena, vice president, sales and business development, active chemicals, Americas, at Innospec. "Q3 has seen an encouraging decline in these feedstocks, however softening of demand will slow the flow of higher cost product through the supply chain."

According to Matena, customers are coming to Innospec requesting reformulation assistance to address the rise in raw material costs. Their goal—take cost out while maintaining performance.

"We are seeing successes in these collaborations," he insisted.

Last year, AkzoNobel's surfactant business recorded good results with continuing strong performance in home and personal care markets joined by a powerful recovery in other applications in its portfolio, such as agrochemicals and mining. This year, growth has moderated, but demand remains good in most markets, with some softening in consumer markets.

"We have not seen a slowdown in surfactant sales. Summer months are gener-



ally strong with consumers doing more laundry and hotel and restaurant vacation travel," said Craig Lundell, team leader-supplier relations, Sea-Land. "There has been supply disruptions due to raw material shortages such as the force majeure on Akypo products. We have seen a flattening of sales, but we are still up over 2010. Consumers are looking to save money and so far the manufacturers have worked hard to keep their market shares."

Growth Markets

Market leaders such as Procter & Gamble, Unilever and L'Oréal are all focused on emerging markets these days, especially those in Latin America and Asia, and the vast number of consumers who are grow-

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ing more eager for western-style personal cleansers and household cleaners.

Neil Burns, of Neil A Burns LLC, Freehold, NJ, noted that the entire emerging market category is a growing one for surfactants, especially the much-touted BRIC countries (Brazil, Russia, India and China). In addition, Southeast Asian countries like Malaysia, Indonesian and the Philippines are expanding rapidly.

In these markets, consumer products such as detergents, shampoos and dish-wash are still increasing in consumer penetration (as increasing percentages of these populations use such products on a daily basis), said Burns. "For these reasons, we continue to see substantial investment in surfactant and oleochemical feedstock production in these countries."

Back in the US, RITA is experiencing an upsurge in the number of smaller hair care marketing companies with ideas and concepts, looking for a development partner to help them bring their products to market.

"We can not only help formulate these products, but we're also helping our customers through the rest of the testing and scale up," explained Dan Beio, VP-R&D, RITA. "We've become, in many instances, their outsourced R&D. There are many of these marketing groups out there, the hard part is finding and connecting with them. Once we've had that initial meeting and can show the value we add, it's a totally transparent relationship."

In fact, Beio maintains that the company's surfactant sales are as strong as ever. In particular, there's growing demand for Ritalactant blends that do not contain any sulfated surfactants. These patented blends of lactylates, glucosides, sarcosinates and betaines are custom-formulated and designed to mimic the foam performance of the sulfated surfactants for flash and foam stability, explained Beio.

"Many customers are using them as their entire surfactant phase, limiting the number and types of ingredients they have to order," he said.

As a result, instead of sourcing, ordering, receiving and running quality assurance checks on four or five surfactant ingredients,



RITA can custom blend one ingredient, to save customers time and money.

Green, Greener, Greenest

Rhodia offers a broad range of products designed to meet the increasing sustainability needs of the home and personal care market, according to Warburton. Rhodia's R&D projects are focused on developing more sustainable processes and products without compromising on performance.

"In alignment with our sustainability strategy, we have recently developed 100% bio-based nonionic surfactants for application in laundry and household products," he said. "Our R&D program also focuses on developing a broad range of formulations that are effective at reduced chemical loading."

Consumers in the personal care market still demand mild products that give good skin feel and copious lather, noted Art Pavlidis, business manager, Hamposyls and APIs, Chattem Chemicals.

"The Hamposyls deliver those properties and more. We have enjoyed good growth as a result of the need to provide mild, nontoxic and readily biodegradable surfactants."

With more marketers seeking a more sustainable corporate profile, they're turning to their suppliers for solutions. Chattem Chemicals is focusing on applications where there is concern about the

biodegradability of the raw materials. According to Pavlidis, Hamposyl surfactants are readily biodegradable so they are becoming attractive for those applications.

Another aspect of sustainability is concentration. According to Miller of BASF, an ongoing trend in the home, personal care and I&I markets is the growing demand for more concentrated solutions that help reduce environmental impacts while maintaining effectiveness.

