

WORLD-CLASS COMPLIANCE that Doesn't Cost a Fortune



Having a well-designed, properly maintained inventory of hazardous materials on site provides a significant strategic advantage

By Jess Kraus, 3E Co. Inc.

How are you managing the hazardous materials you use, store and produce in your facility? Unless you have a multimillion-dollar budget and work in an organization with a cultural commitment to safety and risk management, you are probably managing increasingly complex rules and requirements with smaller budgets, fewer resources, and less organizational commitment than last year.

In today's perpetually resource-constrained operating environments, it is possible to manage the costs associated with hazmat management without compromising regulatory compliance, environmental performance, and worker health and safety. At the heart of any procedural framework for managing environmental compliance is an accurate inventory of your facility's hazardous materials.

Once an accurate inventory of dangerous and regulated raw materials, finished products, and effluent streams has been established (and is then tracked in real time), such data can be integrated with specific information related to how these regulated materials are being used, transported, stored, and disposed. By developing and then building on an accurate hazmat inventory, you can use this knowledge every day to make better decisions related to the management of hazardous materials. This can boost worker safety, safeguard the community, reduce waste and costs, and ensure more timely and effective environmental compliance.

THE STANDARD APPROACH: IS IT REALLY THE BEST WAY?

Many chemical process facilities currently use a computerized purchasing or procurement system. These systems often include a module that allows environmental health and safety (EH&S) staff to review and approve incoming hazardous materials. Then the chemical or product is typically tracked using some type of bar-coded or radio-frequency identification (RFID)-tagged inventory-management system so that data on its location-specific usage can be recorded. Material safety data sheets (MSDSs) are acquired and tracked, often with a computerized document and data-management system that is tied into procurement and chemical tracking.

After this, compliance reports required by local, state and federal environmental regulators are generated and submitted, usually electronically. Then management plans are made or modified, staff members are trained or retrained, and the company moves forward safely until the next monthly review period.

This is a somewhat utopian view of compliance management. It's what many high-profile companies strive for and would like to see become the de facto process for managing compliance. In the world most EH&S managers live in, however, these tools and resources do not exist. Instead, most EH&S professionals are forced to manage hazardous materials with limited budgets, staff, tools and systems. In the face of limited resources, they

must concentrate on creating a regulatory-compliance system that focuses on a key area: an accurate hazmat inventory.

A NEW GAME PLAN

The whole picture begins with an accurate, up-to-date inventory of the pure chemicals, raw materials, intermediates and finished products, fuels, solvents, and other cleaning supplies within your organization. This comprehensive inventory becomes the foundation for managing other critical data, and turns that data into knowledge on the hazards present in your facilities.

This knowledge, when applied on geographical, functional, and hierarchal levels within your organization, helps you make better business decisions. For instance, implementing specific processes across multiple locations within your organization, assigning responsibility to appropriate individuals who can identify the hazards associated with products used in the workplace, and tightening purchasing policies and procedures so the organization can control which chemicals are coming into each facility helps to reduce risk, cost, and liability.

INVENTORY

A good hazmat inventory helps your bottom line, and the basics are easy to understand and implement.

- How often. The frequency with which you review your inventory of chemicals and other hazmats depends on your company's size and number of locations/departments that handle hazardous materials, the sophistication of your purchasing and approval processes, and the expected turnover of chemicals and other hazmats. In an ideal world, a master inventory should be taken at least once a year by the person responsible for the inventory in a specific location/department. The inventory should be modified throughout the year with each new purchase or disposal.
- EH&S supervisors at each facility should have pre-purchase review and approval rights for any new product or chemical. EH&S supervisors, in this scenario, would review proposed new chemical purchases to "flag" purchases that may increase employee risk, operational costs or negative public visibility. For example, purchase of relatively small quantities of mercury compounds for use in a manufacturing facility could trigger toxic release inventory (TRI) reporting — a time-consuming-to-gen-



