China seeks new S&D technology

The Chinese soap and detergent industry is eager for technology, but developments are evolving slowly.

Currently no Chinese company supplies a complete line of oleochemicals. "They only have very small plants here and there," according to Karl Zilch of Henkel Corp.'s Emery Group. "The industry there is in the primary school stage compared to the U.S.," said Sherman S. Lin, who helped establish 3 I Corp. He said China needs to develop oleochemicals for personal-care products and detergents.

The first automatic washing machine was introduced in China during 1974. Ten years later, while studying the Chinese soap and detergent industry for the National Renderers Association (NRA), Phillip W. Laney found that Chinese consumers still preferred high-foaming products even though low-suds products more suitable for use in washing machines were available. Laney said earlier this year that technology and equipment in China has remained largely unchanged since 1984. "Washing machine production is high and growing, so ownership is prevalent in larger cities and becoming common even in smaller cities. Rural people still hand wash due to a lack of running water and electrical power; they still prefer traditional bar laundry soaps, which are very cheap, but sometimes they, too, use powdered products," he said.

Zilch agreed: "Overall, the detergent industry is not sophisticated. Much of the washing is done using soap."

During 1988, China produced 1,190,000 metric tons (MT) of soap (including 150,000 MT of toilet soap) and 1,290,000 MT of detergents. For 1986, soap production totaled 1,095,000 MT (including 111,300 MT of toilet soap) and detergent production was 1,175,000 MT.

The production of heavy-duty laundry detergents doubled between 1977 and 1987, according to "Tony" C.Y. Shen of Monsanto Co.'s Detergent and Phosphate Division. Future production is targeted to double every ten years. Increase in detergent demand has corresponded to the growth in the manufacture of automatic washing machines from hundreds of units a year to more than one million units a year. To meet this growth, China has imported various surfactant technologies from Japan, West Germany and the U.S., including phosphate and sodium tripolyphosphate (STPP) technology from West Germany, linear alkylbenzene (LAB) technology from the U.S. and sulfonation technology from Italy. There are now about 150 detergent production plants, under the supervision of the Ministry of Light Industry, located at various population centers, Shen said. "However, since the supply of detergents cannot meet demand, soap is used, especially in the rural areas," he added.

All soap and detergent plants are owned by the central government, although the local governments are in control and provide oversight. "The Ministry of Light Industry is moving further and further away from any kind of supervision of operations. This forces the local authorities to accept responsibility to provide any needed financial support," Laney said.

The developing detergent industry is creating interest in fatty alcohols. The Chinese, for instance, want to learn more about enzymatic hydrolysis of fatty acids. As a result, NRA tentatively hopes to provide some sort of program on this topic in China, perhaps in the next year or so, according to Laney. NRA also reported continued interest in methyl ester sulfonates as lime dispersing agents. The Chinese have asked NRA to arrange technical programs in this area as well.

Despite such interest, developments are slow to occur, Laney said. "In fact, the industry has a major financial squeeze. Before I did my first study in 1984, if a new technology was to be introduced, the plant and the ministry agreed on it and the capital investment came from the national budget. Now, any major investment must be funded by the plant itself through loans from local banks. Recently, due to overheating of the economy, those funds have been frozen except for priority projects. Even before that, it was hard for a soap plant to justify a major investment because retail prices of soap products have been basically frozen to prevent inflation. Market prices for glycerine have been freed and that is about the only product that many soap plants make a profit on," Laney said.

Because local water is very hard and water supplies are limited, much of China's soap industry prefers soap powder over synthetic detergents; use of the soap powders requires less rinsing than the synthetic detergents do. Tallow is imported only for producing toilet soaps, with laundry soap produced from available domestic oils and fats.

Production at most toilet soap plants is restricted by the amount of raw materials allocated. "If they want to increase production, they must either find new domestic sources or find their own sources of hard currency for tallow imports," Laney said, adding, "Because of limited bulk-terminal capacity at the ports, additional imports probably would have to be of drummed tallow, which has a prohibitive premium price." Despite the cost, tallow imports have grown steadily. A USDA report from the American Embassy in Beijing in June showed 1988 tallow imports (including other unrendered fats and greases but not lard) totaled 98,187 MT, up from 87,782 MT in 1987 and 60,204 MT in 1986. Primary suppliers are Australia and New Zealand.

No entirely new soap or detergent facilities have opened in China recently, Laney said. However, capacity has been expanded at sev-

eral locations, including a Unilever joint venture with the Shanghai Soap Co. in Shanghai and an Australian joint venture in Hangzhou. Ministry of Light Industry officials have voiced their satisfaction to Laney over joint venture agreements established between Chinese soap plants and such companies as Unilever and The Procter & Gamble Co. (P&G).

