



e-business case studies

e-Chemicals:

Scalability for an Industrial Strength Transactions Platform



Putting e-business to Work

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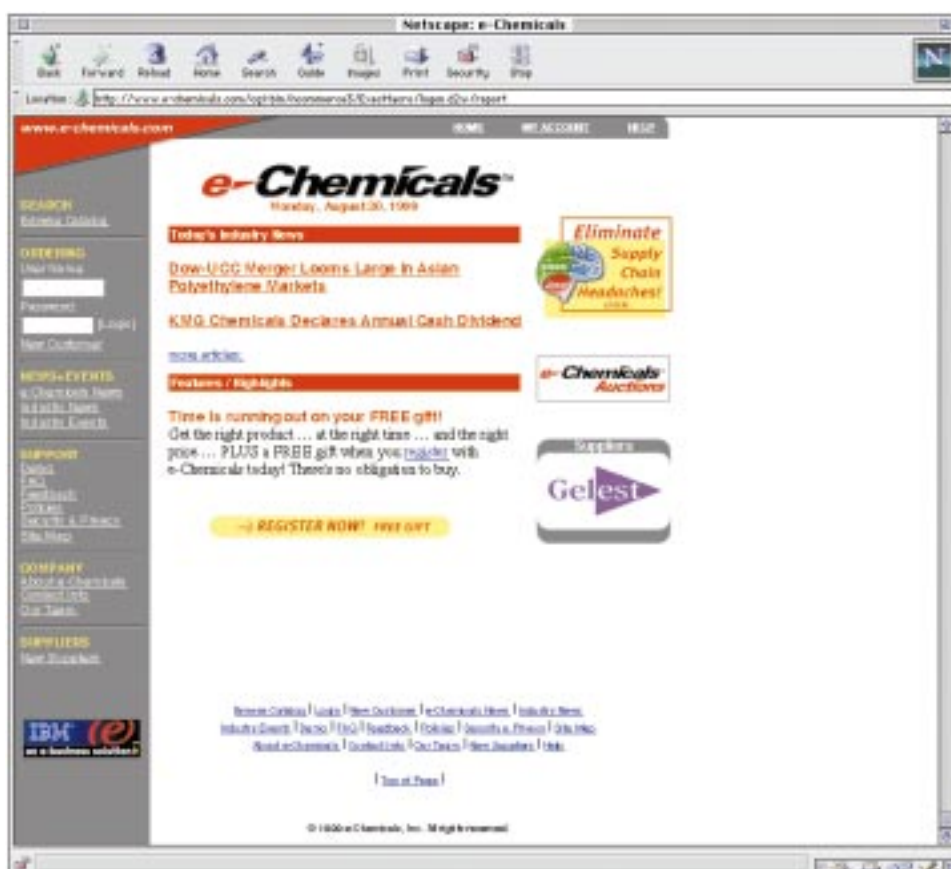
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Overview

e-business Case Study: e-Chemicals

Established in 1998, e-Chemicals (www.e-chemicals.com) provides industrial buyers with an Internet-based platform for ordering chemicals. With expertise in technology, logistics and the chemicals business, e-Chemicals aims to dramatically improve the procurement, sale and distribution of industrial chemicals through the Web's first online chemical store.

This case study focuses on e-Chemicals' use of the IBM Net.Commerce transaction platform, DB2, Lotus Domino and Lotus Notes to create an industrial strength business-to-business solution that has already attracted such key industry players as DuPont.



e-Chemicals

The Company

- Headquartered in Ann Arbor, Michigan
- First e-commerce Candidate member of National Association of Chemical Distributors (NACD)

The Web Site

www.e-chemicals.com

- Three-fold increase in the number of products listed on the site since December, 1998
- Net.Commerce-based chemicals ordering platform

The Benefits

- Provides 20% to 30% in overall cost savings across the entire distribution chain
- Lower costs for chemical buyers
- More market coverage and lower fulfillment costs for chemical suppliers

The Technology

- IBM Net.Commerce
- DB2® for AIX®
- Lotus® Domino™
- Lotus Notes®
- IBM RS/6000®
- IBM Global Services

Business Drivers

“This is a \$250 billion industry in the U.S., and there is very little technology that is being applied, especially toward commerce. The question is: ‘How can we take our logistics and chemicals knowledge and leverage it with our technology experience?’”