"There is also a continued need and market for concentrated products that help reduce consumption as well as a continued drive for consumer convenience," he said. "BASF's newly formed home and personal care team will now have a broad product offering combined with research and development expertise that will allow us to initiate joint development projects with our customers to meet market demands."

With the rise in consumer awareness for safe and environmentally-friendly formulations, the need for natural surfactants is growing, noted Ellen Deisle, technical sales manager, Bio-Botanica, adding that surfactant companies are looking at ways to supply consumer demand with many of them expanding into Asia.

"We offer BioSaponins, the natural surface active agent. It is a combination of four saponins: wild yam root, yucca root, sarsaparilla root and quillaja root," she said. "Saponins are naturally-occurring, high molecular weight glucosides. If you want to remove harmful chemicals from your personal care products, go the natural route."

All Emery Oleochemical products are made from natural oils and fats derived from renewable raw materials such as coconuts, oil palms, sunflower seeds and tallow. The product line is said to have wide-ranging appeal, especially for those seeking to drive the sustainability and renewable agenda.

According to Dr. Kongkrapan Intarajang, group CEO of Emery Oleochemicals, the company's strong foundation in oleo basics enables it to provide natural based products that meet special customer specifications and requirements for items such as soap bars, fragrances and cosmetics through its

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fatty acid and fatty alcohol range.

"Globally recognized names such as Edenor and Emery are brands much sought after for their natural, high quality and good bio-degradable properties," explained Intarajang. "In addition, our approach to innovation, which draws its strength from industry recognitions; such as being remembered as developers of the highest grade (99.8%) of natural based glycerin at that time, is fundamental to our long-term success."

Stepan Company entered into a joint developmental agreement with Elevance Renewable Sciences, Inc. to evaluate and commercialize novel surfactants, antimicrobials and polyurethane polyols based on Elevance's specialty feedstocks, including 9-decenoic ester and C18 di-basic ester. They have a variety of applications for the consumer, institutional, industrial and broader surfactant marketplace.

Both companies agree the move is an opportunity to provide an expanded product portfolio based on biorenewable feedstocks. Developing new biorenewable technologies with performance benefits is consistent with Stepan's customer's growth initiatives and their sustainability goals.

Sustainability plays a key role in product development at many other companies, including AkzoNobel.

"In the fabric and cleaning area, we see increased emphasis on not only environmentally friendly products but also products which are produced from sustainable resources as consumers worldwide become increasingly aware of their environmental footprint," explained Alfred Wong, global marketing and development manager, fabric and cleaning, AkzoNobel Surface Chemistry.

According to Burns, work is underway to add a so-called "third leg" to the surfactant supply chain. The existing two legs are petrochemical and oleochemical—but both legs have sustainability issues. A solution to these sustainability problems, he said, is in the form of new technology to enable the production of surfactant feedstocks from sources such as sugar cane, corn, lignocellulose and beets. These are being commer-

cialized by relatively new companies such as Solazyme and Elevance, said Burns.

A Quiet Year for Regulations

With so many suppliers taking the lead on issues such as sustainability, most agree that it has been a relatively quiet year for regulations. Burns noted that REACH has had the biggest impact on surfactant producers in the recent past.

For example, AkzoNobel Surface Chemistry successfully submitted all 2010 REACH registrations, the first registration phase of the new European Union chemical legislation. A total of 51 dossiers were submitted to the European Chemicals Agency (ECHA) before the November 30, 2010 deadline.

"From our vantage point, REACH has had an impact on all companies that wish to do business with or in Europe," explained Andy Girdhary, global personal care. "This has required a vast amount of regulatory input to support existing products made today and creates a hurdle rate for new products—a minimum return required—when they are placed onto the market."

Wong pointed out that nonylphenol ethoxylates (NPEs) are being phased out globally, especially in cleaning applications. In North America, the phase-out, which has already begun, is being coordinated with the US Environmental Protection Agency's Design for Environment (DfE) Safer Detergent Stewardship Initiative (SDSI), and would end the use of NPEs in industrial laundry detergents by 2013 for liquids and 2014 for powders.

