

TODAYS

Chemist

Serving
International
Industry

A T W O R K

February
2003

www.tcawonline.org

Separation Sciences

CE GETS AN A-PLUS
CENTRIFUGING

Datebook
Pittcon Preview

Computing and Chemistry
Putting the Pictures Together

Executive Interview
Bill Kroll

Published by the
American Chemical Society



Electronic MSDS Archives

MARK WYSONG

They're not just for regulatory compliance anymore; integrated chemical management systems are good for the bottom line, too.

Improved supply chain efficiency works hand-in-hand with the ways data are turned into information. Information systems and how data are used, managed, transmitted, and stored play a critical role in the chemical industry's ability to remain competitive (1). And, given the vast number of hazardous chemicals in most workplaces, chemists can play a vital role in harmonizing government regulations with chemical supply chain issues such as packaging, labeling, documentation, storage, shipping, and safety practices, including access to Material Safety Data Sheets (MSDSs).

According to ACS (1), for the chemical industry to remain a profitable world leader, over the next 20 years it needs to

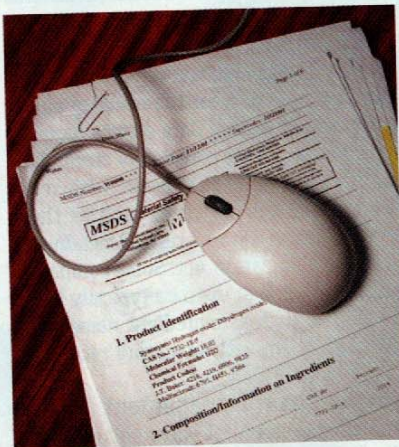
- improve operations, especially supply chain management;
- improve raw material use, recycling, and energy generation and use;
- play a leadership role in balancing environmental and economic considerations;
- commit to long-term investment in R&D; and
- balance investments in technology.

Central to most of these goals are cost-saving process improvements that must occur within a framework of effective information exchange and strict regulatory compliance.

Chemical Management Issues

There is no question that today's industrial chemists face complex and daunting responsibilities. Consider this: In the pharmaceutical manufacturing industry alone, the emergence of biotechnology and its associated medical breakthroughs have put new drug introduction on a fast track, while federal regulations have also tightened the grip on the development and distribution pipeline. The aging of the U.S. population has increased the demand for existing and new drugs. And, more recently,

heightened concerns about homeland security have increased the need for antidotes to bioterrorism that are in good supply and readily available.



Under such pressures, chemists need every advantage to ensure that they can contribute to their companies' efficient supply chain management and profitable production practices. The chemical industry has effectively addressed issues of science, production, and manufacturing, but it has given less attention to supply chain management. In fact, costs associated with supply chain issues are estimated at approximately 10% of the sales value of domestically delivered products and as much as 40% internationally (1).

Tracking with MSDSs

Just as research and manufacturing continue to use processes to speed production and new product introduction through the supply chain, chemical management has evolved as well. Through customized software and Internet-based systems, chemical management has become streamlined and integrated.

Helping keep track of chemicals in the workplace is clearly an important task that

chemists face. It can also be one of the most frustrating. When done completely by hand, the process involves managing reams of MSDSs in thick, heavy binders. Chemists who need information, including first aid procedures associated with a certain chemical, must wade through printed MSDS pages, many of which may be out of date, incomplete, or simply missing. The process could take hours, or in extreme cases, days. In addition, with company facilities located worldwide, chemists will routinely face language challenges and differences in the regulatory demands of various countries.

Although maintaining MSDS information became a U.S. regulatory requirement in 1986 (2), some companies are still not in full compliance and continue to work from a manual system instead of electronically accessing hazardous chemical information. Managing chemicals electronically allows employers and employees to access MSDS information from virtually any computer in the workplace—saving critical time in an emergency. This reduces the need for hard-copy binders (a few copies may be kept for backup), freeing up storage space. Users can easily search the database to find a list of chemicals located at a particular work site, or they can find all the work sites that use a specific chemical. A reliable MSDS database will be indexed by many key fields to permit searching by chemical or generic names, or even the name of the manufacturer. Employees can deal with packaging, labeling, documentation, handling, storage, shipping, and safety issues using one integrated system.

The Chemist's Advantage

Chemists might realize the advantages of a software or Internet-based chemical management system, but persuading other decision-makers can be overwhelming. The first step is to be armed with the rationale about how such a system, when supported by a reputable provider, will contribute to enterprise-wide process improvements, especially supply chain efficiency and employee safety. Here are some of the main advantages:

Ease of access. Today, there are more than 2 million MSDSs available from more than 27,000 worldwide manufacturers. Clearly, one of the ongoing problems in chemical management is staying on top of information updates. Without an electronic system, this task is often overlooked or put on the back burner. Implementing such a system using a credible MSDS data services company allows for comprehensive updates and revision management, including contacting chemical manufacturers on a regular basis to ensure the integrity of the data. Ideally, software should be available on a Web platform or on a totally secured application service provider basis. Under this scenario, when software and hardware upgrades are required, they can be made at a very low cost and easily accommodate site-specific functionality.