— Jim Alampi, President and CEO of e-Chemicals

The company was founded in 1998 with the goal of creating a new distribution channel to serve the chemicals business by synthesizing technology, logistics expertise, and chemicals market knowledge. These critical ingredients were brought together by e-Chemicals’ three founding partners, whose complimentary skill sets provided a strong foundation for e-Chemicals’ business plan. Alf Sherk, a partner and former Dow Chemical manager, had previously focused on developing alternative channel strategies. A major component of his work had focused on the comparative cost of serving different customer groups. According to Jim Alampi, President and CEO of e-Chemicals, “Alf had done a lot of things to try to discover the chemical channels of the future that nobody had really thought of.”

Another founding partner was Lorne Darnell, who had been CEO of LogiCorp, a third party logistics company that was eventually sold to Ryder Integrated Logistics (a unit of Ryder Systems, Inc.) The third founding partner was Yossi Sheffi, Director of the MIT Center for Transportation Studies and a well-known figure in the logistics field.

“The company started when two logistics professionals and a chemicals specialist got together and said ‘There are new channels that are going to develop to serve the chemical industry,’” says Alampi. “This is a \$250 billion industry in the U.S., and there is very little technology that is being applied, especially toward commerce. The question is: ‘How can we take our logistics and chemicals knowledge and leverage it with our technology experience?’”

The answer, according to Alampi, is to create focused service offerings that accommodate the specialized needs of key chemical user segments. Alampi identified three main groups that e-Chemicals is targeting with its e-business solution. The first group is comprised of smaller companies that typically generate small purchasing volumes, yet still require their suppliers to maintain such transaction mechanisms as order entry, fulfillment, billing and collection. “Every chemicals company has customers that cause a disproportionate amount of difficulty,” says Alampi. “To us, they represent the perfect group of customers to put into an e-commerce channel like e-Chemicals. In fact, we’ve had a number of suppliers who have said to us ‘If you list these products, we will give you lists of the people who buy from us, and together we will inform these customers that e-Chemicals is now their order fulfillment channel for these products.’”

Alampi notes that e-Chemicals’ second target segment is the smaller chemical purchaser who requires relatively little technical assistance, has very clear and well-understood purchasing needs, and is Web-enabled. “These are the kinds of customers that we want to attract to the Web site, through direct mail, advertising, banner ads, and other means,” he says of this segment. “This is the company that just wants a low-cost, efficient way to order chemicals on a repetitive basis.”

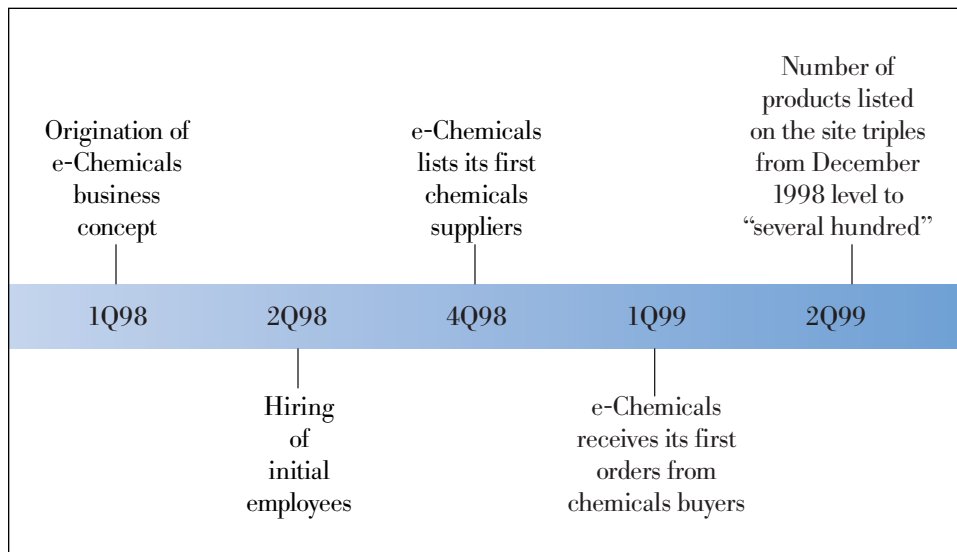
The third group targeted by e-Chemicals is comprised of large, sophisticated multi-plant customers who buy substantial quantities of chemicals and may have 10 to 20 plants. According to Alampi, these companies are often involved in some form of supplier rationalization, and, as a result, are anxiously seeking assistance as they transform their supply chain management processes. Alampi sees the segment as being comprised of “people who would say to us, ‘Instead of having my buyers go through multiple sources to get these products, how about if we went to your Web site, and there was a custom home page just for our company, and each plant would have their approved products already listed from approved sources. That way my buyers would have a very efficient way to go in, buy what they need, and not be spending a lot of time going to multiple sources.’ In many ways, this has been a bigger opportunity for us than the smaller companies.”