"The AkzoNobel Fabric and Cleaning team has designed Berol 609 to replace specific APEOs in specific cleaning applications," he explained. "Berol 609 is a green surfactant that is DfE-registered and continues to gain traction in the marketplace."

The ban on phosphates in the US will continue to drive new solutions for the automatic dishwash market, according to Miller, who pointed out that BASF's broad portfolio for home care and I&E includes special additives, such as rinse aid surfactants, complexing agents and polymers that can be used as alternatives to phosphates

in automatic dishwashing formulations, while maintaining high performance.

At the same time, BASF remains focused on methanesulfonic acid, which is phosphoric acid replacement in detergent formulations because of the high solubility of its salts and relatively low corrosivity. MSA is easy to handle, non-oxidizing, readily biodegradable and chloride-free, according to Miller.

"The California solvent legislation will drive formulators to look for new solutions that reduce VOC levels—this can include a shift toward surfactants," he told HAPPI. "At BASF, we offer naturally derived surfactants such as APC, a mild, biodegradable surfactant that plays an important role in cosmetic and body care formulations."

Recent Moves

While global economies ebb and flow and regulators debate new action, surfactant suppliers aren't standing still. In June, Rhodia and SIBUR signed a letter of intent to create a joint venture in specialty surfactants. This strategic alliance is focused on creating a leader in the CIS market where specialty surfactants are used particularly in home and personal care, as well as in the oil and gas industries, where the surfactants sector is growing more than 6% a year, according to Rhodia.

SIBUR, the leading petrochemical company in Russia, will contribute its raw materials, production and logistics capabilities. The new 50:50 joint venture will be located in Russia at Dzerzhinsk, near SIBUR's petrochemicals operations, 400km east of Moscow and will begin operating in 2013.

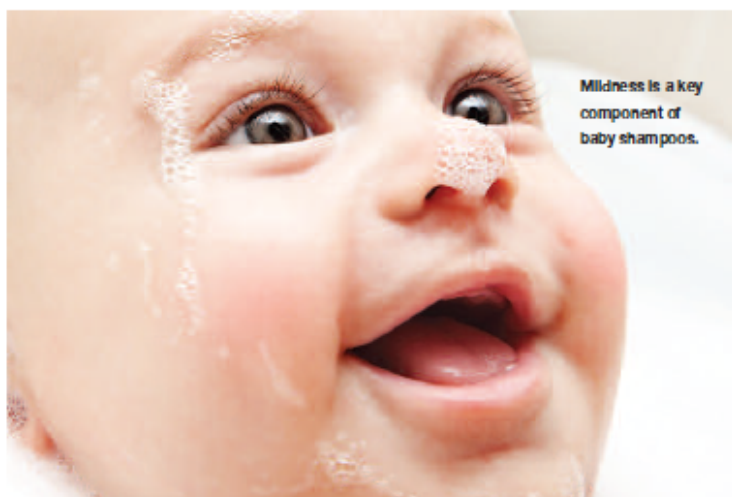
"This strategic partnership is a key step in our development in the dynamic surfactants market in the CIS and Eastern Europe," commented Christophe Clemente, VP-Europe, Rhodia Novocare.

"This alliance will reinforce our leading position worldwide in specialty surfactants and is fully aligned with our growth strategy. It demonstrates our commitment to become the preferred partner of our customers as they expand in fast-growing countries," added Emmanuel Butstraen, president, Rhodia Novocare.

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Earlier this year, Rhodia acquired a guar-derivatives production unit in Zhangjiagang, China. It complements Rhodia's existing global guar-derivatives manufacturing footprint with production units located in the US, France and India. This acquisition enables Rhodia to meet the fast-growing demand for guar-based products in Asia, particularly in personal care.

And last year, Rhodia acquired Feixiang Chemicals. Feixiang, China's leading producer of amines and surfactants, strengthens Rhodia's leadership position in surfactants, and enhanced its footprint in the world's fastest growing region. Feixiang will contribute its expertise in amine and cationic surfactants technologies and will extend Rhodia's portfolio in amphoteric and cationic surfactants for the home and personal care and industrial cleaning markets.

Lubrizol acquired the Performance Products Group from Nalco in January, adding the market-leading brands Merquat and Sensomer CI-50 conditioning polymers to its existing cassia-derived conditioning polymers.