- erate report that the EPA posts on its website for public review. Inventories from separate locations within an organization should be rolled into a corporate-level inventory for analysis and to ensure consistency in process and purchasing. Similar processes using different chemicals or grades of chemicals (such as muriatic acid vs. high-purity hydrochloric acid) could indicate a process consistency problem or simply an opportunity to reduce reagent costs.
- At the other end of the spectrum, if you do not have an inventory program in place, you should start by conducting a full inventory at the beginning of your fiscal year. This will improve the quality of your EH&S programs and reduce costs with higher compliance because it will generate a clear picture of what products actually exist. This way, if an inspection occurs, there will be no surprises. Also, at the very least, you should carry out another inventory at the beginning of the next fiscal year to validate your assumptions on chemical usage and turnover.
 - This "refresher" inventory should include one full inventory from a "bellwether" site within your organization and a "what's new" report from all other locations.
 - Dynamic chemical inventory change increases the likelihood of inventory-

maintenance errors. If there is more than a 20% change from the previous year, either in the number of hazardous chemicals and products or in the total weight of hazmat substances, you should consider conducting another full inventory at every site.

- What to look for. Ideally, the staff conducting a hazmat inventory will be trained EH&S professionals who can easily identify the products and chemicals that should be represented there. If necessary, non-EH&S staff can be trained to read product labels as a method of hazmat identification. Manufacturers' labels on industrial reagents and hazardous consumer products should contain identifiable hazard warnings; however, the inner packaging of some materials (such as solder rolls or copier chemicals) may not carry adequate hazard warnings.
- What data to record. For each product or chemical, you should record the location of the material, the container size, the quantity of the material on hand, the name of the product or chemical, the name of the supplying company, and any part number or description assigned by the manufacturer. This basic information will allow you to match the item to an MSDS, which can provide data needed for reporting and critical exposures.

ANNOUNCEMENT

Workplace EH&S Web Seminar Series

Presented by ASI magazine

Listen to experts as they guide you through the maze of EH&S issues surrounding HazMat compliance, both in the U.S. and abroad.

"Developing a Full Lifecycle Approach to EH&S Management Systems"

Presented by Prabhu Natarajan, Director of Strategic Alliances and Product Marketing, 3E

11:00 a.m. EDT, May 3

Discussion of a prevention-based program utilizing a full lifecycle approach to chemical safety management.

"Trends and Considerations for Multilingual HazMat Compliance"

Presented by Tamie Webber, Manager, Product Management, 3E

11:00 a.m. EDT, May 23

Companies that expand their operations into foreign markets encounter a myriad of issues including EH&S and HazMat regulatory compliance requirements. There are several complex issues that go far beyond just simple language translation.

Each seminar is approximately one hour in length and will include a Q&A session.

Registration: \$149 per person per seminar. Join us for this interactive web seminar by registering today at <https://adhesivesmag.webex.com>.

label and provide appropriate documentation for these materials.

Classification involves identifying the transportation hazards associated with the hazmat in your inventory in accordance with U.S. Department of Transportation or international transportation code requirements. Classification may follow the DOT's 49 CFR for domestic shipment in the United States, or it may follow international shipping codes, such as International Civil Aviation Organization regulations for air transportation or International Maritime Dangerous Goods regulations for vessel transport. These international regulations may also, in most circumstances, be used within the United States for air and vessel transport. Beyond classification, instructions also will be needed on how to properly package different types of hazardous materials, what marking and labels must go on the package, which placards go on the vehicle, how to complete the required shipping documentation, and emergency information, including whom to call in the event of a transport emergency.

SUPPORTING DATA

With so many companies managing their hazmat inventories so poorly, any company that does it right has an opportunity to gain a significant strategic advantage. When analyzed, the size and diversity of hazardous products within an organization is almost always a surprise. EH&S staff and managers have not seen the big picture, resulting in misguided programs, misleading reporting, insufficient training and poor decision making.

The prevalence of inventory misunderstanding was revealed in 2003, when our firm analyzed the hazmat inventories of more than 300 companies. In total, more than 1 million products and 10,000 separate site inventories were reviewed. The average facility had an inventory of 3,500 hazardous items, including pure chemicals, mixtures and finished goods. Key findings related to these points include the following.

- **Phantom products.** On average, 33% of the products listed on the inventory did not exist in the actual workplace. The products or chemicals had been used or discarded, and the inventory had not been updated. Common reasons for this include chemicals that have a short lifespan, or those that are on site for only a few days as a trial or are provided in small quantities and used quickly. While this is certainly better than not having all hazardous products listed and

- **Problems.** The staff conducting the inventory may come across unlabeled containers or containers with illegible secondary labels. Record these items in a separate discrepancy document with their specific location and description, then physically flag the items themselves with stickers, labels, or string that is easily visible. Review the discrepancy document at the end of the inventory process to determine appropriate actions, such as re-identifying products with appropriate labels and/or removing the products from the facility.