Adoption Timetable and Strategy

The e-Chemicals business concept shown in Figure 1 was hatched in the spring of 1998 with funding obtained soon after from the Internet Capital Group, a company that has provided funding to 24 Internet companies. The first e-Chemicals employees were hired in late June, 1998. Their initial focus was on the business relationship side (calling on chemical suppliers) as well as building the necessary IT infrastructure. The company first listed chemical suppliers on its site in early December, 1998, while its first orders were received in January, 1999.

Due to the “newness” of the e-Chemicals e-business solution, Alampi considers such metrics as the number of listed products and number of registered customers as a far better gauge of the system’s progress than transaction volume. Since December, 1998, when it listed its first chemical supplier, e-Chemicals has tripled the number of products listed on the site – up to several hundred – and has also registered several hundred customers, enabling them to make purchases. Alampi considers this even more impressive in light of the fact that e-Chemicals had not even begun advertising until February, 1999. Since then, e-Chemicals has begun aggressively promoting its service via Web banners and print ads, resulting in a significant increase in the number of customer registrations as well as supplier interest. Ultimately, e-Chemicals aims to have over 1,000 products listed on the site, representing 30 to 50 chemical suppliers. “This 1,000 products is the right number of products to attract the smaller customers that we’re targeting,” says Alampi.

For its larger customers, e-Chemicals expects to offer a highly specific set of products via its Web site. Another key difference on the large customer side is the dynamics of the customer/supplier relationship, and how that impacts the method by which e-Chemicals gains new suppliers. “When we are approached by larger customers (i.e., buyers), we generally ask them to call their suppliers and make it clear to them that, as of a certain date, e-Chemicals will be acting on behalf of that buyer,” says Alampi. “If the supplier wanted to do business with e-Chemicals, they would need to list their products on the e-Chemicals Web site.”



Source: e-Chemicals, 1999

Figure 1. Implementation Timetable for the e-Chemicals e-business Solution

Featured IBM Technology

Net.Commerce

IBM Net.Commerce has the features you need to grow your business online. It's scalable, flexible and lets you leverage your current technology investments while offering your customers a dynamic shopping experience. Net.Commerce is ideal for both business-to-business and business-to-consumer applications.
www.ibm.com/software/commerce/net.commerce

DB2 for AIX

The DB2 product family offers open, industrial-strength database management for business intelligence, transaction processing, and a broad range of applications for all types of businesses.
www.ibm.com/software/data

Lotus Domino

The Domino Server family is an integrated messaging and Web application software platform for growing companies that need to improve customer responsiveness and streamline business processes. Domino Servers set a new standard for rich Internet messaging, ease of administration, integration with backend systems and reliability.
www.lotus.com/domino

Lotus Notes

If you need a simple way to harness a world of information, Lotus Notes is the software that lets you securely, easily and efficiently manage information and collaborate anytime, anywhere. Notes is the leading integrated software for the Internet, offering an easy-to-use, open powerful way to work.
www.lotus.com

Featured IBM Technology

RS/6000

As the fastest UNIX enterprise server available, IBM's RS/6000 delivers business value while supporting the newest application in e-business, business intelligence (BI), and enterprise resource planning (ERP). If you are looking for industry-leading performance for your e-business applications, you don't need to look any further than RS/6000, the engine behind millions of e-business transactions completed every day.
www.rs6000.ibm.com

IBM Global Services

IBM Global Services can provide you with people who understand technology and know how to best leverage it for any business situation. You can count on IBM Global Services to create and deliver solutions that will achieve real business results. IBM Global Services can help you capitalize on the power of e-business by helping determine where and how the Web can produce the most positive benefits for your business.
www.ibm.com/services

Architecture

The e-Chemicals e-business solution is built around industrial-strength IBM technology, including Net.Commerce, the AIX server operating system, and DB2 for the cataloging of its suppliers' products. In terms of hardware, the entire system runs on an RS/6000 server located within IBM's data center in Schaumburg, Illinois. This, in Alampi's words, provides e-Chemicals with "all the security and scalability that its industrial strength platform will need."

