Session No. 721

Web-Based Technology; Your Competitive Advantage for Global MSDS Management

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Introduction

According to OSHA, over 30 million persons have the potential to be exposed to hazardous chemicals at one of over seven million establishments throughout the United States.1, 2 OSHA estimates that there are 945,000 hazardous chemicals listed for the US.3 In 1983, OSHA promulgated 29CFR 1910.1200, Hazard Communication Standard, which required employers to provide training to employees working with chemical substances. In addition, manufacturers must supply Material Safety Data Sheets (MSDS) and labels for chemical substances. Due to economic globalization, business' operating plans and workforces are being impacted by regulatory changes occurring internationally, causing growing concern for human health and environmental protection. This concern has resulted in global changes for hazard communication, including changes in chemical classification, labeling and MSDSs. Three current regulatory changes that are impacting how business is conducted within the United States are: 1) National performance based regulation, Chemical Facility Anti-Terrorism Standards (CFATS), 2) European Union (EU) legislation, Registration, Evaluation, Authorisation and Restriction of Chemical Substances (REACH) and 3) United Nations (UN) promoted, Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Technological advances can have a significant positive impact on how businesses prepare for and meet the regulatory requirements. Specifically, web-based services for global MSDS management and integrated environmental reporting can be a more cost-effective way to meet the requirements. It is therefore imperative the end-user understands the different types of systems available and subscribes to the solution that best fits his or her needs. Understanding the difference between the various options for management and reporting can dramatically impact the efficiency and compliance success for MSDS management and environmental reporting.

According to Ray Mataloni's report for the Bureau of Economic Analysis in November of 2007, the United State's multi-national companies increased foreign affiliates by 836 companies in 2005.4 In addition, all US multi-national companies and affiliates accounted for 54% of the total US exports and 36% of total US imports.5 These statistics clearly indicate the growing trend of a global economy for US businesses. The United States Chamber of Commerce Statistics and Research Center states the top ten US trade partners as of May 2005 are Canada, Mexico, China, Japan, Germany, United Kingdom, South Korea, Taiwan, France and Venezuela.6 A majority of these countries are currently in the process of standardizing chemical substance information and requirements. US businesses must therefore be proactive to ensure regulation compliance for exports and provide effective training for their employees regarding safety information provided with imported substances. Understanding the implications of the regulations and available technological management methods can greatly assist businesses in preparation for impending changes.

Regulation Overview

There are one national and two international regulations that currently impact or will impact businesses in the US. The national regulation impacting US business was implemented by the Department of Homeland Security (DHS) with their publication of CFATS which requires the reporting of certain chemicals to determine risk for terrorist activity. DHS implemented CFATS to reduce potential for terrorist activity by the threat of release of a hazardous chemical, theft for use of chemicals in weapons, or sabotage to systems in the US. Businesses must understand if their facility has a chemical of interest (COI) that meets the standard threshold quantity (STQ) and submit a Top Screen as appropriate.

The US is also impacted by two international regulations: REACH and GHS. REACH, EU regulation EC 1907/2006, went into effect on June 1, 2007 in an effort to improve human health and environmental safety by identifying hazardous chemicals manufactured or imported in the EU.[7] REACH requires the registration of chemical substances and the substitution of highly hazardous substances. In some cases, chemicals may be restricted in their use or banned altogether from being in the EU. Additionally, manufacturers and importers are required to register chemicals produced or imported over various quantities.

GHS is a movement by the UN to internationally standardize chemical classification and labeling in order to improve comprehension & trade and reduce cost of multiple testing and labels. The GHS will have the greatest impact to all businesses.

Chemical Facility Anti-Terrorism Standards

Chemical Facility Anti-Terrorism Standards Homeland Security Appropriations Act of 2007 was signed by the President in October 2006, thus allowing the Department of Homeland Security to regulate chemical installations.[8] On April 9, 2007, the interim Final Rule was published.[9] Part of that regulation included a list of COIs. The list, also referred to as Appendix A, was published on November 20, 2007 to the *Federal Register*.[10] Appendix A is a sixteen page document listing all chemicals of concern. Each COI has a minimum concentration and respective STQ for each of the security concerns: intentional release, theft or diversion for weapons, and sabotage or contamination (mixing a chemical with an existing material to result in a hazard). CFATS requires any facility with a COI at or above the STQ to file an online questionnaire referred to as

a Top Screen. DHS will evaluate the Top Screen submittal and determine if the facility presents a high risk for terrorist activity placing it into one of four tiers. The tiers are rated from low risk (Level 4) to high risk (Level 1).