COMPLETING THE PICTURE

Once you have the inventory, you can begin to add value to each record by associating other data, documents, or records with each inventory item and supporting this information with on-site EH&S staff or outside resources to assist employees in use and interpretation. This is an important step in seeing the whole picture.

- **MSDSs.** Associate each item in your inventory with a manufacturer-specific MSDS and keep the inventory list and MSDSs easily accessible. The MSDS provides vital information for exposures and the specific characteristics of the chemicals in a product or mixture. Many companies keep the inventory list and corresponding MSDSs on file (hard copy or electronic) forever to meet OSHA's exposure recordkeeping requirements. As your products change

or your MSDSs become outdated, you will also need a process for acquiring new or updated MSDSs.

- **Classification.** Assign each item in your inventory a National Fire Protection Agency Classification (NFPA) and Hazardous Materials Identification System (HMIS) Rating. NFPA offers a system for identifying the hazards of a chemical that was developed with the needs of fire protection agencies in mind. Your local fire department may require you to provide this information along with your chemical inventory. The HMIS Rating was developed by the National Paint and Coatings Association to help quickly identify the hazards associated with a given material.
- **NFPA labeling information** is available at www.nfpa.org (search for "NFPA 704"). Information regarding the HMIS labeling system can be found at www.paint.org (search for "HMIS").
- **Shipping.** Inventory items also should receive a classification based on how the item is shipped — whether by ground, air or vessel. Each mode requires a different classification based on the size and quantity of the chemicals being transported. Every hazardous material product placed on a truck, boat, railcar or plane will need to have several pieces of data associated with it. When you offer hazardous materials (or "dangerous goods," as they are known internationally) for transport, you must appropriately classify, package, mark,

tracked on the inventory, it also means that companies are incurring one-third more cost than necessary to maintain and manage hazmat inventory.

- **The 50-50 rule.** In the average hazmat inventory, 50% of the items listed have no associated supporting data, such as MSDS, quantities, storage locations and container information. Of the items that do have supporting information, 50% of the information is outdated. In essence, the average company is making decisions related to the use, storage, disposal and reporting of chemical and other hazardous materials with only 25% of the information it needs.
- **Nothing in common.** We also compared inventories from different locations, sites or departments within the same organization. Only 12% of the items listed on the inventories were the same from site to site, and inventory to inventory. This reinforces the notion that hazmat use is site specific, so the use of a "master" inventory will lead to inaccurate reporting and decision making.
- **Change is the only constant.** Of the inventories reviewed, 90% changed at least monthly — products were used or disposed of, new materials were ordered, or products were shifted from one site to another — which affects site-specific usage numbers and related reporting.
- **'Most Wanted' list.** Sixty percent of the inventories contained at least one of the following carcinogens: aflatoxins, arsenic compounds (inorganic), asbestos, benzene, beryllium and beryllium compounds, coal tar and coal-tar pitches, coke-oven emissions, ethylene oxide, vinyl chloride, wood dust, lead, and mercury.
- **Industry crossover.** Distinct industries of various sizes have significant numbers of products containing carcinogens. The accuracy of your hazmat inventory can have a cascading effect within your organization, affecting specific EHS responsibilities, employee wellbeing, management decision making, and corporate responsibility. If even 10% of your inventory is inaccurate, problems may arise in the following areas:
 - **MSDS compliance.** If your inventory is not accurate, MSDSs may not be available when needed, or may contain outdated information. Or, by acting on outdated information, you may spend time and resources acquiring and maintaining MSDSs for products that are no longer used or stored at your site. Alternatively,

if you use archived MSDS files to satisfy your 30-year exposure record requirement mandated by OSHA, the potential for including chemicals and products reviewed but never actually used at your facility could unnecessarily increase your potential future liability.