The company also employs Lotus Domino servers to keep all of its product and customer information current. "Domino, Notes and DB2 are well known, strong products," says Alampi, "which have given us the ability to move quickly, a critical thing in the Internet world. To be able to do it with proven technologies and proven products has just been a great combination for us."

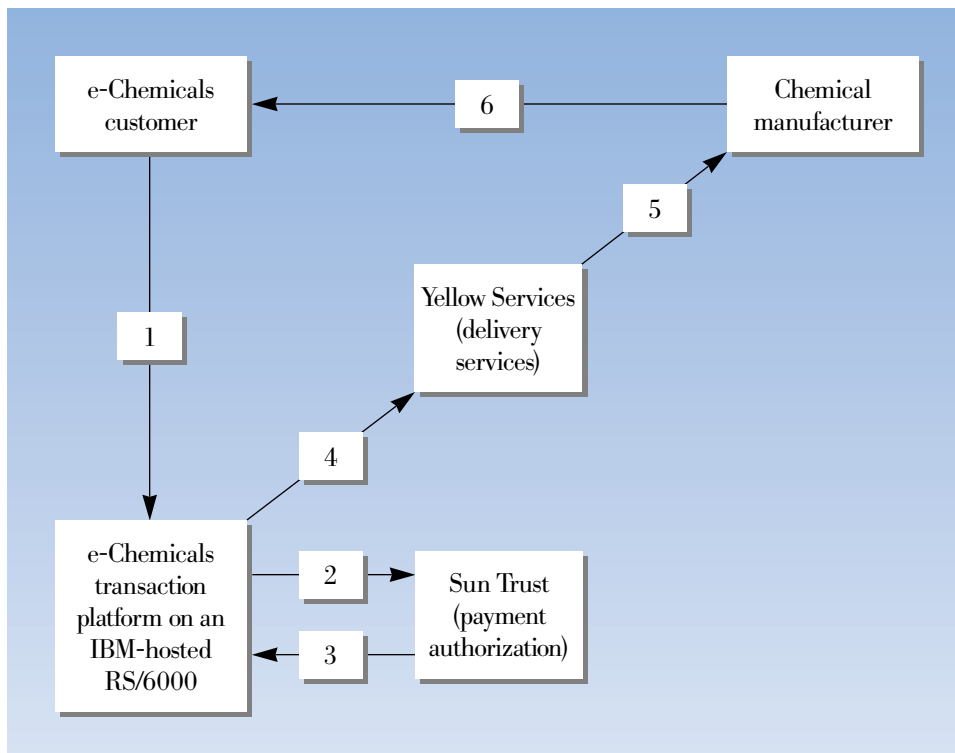
Alampi sees the choice of IBM technology as a highly strategic one, extending beyond the sheer functionality of the platform. "The IBM name and experience brings a lot of stability and credibility when we go out and talk to customers. When you are an Internet startup with a new commerce opportunity, people are obviously going to do their own due diligence. It's great when you mention that you and IBM are partners with one another. It changes the whole level of discussion, and it allows people to feel comfortable with issues like security."

In addition to the credibility of the IBM name, e-Chemicals is also able to leverage IBM's market presence in the chemicals industry. "Since IBM has their own key account executives calling on chemical manufacturers, we're able to go into an account on a partner basis, as an e-commerce solution," says Alampi. "This has helped us gain entree into a number of manufacturers, and begin conversations with several others in a very timely manner."

Implementation Profile

The e-Chemicals e-business solution was constructed with the assistance of a 25-member IBM Global Services team focused on slight modifications to the Net.Commerce engine as well as various connectivity issues. Alampi points out that the highly specific needs of the chemicals business make technology adaptation and customization a near certainty. “Nobody can come out with an off-the-shelf commerce engine in the chemical business, which makes flexibility all the more important,” says Alampi. “An example of the customization required was pricing. Most pricing was only out to two decimal points whereas in the chemical business decimal points needed to be carried to three places. This required a slight modification to e-Chemicals’ DB2 database.”

Another of e-Chemicals’ customization needs arising from the specific requirements of the chemicals industry relates to material safety data sheets (MSDS). These documents – highly technical and textual in nature – contain information that must be provided to the customer (along with any order) as well as to the safety officer of the plant. Through MSDS, purchasing customers have records that any worker can access if they have a question about their own health or safety. “Since all of this text-based information had to be incorporated into a database along with the product listings, it was important to have a database that could handle it,” says Alampi.