DHS will require facilities placed into Tiers 1-3 to electronically file a Security Vulnerability Assessment (SVA). The results of this will then allow DHS to further granulate each facility's level of threat which will affect the type of Site Security Plan (SSP) that is needed at the facility. Based on DHS's assessment, the facility will need to file their electronic SSP, which will detail how the facility will secure the risk. CFATS is a risk-based performance standard (RBPS), therefore, the methods used to secure the risk will be site specific and will vary based on facility location, threats, and chemicals present.

The expected impact on US business due to CFATS is far-reaching. CFATS focuses on all types of industries that handle a COI in any way which means not just chemical facilities are impacted by this regulation. Any institution that manufactures, uses, stores or distributes COIs is expected to file a Top Screen. This includes agricultural businesses and secondary education facilities. "Whether a facility produces a chemical that can be used in a terrorist attack, or uses it in its manufacturing process, or stores it, is of no consequence to the terrorist who might see to employ that chemical to harm others."[11]

Some facilities may be exempt from CFATS if they fall under other regulatory acts that currently have security measures in place such as the Maritime Transportation Safety Act, the Safe Drinking Water Act, or the Federal Water Pollution Control Act. However, if any portion of the plant does not fall under the regulation, then a Top Screen must be filed for the area that is not regulated under the Acts previously listed. Facilities under the Nuclear Regulatory Commission or owned by the Department of Defense or the Department of Energy are also exempt.[12] Finally, railroads and pipelines are also addressed by CFATS. Rail yards that store COIs in cars are not required to submit a Top Screen because they are considered transport. In the same instance, long haul pipelines are not required to file either. However, if storage tanks or pipelines are on a facility's property, they must be filed on the Top Screen.[13]

What are the reporting requirements for COIs? Any COI that meets STQ must be reported within 60 days of the COI coming on-site.[14] Tier 1 and Tier 2 facilities will have to re-submit a Top Screen every two years and Tier 3 and Tier 4 facilities must re-submit the Top Screen every three years.[15] Therefore, keeping an accurate and updated chemical inventory is important as well as ensuring there is a verification process at facilities for new materials brought onto the site.

When evaluating your ability to file a Top Screen with 100% due diligence, there are several questions that you can ask in order to assess your preparedness. For instance, do you have a system that can efficiently cross reference your chemicals to Appendix A? How can you effectively manage chemicals brought into your site to determine if they are a COI? How quickly can you identify changed STQs of current COIs to determine if you need to file a Top-Screen? Is there a way to disseminate the responsibility for tracking quantities without losing control of your chemical inventory system?

Registration, Evaluation, Authorisation and Restriction of Chemicals

REACH was proposed in 2003 in order to identify hazards of substances and protect human health and the environment. The EU is comprised of 27 countries: Austria, Belgium, Bulgaria,

Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Netherlands, and the United Kingdom. Iceland, Lietchestein and Norway are also associated with the EU as partners in the European Economic Area (EEA).[16] REACH applies to all phases of the life-cycle of a substance including manufacturing, importing, marketing, general use and waste stream.[17] The standard is comprised of four steps: Registration of chemicals, Evaluation of the hazards, Authorization for use or restriction.

REACH resulted in the creation of the European Chemical Agency (ECHA), located in Helsinki, Finland.[18] This agency was created in order to ensure standardization of chemical information reporting and associated requirements throughout the EU. ECHA will manage the database developed to maintain all registrations and chemical reporting data. As part of standardization of chemical data, REACH requires classification and labeling of materials and also requires that users are provided with Safety Data Sheets. As of, June 27, 2007, the EU adopted a proposal to accept the classification, labeling, and packaging of chemicals per GHS.[19] REACH requires substance reclassification to be completed by December 1, 2010 and June 1, 2015 for mixtures.[20]

The first step of the REACH process is Registration. The following is an overview of this step. For more detailed information refer to the website http://reach.jrc.it/registration_en.htm. All manufacturers and importers who pre-register their substances between June and December 2008 will be allowed to continue to manufacture or import the substances and follow a staggered timeline for providing the documentation needed for the Authorization step. The phase approach for documentation will occur over an eleven year period as follows:

1. By 12/1/2010- substances manufactured or imported:
    a. greater than or equal 1000 tons/year.
    b. carcinogenic, mutagenic or reproductive toxic substances greater than or equal 1 ton/year.
    c. substances classified as dangerous for the aquatic environment greater than or equal 100 tons/year.
2. By 6/1/2013- substances manufactured or imported at 100 – 1000 tons/year.
3. By 6/1/2018- substances manufactured or imported at 1 – 100 tons/year.