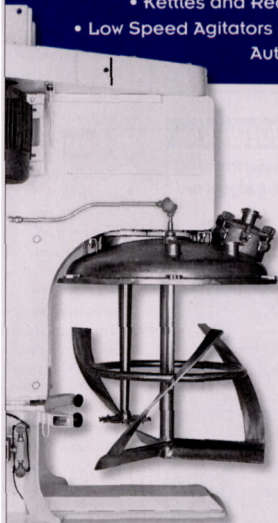
- **Chemical exposures.** On-site data may not be available for the chemicals that an employee may actually be exposed to in the course of a workday. If data is provided, the information

may erroneously refer to a previous or generic version of the product, thereby increasing the likelihood of improper handling or treatment.

- **Transportation.** The prevalence of outdated information may lead to products being improperly classified for shipment. This directly affects the safety of the product in transit and the safety of the transporting vehicle (e.g., air, ground, vessel) and its driver, crew, and passengers. If an in-transit incident occurs, emergency

MIXERS

Dual Shaft Mixers • Coaxial Mixers • Ribbon Blenders
• Kettles and Reactors • High Speed Dispersers
• Low Speed Agitators • Press Out Stations • Controls/
Automation • Engineered Systems



Dual Shaft Mixer with Patented Helical Blade Design

For 30 years Reynolds Industries has been designing and constructing complete engineered systems for paint, coatings, inks, adhesives, and sealants. We provide engineering, a full line of equipment, installation, start up and training.

Reynolds Industries combines expertise, experience and technology to meet your mixing needs.

For the best results, "Get Reynolds in the Mix.™"

Call 803.548.4301, or visit www.reynoldsmixers.com

See us at ASC Booth 137

 **Reynolds Industries**

Get Reynolds in the Mix™

803.548.4301 | www.reynoldsmixers.com



Synthetic Rubber for Adhesive and Sealant Industry

Hydrogenated rubber **SEBS**
Thermoplastic rubber **SBS**
Diblock copolymers **SBdb**

Solprene®

www.dynasolelastomers.com
Toll Free 1-877-559-7568

Calprene®

See us at ASC Booth 118



crews may not be prepared to respond if working with incomplete or misleading information.

- **Disposal of hazardous waste.** The budget you have designated for disposal costs may be inadequate if there are potentially hazardous materials being used and disposed of/recycled of which you are unaware. Site-specific contingency planning for emergency response also may be incomplete if based on an inadequate inventory.
- **Regulatory reporting.** Inadequate inventory may lead to failure to disclose sensitive chemicals (such as those that appear on the SARA 302 Extremely Hazardous Substances List). Alternatively, items listed on the inventory but not actually used or stored on site could trigger reporting thresholds and lead to unnecessary and inaccurate hazmat disclosures and associated fees.
- **Training and preparedness.** An incomplete inventory can hamper employees' awareness of the chemicals in their workplace. This significantly increases the risk of exposure or injury and the related costs of treatment. Meanwhile, a lack of appropriately detailed inventory data, such as required MSDSs and storage quantities, can also mean that all hazards on site have not been properly evaluated.

ONE SIZE DOES NOT FIT ALL

Similarly, if you assume that the inventories at all sites or departments within your organization are the same, the following issues may arise.

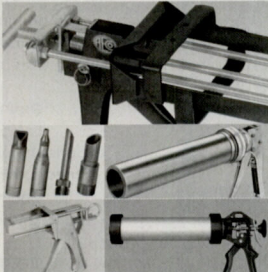
- **MSDS compliance.** Site-specific MSDSs may not be immediately available where they are needed because they may be stored in another building or office, or they could be completely unavailable. In a true emergency, such as an ingestion, inhalation or exposure incident, treatment information contained in the MSDS must be immediately accessible by responding personnel. If you do not have the proper information will be out of compliance with the Hazard Communication standard, which requires access to MSDS for employees with no barriers,

Engineered Dispensing Solutions!

Albion Engineering, a recognized leader in the manufacturing of precision dispensing tools, has been on the leading edge of tool design for almost 80 years.

Don't settle for anything less than the best solution.

In addition to offering technical support, our full line of products come with the Albion warranty and our commitment to professional quality tools. For more information visit us at our website



at www.albioneng.com or request our catalog.

Albion Engineering. Solving your dispensing tool needs.



ALBION Engineering Co.
1250 N. Church St. Moorestown, NJ 08057-1102
856-235-6688

FAX TOLL-FREE: 800-841-7132 (USA, Canada, Puerto Rico & US Virgin Islands)
INTERNATIONAL FAX: 001-856-235-9460
E-MAIL: service@albioneng.com www.albioneng.com

See us at ASC Booth 127

and thus you may incur one of the most commonly cited OSHA violations.