In one project announced in 1988, the Guangdong Foreign Trade Development Corp. assigned Bechtel to provide engineering, procurement and construction of a 10,000-MT-a-year fatty alcohol plant in Guangdong Province. The plant, scheduled for completion in 1990, will use natural fatty acid technology developed by P&G. The facility will be located in the Jiangmen Chemicals and Solvents Complex near the city of Guangzhou.

More recently, The Chemithon Corp. based in Seattle, Washington, has been contracted to supply a sulfonation system to the Wuxi Factory in Jiangsu Province to produce tallow methyl ester sulfonates. "This will be the only such facility in the Far East and most likely the world," according to Ken Hohnstein, Chemithon's vice president for process equipment. Hohnstein said the company is scheduled to deliver the system to China in early 1990; once in operation, it will have the capacity to produce 1,000 kilograms per hour of 100% active ingredient for surfactant use. The company also has completed five other projects for detergents, specialty cosmetic surfactants and lubrication oil additive sulfonate, with typical capacities of 1,600 kilograms per hour. It is now negotiating a contract to supply a complete detergent facility.

Between 1980 and 1985, NRA's primary role was to assist China's soap plants with processing problems. Now, the aim is to help the companies produce better quality bath and toilet soaps. "It has become less of a processing problem and more a problem of producing a product that the Chinese people want to buy," according to Kent Brady, NRA's director of international market development. Most recently, NRA representatives have presented seminars to acquaint Chinese soap companies with marketing principles and consumer market research techniques. "Before, the government procured the product. Now, companies making the product must find a market for it," Brady said, noting that Chinese companies have no marketing experience and thus need outside experts to provide guidance.

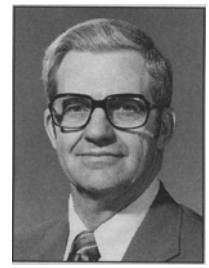
The China Association of Surfactant, Soap and Detergent Industries consists of about 230 members, according to Shen, a consultant to the Chinese industry. Madam Zhao Xun Min, chairperson of that association and the China Association of Fragrance, Flavour and Cosmetic Industries, has established contacts with The Soap and Detergent Association based in the U.S. Members of the Chinese association are organizations involved in detergent and soap manufacturing and research. Some member companies are large; for instance, the Shanghai Detergent Factory employs about 5,000 people, Shen said.

China also is developing new sources of oil from native plants. Several new test lots for the native plants have been started. "China is interested in technologies to convert oil to fatty amines which are needed to produce personal-care products such as shampoo," Shen said. A Procter & Gamble spokesperson said P&G is providing technical expertise, including training and technical assistance, in a licensing arrangement with a local venture to produce fatty acids. Henkel and Kao technology also reportedly is being used in new ventures in China. Also, Shen said, China is taking the first steps toward developing an oleochemical industry, and several pilot plants are now in operation.

China's major soap and detergent research organization is the Research Institute of the Daily Chemical Industry, located at Taiyuan, Shanxi, according to Shen. This institute publishes *China Surfactants, Detergents and Cosmetics*, a bimonthly publication containing original research work; it includes English abstracts. A Detergent and Surfactant Research Institute is being planned, also to be based in Taiyuan. This proposed research institute, to be funded by the United National Development Program, will emphasize the production of oils from native plants and the conversion of these oils into surfactants, Shen said.

(For an earlier report on China's detergent industry, readers should see the February 1987 issue of JAOCS *which included an article on "The Detergent Industry in China" written by Qin Yong Geng of the Shanghai Synthetic Detergent Factory.)*