Currently, REACH does not impact all chemicals. Some chemicals are exempt, and special rules apply for substances used in research and development, polymers, isolated intermediates and substances regulated by other agencies.

The second step is Evaluation**.** ECHA will evaluate registration information to ensure the appropriate information is available and will approve testing procedures to "…prevent unnecessary animal testing…" or redundant testing.[21] As per the website http://reach.jrc.it/evaluation_en.htm, Evaluation will result in one of the following:

1. "Action needs to be taken under the restriction or authorization procedures.
2. Classification and labeling needs harmonising under REACH.
3. Information needs to be given to other authorities to take appropriate action under other legislation."

The third step is Authorization to allow the substance to continue to be imported or manufactured. This step identifies substances of high concern and prevents their use or sale unless the

Authorization has been granted by ECHA. Authorization is a four step process. The following is an overview of the process. The website http://reach.jrc.it/evaluation_en.htm provides additional information.

The first step in the process is to identify substances of very high concern (SVHC). Substances considered to by SVHC are:

1. Carcinogenic, mutagenic or reproductive toxins
2. Persistent bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB)substances
3. Substances that pose significant threat to the population or environment

The second step in the process is to prioritize what substances need authorization. If authorization is required for a substance, the next step is to determine if certain uses are exempt from authorization due to existing controls to reduce the risk posed by the hazards. Finally, if a substance is a SVHC and does not have controls in place, a date will be determined in which the substance can no longer be used. This date is called the "sunset date".[22]

The last steps in the Authorization process include filing a Chemical Safety Report (CSR) and then waiting for authorization. A CSR outlines the risks of the substances, controls, or substitutes for the substance. Per the website http://reach.jrc.it/chemical_safety_en.htm, the CSR will document the following:

1. Human health hazards
2. Physicochemical hazard assessment for labeling purposes
3. Environmental hazard assessments
    a. PBT and vPvB
    b. If PBT or vPvB results in a dangerous chemical, then exposure assessment must be completed
    c. Risk characterization for controlled use based on DNEL derived no effect levels and predicted no effect concentration (PNEC) with calculation exposure concentrations
4. Chemical safety assessment also includes manufacturer or importer use as well as use and waste stage of the downstream user
5. Exemptions for the CSA exist for substances that are
    a. below thresholds
    b. isolated intermediates that stay on site
    c. in R&D
    d. already regulated, such as pharmaceuticals

The final step in REACH is Restriction. This step determines if a substance shall be limited by use or completely banned from manufacture or import into the EU. By the end of 2008, substances that will be targeted for prioritization will be published on the "candidate list".[23]

The expected impact on US business involves classification and hazard data for exporters and training for importers. Potentially, a business could suffer financial loss because the EU market must limit or substitute a substance obtained from a US manufacturer because it is deemed high risk per ECHA. In assessing your ability to comply with the new REACH requirements, there are several questions you can ask to evaluate your preparedness. How can I provide MSDSs that meet

EU composition requirements? How do I provide classification for EU requirements? How do I label per EU requirements? Is there a way to determine if any of my substances are on REACH's candidate list?

Globally Harmonized System of Classification and Labeling of Chemicals

The GHS was proposed by the United Nations in an effort to internationally standardize classification and labeling of chemicals through the use of pictograms, signal words, and hazard warnings. Benefits of the GHS include: reduced time and cost involved in meeting multiple regulations for labels, improving the comprehension and understanding of health and environmental hazards, facilitation of trade by removing barriers created by various health and safety requirements, and reduction of duplicate testing.