"Through this acquisition, Lubrizol has gained expertise in conditioning and delivery of actives to the hair and skin to complement our already market-leading position in rheology and appearance modification in surfactant cleansing systems," explained Timothy Roach, strategic mar-

keting manager, cleansing applications, Lubrizol Advanced Materials.

RITA is always on the look out for new partners and technologies, according to Beio, who noted that plant expansions were recently completed at its Mexican and Crystal Lake, IL facilities.

"We have also partnered with new companies worldwide to take advantage of positions on raw feedstock ingredients," said Beio. "If we can't make it, we'll find someone who can and put the necessary pieces in place to ensure quality and consistency our customers expect from RITA."

RITA also expanded its Ritafactant blends. These surfactant combinations with RITA's acyl lactylates are patented, giving the company the flexibility to custom blend for its customers, and design molecules that perform exactly as they would like.

Emery Oleochemicals recently formed joint ventures with ERCA Group (Europe) and AK Chemtech (Korea) to advance in the household and personal care sectors.

"In our drive to broaden our portfolio, customers can expect us to continue to maintain our focus on our core commodity chemical business, whilst leveraging our competitive advantage—in size, scale, global footprint and technology—to move toward becoming a recognized specialty chemical player," explained Intarajang.

Innospec Expands its Reach

Innospec continues to expand its commercial presence in Asia, Latin America and Europe to enhance its intimacy with regional and global customers. In January, the company commissioned a new reactor at its site in North Carolina to stay ahead of the growing demand for Isehx, its new sulfate-free surfactant. Elsewhere, Innospec is actively pursuing acquisition opportunities to enhance its portfolio and global position in personal care, according to Matena.

During the past year, the surfactants group of Stepan Company made investments to diversify its product line and expand its franchise geographically. With its large, diverse and growing consumer, agricultural and oil field markets, Brazil provides a substantial growth market. Stepan has added neutralization capacity to its large sulfation unit in Vespasiano, Brazil to better serve this large, growing market.

A key part of Stepan's strategy is to build its surfactant franchise in Asia. More than a year ago, Stepan acquired manufacturing assets of Peter Cremer's 100,000 ton-per-year methyl ester plant located in Singapore. It enables Stepan to provide global customers with methyl esters and value-added derivatives, a core building block of its specialty surfactant business. Production will begin in the second quarter 2012.

Stepan also increased ownership in its JV, Stepan Philippines Inc. (SPI). SPI operates a surfactant manufacturing plant producing laundry and cleaning products, fabric softeners and functional surfactants for the Philippines and other Asian markets.

AkzoNobel has made two key acquisitions. To further strengthen its leadership position in specialty surfactants while enhancing its manufacturing footprint in Asia, the company acquired Boxing Oleochemicals, which is said to be the leading supplier of nitrile amines and derivatives in China and throughout Asia. Boxing's activities will be integrated into AkzoNobel's Surface Chemistry business. The deal is expected to be finalized in the fourth quarter.

Two months ago, AkzoNobel acquired from Integrated Botanical Technologies (IBT) its patented Zeta Fraction technology, which

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is transforming how plant-based chemistry is used. The process developed by IBT makes it possible to harvest and separate constituent parts of a living cell from any plant or marine source without any solvents.

But perhaps the biggest move to affect the industry was BASF's December acquisition of Cognis. According to Miller, the integration of Cognis is proceeding successfully and the BASF team is ready to provide solutions to the home and personal care market.

"The combined portfolio and collective expertise from BASF and Cognis enables us to supply the most comprehensive product portfolio, formulation concepts, new innovations, technical and research capabilities, and sustainable solutions," he said. "Better understanding of consumer needs, and more opportunities for innovation will enhance our position in personal care ingredients and strengthen our leading position in value added products for home care."

Neil A Burns LLC just entered into a long-term agreement with Reed Business Information Ltd of the UK to produce conferences and training courses relating to surfactants globally. The venture's first event was a surfactant conference in May in New York City. The ICIS Asian Surfactant Conference to be held November 10-11 at the Intercontinental Hotel in Singapore will be the first as part of this formal agreement.

