

Chemical industry addresses logistics issues

By Karen E. Thuermer, AJOT

Up economy, down economy, chemicals are central to everything that is manufactured in the world. It's important business to worldwide seaports, regions, national employment and consumers. That because it's an industry that converts raw materials such as oil, natural gas, air, water, metals, and minerals into more than 70,000 different products.

The industry is diverse, but basically falls within a few broad categories: basic chemicals, life sciences, specialty chemicals, and consumer products. Basic chemicals comprise about 35 to 37% of the dollar output and include polymers, bulk petrochemicals and intermediates, other derivatives and basic industrials, inorganic chemicals, and fertilizers. Life sciences encompass about 30% of the dollar output of the chemistry business and include differentiated chemical and biological substances, pharmaceuticals, diagnostics, animal health products, vitamins, and crop protection chemicals. Specialty chemicals are a category of relatively high valued, rapidly growing chemicals with diverse end product markets. Consumer products include direct product sale of chemicals such as soaps, detergents, and cosmetics.

Chemicals have turned the Port of Philadelphia into the largest petro-chemical refining center on the East coast. The specialty chemical sector of Bay Area Houston remains one of the main pillars of that region's economy with much of the industry concentrated in the Bayport Industrial District. In 2007, the latest figures available, the Port of Houston handled 91,395,488 short tones of petroleum and petroleum products.

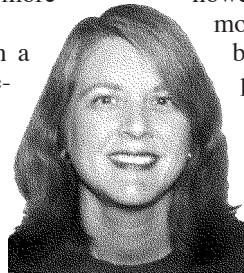
In Europe, many of the world's leading oil and chemical companies are active in Rotterdam. Chemicals and petrochemicals are especially big commodities at the Port of Rotterdam where a number of multinationals such as Lyondell have their most important or only European industrial complex.

The United States and countries comprising the European Union (EU) encompass the world's largest producers. According to the American Chemical Council, the United States is the number-one producer of chemistry products in the world, generating over \$664 billion a year. It's also one of the largest exporting sectors in the United States. US chemistry exports average almost \$120 billion annually—larger than either agriculture or aircraft/aerospace. More than ten cents out of every dollar of exports are chemistry-related. The United States is home to an estimated 170 major chemical companies that have over 2,800 facilities overseas and 1,700 foreign subsidiaries or affiliates. US chemical output hovers around \$400 billion a year. In Europe, Germany leads in the chemical, plastics and rubber industrial sectors with BASF, Bayer and Evonik Degussa being among its top companies.

Among the world's largest chemical companies are BASF,

Dow, Shell, Bayer, INEOS, ExxonMobil, DuPont, SABIC, and Mitsubishi. All totaled, companies involved in chemicals represent a combined \$4 trillion industry worldwide.

Since the industry also represents thousands of smaller firms, however, it's racked with complicated logistics issues than most other industry groups do not face on a day-to-day basis. Some of these challenges are largely due to companies not being organized like the big players so as to operate as one big group, or because they do not have the resources available. ChemLogix, a leading provider of integrated logistics solutions for the chemical industry, addresses many of them.



TMS CHALLENGES

Transporting chemicals are subject to stiff government HAZMAT rules and regulations. From a logistics standpoint, it's an industry still basically operating in the dark ages. As Michael Skinner, a partner with ChemLogix, points out in his white paper "The Time Has Come: Visibility into the Transportation Process in Now Affordable and Soon to be Expected", transportation management systems (TMS) that provide visibility in the supply chain are not widely implemented within the chemical industry.

"The substantial majority of chemical shippers have yet to make the investment in transportation management technology," he says. The reason: evaluating the cost/benefit tradeoffs of sophisticated transportation technology and the high cost of buying and implementing these solutions has far outweighed the savings required to fund them.

"Chemical manufacturers, shipping tank-trucks and rail cars full of chemicals, and few, if any, LTL shipments, are not able to tie substantial, direct, hard-dollar savings to the investment in transportation technology," he writes. "Therefore, chemical transportation managers are lobbying for technology to provide shipment visibility to their customers, as well as improved transportation controls and reporting, and drive cost savings (2 to 5% versus 15 to 25%) to their companies. Previously, they were not able to build a business case that paid for itself."