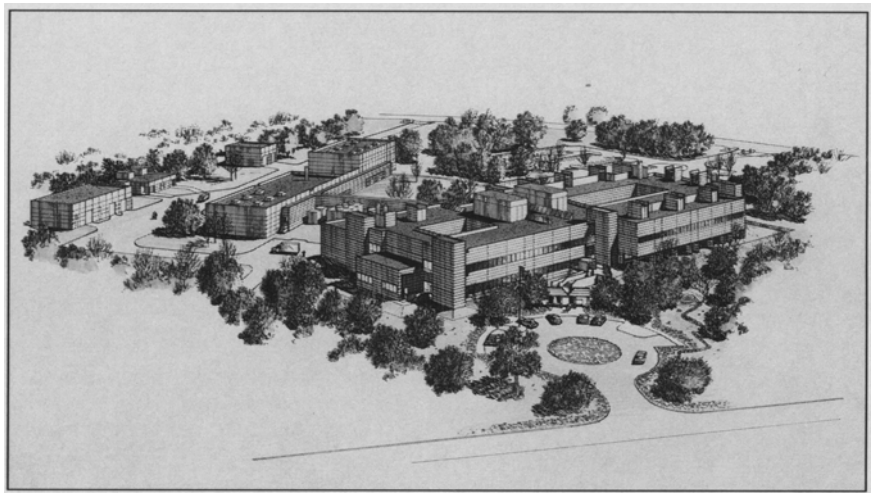
Matson retires



Ted P. Matson, chief technical officer for surfactants research at Vista Chemical Co.'s R&D Department at Ponca City, Oklahoma, retired Sept. 1, 1989, coinciding with Vista's relocation of its R&D operations to Austin, Texas.

Matson had been employed by Conoco and Vista for 32 years. An AOCS member since 1958, Matson served as an AOCS Governing Board member-at-large during 1987–89. He is vice chairman of the AOCS Surfactants and Detergents Section and cochairperson of the joint AOCS/CSMA detergent industry conference, "New Horizons '89," to be held Oct. 29–Nov. 1, 1989, at the Hotel Hershey, Hershey, Pennsylvania. Matson plans to stay active in AOCS.

Matson has established IDEA (International Detergent Evaluation and Application) Consulting, based in Ponca City, and stresses that he is interested in international consulting, primarily overseas. Any free time will be spent at the family condominium in Dillon, Colorado, at his Oklahoma home (where he roots for his favorite football and basketball teams), or traveling.



Vista Chemical Company's new research and development complex

Vista R&D center opens

Vista Chemical Co.'s new research and development facility in Austin, Texas, is now in business.

During August, Vista moved its R&D operations from leased space at Conoco Inc. in Ponca City, Oklahoma, to its recently completed 129,000-square-foot office-laboratory-support complex in Texas.

The $25-million facility contains offices and laboratories for approximately 150 R&D employees, including about 90 persons who relocated from Ponca City to Austin.

The main building is connected by an enclosed walkway to secondary structures for support functions, including shipping and receiving, an instrument and electrical shop, and heating and cooling equipment. The support buildings also contain process development laboratories.

Vista Chemical, with headquarters in Houston, Texas, is a major U.S. producer of commodity and specialty chemicals and employs approximately 1,700 persons worldwide. It began operations July 20, 1984, when an investment team led by senior management of Conoco purchased assets of Conoco in a leveraged buyout. Vista was privately held until Dec. 11, 1986, when it offered an initial public offering of stock and joined the New York Stock Exchange.

The company's product lines include surfactant intermediates, polyvinyl chloride resins and compounds, high-purity alumina, methyl chloride, high-purity industrial solvents, ethylene, normal paraffins and vinyl chloride monomer. It has nine manufacturing facilities in the United States.

Among key personnel at the Austin facility is AOCS member O.C. Kerfoot, who is director of surfactants technology. Other key employees at the center include R.L. Poe for chemicals technology, J.R. Roheim for biological technology, H.J. Hall, associated director for polymers technology, as well as V.W. Weiss, vice president for research and development.

Laporte opens U.S. service unit

Laporte Industries U.K. is promoting its Laponite line of synthetic silicate clays to the U.S. detergent industry by establishing a marketing and technical service unit for the Laponite products in the U.S.

Scott Rangus is marketing manager in North America for Laponite, which is available in several grades. The product improves thickness, gel strength and emulsion stability, the firm says, with gel strength at low concentration that produces high suspending power. Rangus' office will be at Waverly Mineral Products Co., 555 City Line Ave., Bala Cynwyd, Pennsylvania. Waverly is a subsidiary of Laporte Industries.

Lion ventures in Taiwan, Thailand

Lion Corporation of Japan has announced the start of joint ventures in Taiwan to produce linear alkyl benzene sulfonate (LAS) and in Thailand to produce linear alkyl benzene (LAB).

The Taiwan operation, Yukoku Industries, has acquired land in the Kannon district, Toen Prefecture, to construct a one billion yen plant by June 1990. In Thailand, Lion, Mitsubishi, Colgate and Unilever are to incorporate a new firm with capitalization of about 1.4 billion yen. LAB production capacity is to be about 40,000 tons with production to begin in 1992.

Akzo buys coatings firm

Tyler Corp of Dallas, Texas, has announced shareholder approval for sale of the firm's Reliance Universal unit, a manufacturer of industrial coatings, to Akzo N.V. of The Netherlands.