"This conference series fills a gap for senior executives in the business areas of surfactant companies to be able to get a focused snapshot of what is happening commercially in the industry," explained Burns.

New Launches

As companies expand their operations they are, of course, expanding their product lines too. Stepan introduced Bio-Soft GSB-9, a nonionic blend for those looking at alkylphenol ethoxylate replacement or for those interested in a versatile nonionic surfactant for use in multiple hard surface cleaning applications. Bio-Soft GSB-9 has a quick dissolution time and no gel phase when added to cold water (40°F).

For the personal care industry, AkzoNobel launched four rheology modifiers, which also act as foam boosters, this year under its

new Structure Cel trade name. The new products, ethyl hydroxyethyl cellulose (EHEC), methyl ethyl hydroxyethyl cellulose (MEHEC) and hydrophobically modified ethyl hydroxyethyl cellulose (HM-EHEC) derivatives, are natural-based polymers with high surface activity, wide molecular-weight range and various degrees of ethoxylation, alkylation, and surface treatments, according to Girdhary.

"Those properties contribute to enhanced foam characteristics for rinse-off applications such as shampoos, body washes and facial cleansers," he explained. "In addition, they build viscosity, exhibit shear thinning rheology, improve elasticity, contribute to formula stabilization and provide salt tolerance—all attributes that are desirable for personal care applications, including shampoos, body washes, conditioners and hair styling formulations."

In the home care sector, Wong pointed to several launches which address market needs and the growing emphasis on being both environmentally friendly and sustainable. For example, AlcoGuard H 5240 is a more sustainable water-soluble polymer for detergents. It uses hybrid biopolymer technology that combines the benefits of both synthetic and natural polymer components to provide effective performance and an improved environmental profile. Most recently, AlcoGuard H 5240 was granted Design for Environment (DFE) certification by the U.S. Environmental Protection Agency.

Another novel product is Berol HD, a concentrated liquid surfactant product that provides an environmentally friendly cleaning alternative to heavy-duty degreasers containing high-VOC petrochemical solvents, according to AkzoNobel. Readily biodegradable, Berol HD mixes easily with builders and water to form efficient, aqueous degreasing formulations for heavy-duty, low-VOC cleaning performance.

Two new launches at BASF include Dehypon Wet, an optimized surfactant that is said to provide quick and easy cleaning due to its excellent wetting behavior resulting in a fast action feature. Cleaners requiring this fast action together with low foam behavior such as automatic cleaners, floor cleaners

and cleaning wipes are the target application areas for Dehypon Wet.

Plantacare 818 UP is a sugar surfactant for personal care applications. Raw materials for the Plantacare 818 UP are fatty alcohols from coconut or palm kernel oil and glucose of com. Plantacare 818 UP shows excellent performance in foaming, cleaning and mildness, which makes it ideal for mild shampoo, bath, and shower gels applications.

During the past 18 months, Lubrizol launched three new materials. Chembetaine ACB is a naturally-derived, bio-based amphoteric surfactant that builds excellent viscosity and boosts foam in hard or soft water. It reduces irritation when formulated with anionic surfactants, and is ethylene oxide and formaldehyde free.

A year ago, Lubrizol launched Carbopol Aqua SF-2 polymer, a rheology modifier that delivers exceptional clarity, elegant flow properties, and suspension of insoluble ingredients in surfactant systems formulated at pH below 6. It is said to be ideal for use in cleansing systems that incorporate food-grade preservative systems.

Most recently, in June, Lubrizol launched Glucamate VLT thickener, a naturally-derived associative thickener that delivers enhanced mildness and exceptional clarity in surfactant cleansing systems. Due to its exceptional mildness and ability to mitigate irritation of common surfactants, Glucamate VLT thickener is ideal for use in products for babies, children and the elderly, according to Lubrizol.

Sea-Land has introduced 12, environmentally-friendly hydrotropes with multi-functionality. According to Lundell, use levels are only 25% as much as traditional hydrotropes, yet they provide added detergency, are already DfE-approved and cost less than current hydrotroping surfactants.

By introducing new products, offering total solutions and expanding their footprints, surfactant suppliers are meeting the needs of their customers around the world.

For a list of new products from surfactant suppliers, be sure to visit Happi.com. •