Source: e-Chemicals, 1999

Figure 2. Basic System Architecture and Partner Connectivity: e-Chemicals

“Domino, Notes and DB2 are well-known, strong products which have given us the ability to move quickly, which of course is a critical thing in the Internet world. To be able to do it with proven technologies and proven products has just been a great combination for us.”

— Jim Alampi

Alampi views e-Chemicals’ ability to electronically process hazardous materials documentation as a major source of differentiation from providers of similar services. Another major – and valuable – distinction is e-Chemicals’ ability to take title and re-bill the customer for a given transaction. “While there may be many companies that broker transactions, they’re not truly involved in the actual chain of commerce. We are.” According to Alampi, these two unique capabilities together confer a special status on e-Chemicals: qualification to become a member of the National Association of Chemical Distributors, an organization whose membership presently includes no e-commerce companies. “A company cannot join the NACD unless they take title and re-bill customers, and also commit to safe handling of the chemicals that they sell,” says Alampi. “Membership in NACD gives us credibility with the manufacturers that we are in full compliance with all of these safety measures and are just as compliant with the health, safety and environmental regulations as a traditional distributor.”

The company uses Lotus Domino and Notes to facilitate both internal and external customer-centric processes. “We use Notes internally within the company for all our email and discussion databases,” says Alampi. “We use Notes as a discussion database to gather information from people who are often dispersed. It’s a great way to collect all the information in one place.” The company also uses Domino to build product updates and upload them into the DB2 database.

The company constructed its platform with an eye towards minimizing infrastructure investments. “Because we’re really a virtual company, we don’t intend to build a lot of infrastructure,” says Alampi. “Instead, we would rather choose best-of-class partners like IBM to provide our infrastructure.” Another example of this approach is e-Chemicals’ partnership with Yellow Services, the logistics unit of Yellow Freight, which enables customers to track their orders in real time via Yellow’s track and trace capability, which was integrated in e-Chemicals’ site with the assistance of IBM (see Figure 2).

A similar program was implemented with Sun Trust Bank, which handles all of e-Chemicals’ credit applications, receivables, etc. “Instead of having to build a credit department within the company, we can do it via our relationship with Sun Trust,” says Alampi. “The minute a customer registers and fills out a credit application, it’s forwarded to Sun Trust, and within 24 hours we receive an approval or denial. Partnerships like these are critical to our business model, and IBM has helped facilitate the connectivity between these partners.”

How the e-Chemicals Platform Works

The e-Chemicals platform is designed for Web-enabled customers. When customers first see the e-Chemicals home page, they can view general company information or look at the catalog of products, absent pricing information. If the customer is a legitimate buyer and wants to get pricing information, he fills out a registration form and credit application, which is then sent to Sun Trust. If the application is approved, the customer receives an email confirming they have been approved to order products.

Users of the e-Chemicals site also have the opportunity to search its entire catalog either by the chemical name, manufacturer, product family, or product application. The user can add that product to the shopping cart, or can access such data as the material safety data sheets, product specifications, and any other text-based information that the manufacturer has provided to e-Chemicals and is stored in its DB2 database. From the shopping cart, a price quote can be generated that includes delivered pricing for the specified shipping location. At this point, if the user is satisfied and wants to buy this product, he can submit the order and print an acknowledgement.

At this point, a purchase order is sent to the chemical manufacturer, and an advanced shipping notice is sent to Yellow Services, alerting them of the order. Yellow then schedules the pickup with the manufacturer or the distributor, picks up the material, advises e-Chemicals when they have picked up the materials, and ultimately delivers to the customer. This triggers an invoice to the customer.



Return on Investment

“We believe that the e-commerce channel probably represents a 20 to 30 percent savings over the normal physical distribution channel.”

— Jim Alampi

Alampi sees the benefits of its e-business platform investments at all levels of e-Chemicals’ value chain. While Alampi estimates that the platform provides 20% to 30% in overall cost savings across the distribution chain, he is quick to note the benefits transcend pure cost reduction. For chemical suppliers that list with e-Chemicals, Alampi sees the opportunity for resource optimization as a key benefit. “Distributing through e-Chemicals gives suppliers the opportunity to redeploy some of their own selling resources into other areas that really need technical assistance,” says Alampi. “Every manufacturer has some group of customers that really don’t need much help, and are simply looking for an easy low-cost method of entering orders. Thus, we not only give manufacturers of chemicals a low-cost way to fill orders, but we also expand their market reach by providing advertising and direct marketing on behalf of the manufacturer.”