The benefits of TMS for chemical manufacturers, he writes, are automating the entire freight execution and payment process; centralizing control over transportation, even at remote locations; the ability to have notification and alerts when primary carriers decline shipment tenders; the ability to have alerts regarding late pickup and delivery, and other service issues; the detailed tracking and reporting of carrier costs and service performance; and streamlined and centralized load management and freight payment.

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According to Skinner, savings, perhaps substantial savings can be realized through gaining this control over the transportation process. "Even for those companies for which the savings are limited, there are now proven solutions on the market that do not require major capital and upfront investments."

Consequently, ChemLogix has developed a program dubbed CI3PLUS.

"Our CI3Plus model provides our clients with flexibility to utilize any or all of our logistics services to drive cost and service improvements," says Ken Vrtis, vice president for Business Development, ChemLogix.

Services included in the CI3PLUS business model are on-demand TMS technology, which streamlines day-to-day truck, rail and ocean transportation operations; Customized Logistics Management (Outsourcing), which reduces inventory while improving customer service and shipment visibility; Supply Chain Consulting, which provides practices and a tailored supply chain strategy; Freight Rate Benchmarking and Procurement to drive both service and financial performance improvements; International Mode Management, which transforms international logistics complexity into efficiency and competitive advantage; Intermodal Box and Bulk Tank Containers, which combine the best qualities of truck, rail and sea transportation for truly differentiated service; and Rail Fleet Management, which leverage one of the most reliable, predictable and effective ways to ship chemicals.

LEVERAGE, NOT OUTSOURCE

Like all industries, chemical companies have the option to outsource logistics functions to third-party logistics providers, or 3PLs, or do the functions in-house. According to Steve Hamilton, ChemLogix president and CEO, most chemical shippers today maximize freight savings in different areas of their organization by combining the tools and services of a capable logistics service provider (LSP) with the experience of their own in-house logistics staff.

"Targeting more than just paid freight costs, these companies are contracting outside resources to support a range of logistics savings programs that involve inbound and outbound traffic, current assets, raw material and finished goods inventories as well as physical assets related to distribution," he writes in his white paper "Must Chemical Companies Outsource Logistics to Save Money?"

In other words, companies are outsourcing rather than building upon their own experienced personnel and proven processes.

With logistics costs within chemical companies averaging between 10 and 20% of revenues, those companies that take a total supply-chain approach can save as much as 4% in sales,

while improving customer service, Hamilton maintains. "This yield is significantly higher than the approximately 5% in savings in shipping costs promised by many 3PLs," he says. In addition, many 3PLs are not prepared as a chemical company's own people to handle many issues. Consequently, he concludes, logistics is truly a core competency for chemical companies.

Hamilton recommends that chemical companies leverage, not eliminate, core internal logistics resources rather than outsource these functions.

"Before you begin outsourcing your transportation and logistics," Hamilton writes, "be sure you have fully tapped the value of your current resources. You can save money without completely outsourcing your logistics function."

LOAD FACTORS

Another issue impacting particularly small and medium-sized chemical shippers is the ability to take advantage of the same competitive pricing for domestic and international transportation and logistics services that larger shippers receive.

To level this playing field, members of the Society of Chemical Manufacturers and Affiliates (SOCMA) can elect to give negotiating authority to ChemLogix, LLC to create a customized freight tariff covering each shipper's freight activities. Dubbed the ChemLogix Load Center, ChemLogix will access its billion-dollar-plus freight database to secure best-in-class freight agreements that account for each shipper's specific requirements.

SOCMA members save significantly on transportation costs with the ChemLogix Load Center. The service applies to LTL, TL, bulk, intermodal and international hazardous and non-hazardous liquid and dry materials freight movement. Participating SOCMA members give negotiating authority to ChemLogix to create a customized freight tariff covering each shippers' combined outbound/inbound and international freight activities. Each participating SOCMA member company has their shipment information (custom freight rates, carrier identification, ship from/to locations, etc) secured by signing an agreement with ChemLogix to supply these services which will also include a nondisclosure clause.

In return, the ChemLogix Load Center team is responsible for coordinating and tendering each load between the shipper and carrier while providing global shipment visibility, proactive notification on potential customer service issues, cost and service reporting and better control over the freight management process, including compliance with denied party's list and other government regulations applied to international freight moves. ChemLogix will audit each invoice and automatically issue freight payment. Freight claim management will also be provided which includes investigating the situation and arbitrating on behalf of the shipper's interest utilizing our partnerships and resources to ensure an equitable settlement.