- **Chemical exposures.** If you are unaware of the specific hazards at a given site or within a department, you may not be prepared to respond properly to employee exposures or injuries. In addition, you may not have proper personal protective equipment, eyewash stations or containment tools in place for the specific chemicals or other hazardous materials used or stored at a given location.
- **Transporting hazardous materials.** Shipping personnel may be inadequately trained on the types of chemicals and products they are shipping. This can delay shipments or cause them to go out improperly labeled, packed and placarded. If shipping by ground, the drivers may not be qualified to transport the hazmats you are shipping. Potential fines for noncompliance from DOT and the U.S. Federal Aviation Administration, for instance, are large and may be assessed against individual executives with responsibility for hazmat-related transportation.
- **Disposal of hazardous wastes.** Without an accurate inventory, established processes for handling specific waste streams may not be adequate. This could lead not only to improper handling, but also to waste remaining on site for longer than necessary. Uncertainty about what, exactly, is in your waste stream may result in using waste contractors who do not have proper training, certification, tools and insurance to handle your needs. This applies to your staff as well — they may not have adequate training and tools to manage the types of hazardous wastes your processes are generating.
- **Regulatory reporting.** Using a "master" report that uses one location as being representative of all locations may cause some chemicals or other hazardous substances to be reported unnecessarily. This could also trigger additional local or state reporting and engender associated costs. The reverse is also true: A "master" report could leave some chemicals unreported, increasing your risk and opening the way to fines for not reporting the true nature of the potential hazards at your site.
- **Training and preparedness.** Without an understanding of the exact nature of the hazards at a specific location, proper training will not be possible. Locations where the hazards have been

underestimated will not have enough training. This is amplified in situations where substances that require unique handling procedures, such as lead and mercury, are found on site. Over-training also can occur, which unnecessarily increases your training costs.

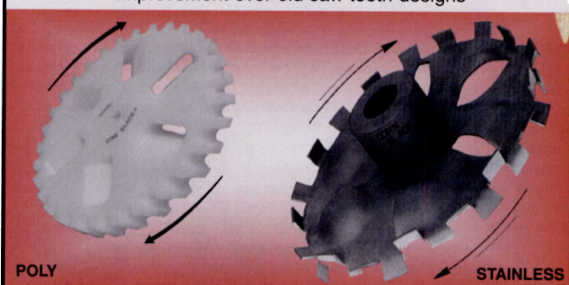
- **Winning the game.** By focusing your efforts on gathering and analyzing the right information, you can significantly streamline the costs you incur to protect

your employees and manage your regulatory compliance requirements, as well as the costs associated with acquiring, tracking, storing, shipping, and disposing of hazardous materials that your facility handles, stores, uses, and produces.

For more information on EH&S, contact 3E Co. Inc., 1905 Aston Avenue, Carlsbad, CA 92008; phone (760) 602-8700 or (800) 360-3220; fax (760) 602-8852; e-mail info@3ECompany.com, or visit www.3Ecompany.com.

THE CONN BLADE®

Patented blending/dispersing blade design makes radical improvement over old saw tooth designs



- * Most efficient and aggressive blending/dispersing blade available.
- * Provides proper combination of pumping action and shear/dispersion essential for fast consistent results.
- * Built in pumping action cuts processing time.
- * Longer life due to heavier gauge construction.
- * Less heat due to shorter required running time.
- * Excellent for high or low speed and high or low viscosity.
- * Supplied with hubs or mounting holes required to retrofit and upgrade present equipment.
- * Pumping blades without teeth are available and are excellent for gentle blending and agitation.

DESIGNERS AND MANUFACTURERS OF INDUSTRIAL MIXING EQUIPMENT

Since 1948

CONN AND Co., L.L.C.

www.connblade.com

Stirrers Or Complete Units For:
PAINTS URETHANE FOAMS
ADHESIVES SLURRIES
INKS GROUTS
CEMENTS ETC. . . .

11 SOUTH MARION STREET • WARREN, PENNA. 16365 • PHONE 814/723-7980
FAX (814) 723-8502

VISA MasterCard AMERICAN EXPRESS