For customers, the main benefit of using the e-Chemicals ordering platform is convenience and cost savings. For example, the customer segment that orders the same products repetitively enjoys both a streamlined process and the knowledge that they are receiving the lowest cost possible. Similarly, the sophisticated customer segment – those that know what they want and rarely need salespeople calling them – are effectively compensated for their higher level of sophistication through lower costs. Alampi explains “Typically this kind of customer subsidizes the kinds of small companies that really do need that higher level of service. In our case, we strip all that away and let him get his product at a much lower cost. Thus, he is not penalized by all the other customers that really do need a higher level of service.”

Overall ROI Benefits	
Function	Benefit
Overall Supply Chain	Provides 20% to 30% in overall cost savings across the distribution chain
Platform Development	Shorter development cycles speed deployment High degree of flexibility aids in customization Scalability of platform accommodates growth
Small Customers	Lower chemicals costs Higher convenience
Large Customers	Lower chemicals costs Lower administrative costs Higher degree of control over procurement
Chemical Suppliers	Increased market reach More effective allocation of selling resources

Source: e-Chemicals, 1999

Figure 3. Benefits of the e-Chemicals e-business Solution

While larger customers also receive the benefits of lower costs, the real benefits of using the e-Chemicals ordering platform are seen on the administrative side, in the way the platform supports large company efforts to better manage the procurement process. “The large customer has the additional benefit of being able to funnel his buyers into a single place, whereby [the company] can exercise substantial control, from a central point, over the products and services that are purchased,” says Alampi. “This way, the company knows exactly what its plants are getting.”

Despite its relatively short span of operation, e-Chemicals has already accrued significant benefits from its choice of IBM and Lotus technology for its platform. Perhaps the most immediate benefit for e-Chemicals has been the rapid time to deployment inherent in the Net.Commerce platform. “From the time that we conceptualized and designed the Web site to the time that it was actually up and running was no more than seven months. That’s pretty quick for joint application development. This is especially true in an industry like chemicals which requires a lot of extra information and handling.”

While Alampi views speed of deployment as critical on the front end, he realizes that the ability to accommodate growth may well be a more important determinant of success. “Scalability is also extremely important,” says Alampi. “It’s great knowing we have IBM running the Web site, so that if the activity on the site starts to quadruple on a month-to-month basis, which we would love, we don’t have to worry about new hardware and things like that. And it’s not just a hardware thing – we were also cognizant of the high-volume capabilities of DB2 and Net.Commerce as a software platform. So as we grow, it’s fortunate that we don’t have to worry significantly about volume considerations.”

“We’re talking about an industrial strength business-to-business Web site that not only has to have the security and scalability from a volume standpoint, but also has to be a product that can be easily modified as enhancements and other customer needs are ascertained. We have found Net.Commerce can do all of that.”

— Jim Alampi

Future Plans

Since launching in late 1998, e-Chemicals has already begun to evolve its e-business platform in response to ample – and positive – feedback from customers. “We have our next four releases of the platform already in the pipeline,” says Alampi. “These include enhancements that our customers told us we need. For example, our large, sophisticated buyers have requested some additional enhancements that were not part of the original business model. The nice thing is that these things are relatively easy to deliver with the Net.Commerce software platform that we’re using.”

A good example of e-Chemicals’ recent changes relates to delivery lead times. “Our customers said they wanted to schedule delivery so that deliveries don’t just show up in three days. They may instead want to schedule the delivery to accommodate just in time manufacturing.” As a result of this feedback, e-Chemicals recently added customer specified delivery date capability to its order entry methodology, enabling customers to specify dates up to 30 days in the future.

To Alampi, this flexibility underscores the unique value of the Net.Commerce platform to a company serving the complex and demanding chemicals industry. Speaking of the e-Chemicals site hosted by IBM, Alampi comments: “We’re talking about an industrial strength business-to-business Web site that not only has to have the security and scalability from a volume standpoint, but also has to be a product that can be easily modified as enhancements and other customer needs are ascertained. We have found Net.Commerce can do all of that.”

e-Chemicals™

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please contact your
IBM marketing representative or
IBM Business Partner.**

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