The GHS involves the standardized classification of physical and health hazards, standardized precautionary statements and the use of pictograms. The GHS lists sixteen classifications for physical hazards and ten classifications for health hazards. Each classification contains one or more hazard categories for both physical and health hazards. Health hazards include routes of exposure. Mixtures (which include alloys) or solutions, as defined by the GHS, are composed of two or more substances that do not react and will be included in the testing process. [24] The GHS defines a Hazard Statement as, "A statement assigned to a hazard class and category that describes the nature of the hazards of a hazardous product, including, where appropriate, the degree of hazard."[25] The GHS has standardized these hazard statements and assigned each statement to relevant hazard categories. The GHS label must include standardized pictograms, signal words, and hazard statements. These elements cannot be changed. For more information on the pictograms required for labels and Safety Data Sheets (SDS- GHS's version of the MSDS), see the website www.ghsinformation.com. Some examples of hazard statements are: "Highly flammable liquid and vapor", "Toxic in contact with skin", and "Harmful to aquatic life".

Standardized precautionary statements will assist in ensuring that all product users will know and understand proper precautionary measures when working with the chemicals. The statements will be listed under four categories as appropriate: Prevention, Response, Storage and Disposal. Examples of each respectively are: "P234 **Keep only in original container.**"; "P370 + P378 **In case of fire: Use… for extinction**….Manufacturer/supplier or the competent authority to specify appropriate media. *If water increases risk*"; or "P403 + P235 **Store in well ventilated place. Keep cool.**"[26] In the case of disposal, a more general statement is listed "P501 **Dispose of contents/container to…**in accordance with local/regional/national/international regulations (to be specified)." [27]

The expected impact on US business deals with four issues: understanding the regulation, meeting the MSDS requirements, meeting labeling requirements, and training employees on interpreting MSDSs and labels. First, be aware of the impact the GHS will have on your organization. This includes understanding the implementation timelines in the countries in which your organization conducts business. Secondly, ensure your vendors have a system capable of meeting the GHS requirements for MSDSs, whether your organization provides or receives MSDSs for business. MSDSs need to be updated to match the sixteen section format required by the GHS and must include the standardized hazard classification, precautionary statements and pictograms. Thirdly, workplace labels will need to be GHS compliant. Do you have a system that is capable of providing the GHS format? Finally, training must be conducted to educate

employees on understanding the information provided, especially if your organization receives products from countries that implement the GHS prior to US implementation.

In assessing your preparedness for this regulation, there are several questions you can review. If I author product MSDSs, how can I cost effectively rewrite all of my MSDSs? Can I get a system that will efficiently provide me the required precautionary statements, pictograms and hazards classifications for my MSDSs? Can I get a system that will provide the new sixteen section MSDS form for me? Where can I obtain a labeling system that will print GHS compliant labels? Can I obtain a labeling system that will pull data from the MSDS so I don't have to enter all the required data into a labeling system? What resources are available to provide GHS training for my employees? Is there a resource to help me transition between my existing authoring, labeling, and raw material safety data sheet systems until such time as the majority of chemicals/products have been classified following GHS requirements?

Understanding Computer Technology Options and the Benefit for EH&S Management

Computer technology has been a key factor in reducing the time and effort required for routine business tasks. For example, Microsoft Excel spreadsheets make mundane calculations quick and easy. Word processing templates expedite document formatting and PowerPoint programming has allowed for quick updates of presentations and the elimination of transparencies. Today, more facilities are utilizing robotics for assembly line work to reduce costs of employees' wages and benefits. However, as with all aspects of technological development, advancement occurs in stages. Traditionally, most businesses ran programs as client-server applications. The database and business logic was loaded onto the business' server while the interface and client logic for the application was deployed to users' desk top machines. The application and subsequent updates were purchased, and internal Information Technology (IT) personnel had to maintain and troubleshoot the software issues, deploy application updates to every user's desktop machine, ensure database integrity and perform data backups. All of this was done at the expense of the software customer.

In recent years, computer technology has improved to allow computer applications to be purchased from a vendor and accessed from an Internet browser. Because the actual application resides on a server that is managed by the vendor, the need for internal IT resources is minimal. Two common types of systems that fall under this category are Application Service Provider (ASP) and Software-as-a-Service (SaaS). Both can improve business' efficiency at reduced costs.

ASP and SaaS applications are delivered via the Internet. However, many systems currently sold under the ASP name are actually applications that were originally built for client-server distribution and later revamped to include a HTML front end that allows them to be distributed via the Internet. This means that many ASP systems still require that some software be installed on local machines, and therefore require internal IT support for maintenance and updates. ASP does offer the added benefit of the reduction of direct costs involved in purchasing hardware, such as high-powered servers.