Multitask integration. Chemists who suffer the use of a manual chemical management system understand the laborious tasks of MSDS administration. Time and labor are wasted and productivity undermined when quick information retrieval and other tasks are not integrated. An electronic chemical management system can index and retrieve key information, create reports and labels, itemize MSDS collections, and allow for customized attachments, location assignments, user-defined fields, and more. Even better, whether a company operates from single or multiple sites, a customized system allows employees immediate access to vital MSDS information through centralized workstations, the Internet, or an intranet.

Enterprise usability. In the global workplace, corporations clearly struggle with reducing duplication of information while addressing individual site needs. An advanced electronic chemical management system will be the catalyst for bringing all sites together under an umbrella of consistency in hazardous chemical management, producing cost savings.

Supply chain enhancement. As previously mentioned, one of the most significant ways chemists can contribute to reducing regulatory burdens and increasing corporate competitiveness is to offer processes to streamline and integrate the supply chain. Hazardous chemical management systems offer more than simply documenting MSDS collections. Advanced systems have the power to integrate enterprise-wide tasks such as maintenance, inventory, purchasing, environment, labeling, and Web-based safety training.

In addition to these basic services, some providers offer specialized services, such as customized secondary container labels that include manufacturer information along with the user's choice of key MSDS elements. These services can also include

An efficient tracking system allows every chemical substance to be tracked from the time it enters a facility until it is used.

emergency MSDS faxing to provide urgent answers on demand, translated into different languages to meet the needs of multinational companies. Data services companies can also create completely customized software packages that assist with regulatory reporting activities such as those required under the Superfund Amendments and Reauthorization Act. Some companies offer modules that use data typically found on MSDSs, such as ingredient names, and integrate them with inventory records.

Supply Chain Management

One of the essential ways chemists can show a return on investment to their corporation is in supply chain improvements. Keeping track of inventory has become central to corporate profitability. Given that there are anywhere from 10,000 to 40,000 chemical substances onsite at some workplaces, software or Internet-based MSDS systems solve the challenge of keeping employees informed about where a particular chemical is stored, its quantity, and when it was last used.

But without an integrated system, there is great potential for data gaps in chemical inventory management. Ideally, the goal of the company is to refer to the same product using the same internal identification (item or part number) whenever and wherever that product is purchased. The scope of the problem, however, becomes nearly insurmountable when compounded across an enterprise in which thousands of chemicals are being purchased by dozens of purchasing personnel.

An efficient tracking system, using an enterprise resource planning (ERP) approach,

allows every chemical substance that is purchased by a company to be tracked from the time it enters a facility until the time it is used. Under this type of management, containers are assigned lot numbers and cataloged according to composition, expiration date, and storage location, making part numbers consistent throughout a company. This illustrates how an electronic system can help address the needs of purchasing and hazardous materials departments, and facilitate the chemist's ability to respond to specific regulatory concerns.

Incorporating a software or Internet-based MSDS system with an ERP process can be an effective method of chemical management. However, if a company's MSDS and procurement systems are incompatible, installing an effective system will require a lot of legwork beforehand. Of course, once the work is done, the time saved in the future will far outweigh the time invested in implementing the solution.

A Driving Force

The U.S. chemical industry sets the world standard for excellence of manufacturing operations that protect worker health, safety, and the environment, spearheading monumental breakthroughs that enhance the quality of life worldwide.

Experts believe that for companies across the nation, electronic MSDS retrieval has become the best method to ensure employee safety and regulatory compliance. Chemists can be the champions of such systems as a way to increase the productivity and competitiveness of their enterprises now and in the future. By embracing their role as the definitive authority on workplace chemical safety, industrial chemists will make great strides toward achieving process improvement goals.

References

- (1) American Chemical Society, Department of Government Relations and Science Policy. *Technology Vision 2020: The U.S. Chemical Industry*. American Chemical Society: Washington, DC, December 1996.
- (2) Occupational Safety and Health Administration, Hazardous Communication Standard. *Code of Federal Regulations*, Part 1910.1200, Title 29, 1986.

Mark Wysong is the founder and CEO of Dolphin Software (Lake Oswego, OR, www.dolphinmsds.com). Send your comments or questions about this article to tcaw@acs.org or to the Editorial Office address on page 3. ♦