A SaaS application is the second generation of ASP and is built specifically for Internet distribution. All hardware and application related software is therefore housed and maintained by the vendor. Updates are applied by the vendor without a need for any real interaction from the client and are usually included in the licensing fees. Additionally, the need for special client-side software is likely eliminated, as most SaaS applications run with standard software, such as an Internet browser. Due to the nature of SaaS applications, applications can be customized to meet the client's needs more readily than a true ASP application.

The use of web-based applications allows for outsourcing of specialized business functions to technological experts without causing an internal resource drain, giving the end-user more time to focus on their core competencies. Included in that philosophy is the expectation that the provider employs IT experts that focus on single-application development and associated upgrades and maintenance, resulting in a more sophisticated application than most in-house IT personnel could develop.

Because the purchase of web-based technology transfers much of the work to the vendor, it is important that the vendor is diligently interviewed to ensure they truly are experts and have a good grasp of the industry and the client's needs. Spending time on the front-end can save future headaches. Some of the factors that should be considered when purchasing web-based systems include:

1. Data security
2. Data accessibility by internal and external parties
3. Data ownership
4. Back-up processes in the case of server failure and catastrophic event
5. Included training and technical support
6. Application accessibility and ease-of-use

Currently, the standardization of information technology verbiage is a bit lacking. For instance, ASP can mean Application Service Provider or Active Server Pages. Due to this lack of standardization, it is critical the end-user understand how the system works and that the terminology used by the provider is clearly defined. A behind-the-scenes understanding of the application is critical to ensure you are provided the services you expect and need. Finally, a clear understanding of basic system functionality will ensure that funding allocated will directly result in having your chosen technology vendor provide you with the capabilities required to meet your business needs.

Web-based – the Flexible Solution

Technological Solutions Meeting EH&S Needs

The compliance needs of an EH&S department are many and varied, from training, to inventory management, to regulatory reporting. As web-based software becomes more prevalent, complete technological answers tailored to specific needs are available. The following considers the categories of Chemical Inventory Management, Regulatory Management, Multi-Language/Multi-Country Management, and Product MSDS Management.

Chemical Inventory Management

Chemical Inventory is an essential step in the overall goal of corporate compliance. It involves multiple areas, from physical inventory, to MSDS management, to internal approval of purchased chemicals.

Physical Inventory might be the key to compliance as a true understanding of what is on-site and is necessary to accurately and compliantly track your data. Recent advances in web-based technology can greatly assist in this process. The actual physical inventory can be conducted using hand-held computers that allow for bar-code scanning and the actual input of chemical and quantity information for those chemicals, even when the chemical label is missing or illegible. The right system will also allow for tracking of chemical location within the facility and quantity information. The location information should be customizable to the specific facility requirements. The software on the actual hand-held can be built to interface with the web-based system for consistency and integration. After the information is entered at the site of the actual chemical, it can be integrated or "synced" with the web-based management system. The integration is automated, requiring fewer personnel to complete the task, which in turn results in a much more efficient inventory. Additionally, this elimination of duplicate data entry and touch points helps reduce the possibility of user error. Wireless technology is also improving and will soon allow for instant access from hand-held computers/scanners to Web-based server applications from anywhere in the facility, making integration and inventories even more efficient.

After an accurate accounting of the on-site inventory is complete, obtaining recent MSDSs for each chemical and accurately tracking the associated data is very often the next challenge to be overcome. MSDS management has been assisted by technology for quite some time, from excel spreadsheets that record on-site inventory and help organize notebooks, to fax-back services, and to internal client-server applications. Each option offers some benefit, but most are lacking.

1. Hard copy management of MSDSs in binders makes maintaining the data on paper MSDSs difficult and generally requires some additional technological solution. Hours are often spent creating advanced databases of detailed property information in MS Excel in an effort to track data for later reporting.
2. A fax-back service introduces issues related to telephone line access and limited availability, and often can result in failure to meet OSHA compliance.
3. An internal computer application calls for the most resources, requiring IT and EH&S resources to create, maintain, and update the system. Because the regulatory community is currently in a state of flux, keeping an internal application compliant with regulations is more of a challenge than ever before.
4. Vendor supplied client-server applications introduce issues with maintenance and often require extensive software and hardware purchases, adding to cost.

Web-based technology has become the most cost-effective and efficient means of managing these EH&S challenges. Finding a vendor who supplies the level of MSDS Management software that you need, whether that is related to basic HAZCOM compliance or more detailed Global regulatory compliance, is imperative. Most true SaaS applications can be tailored to your specific needs, resulting in significant cost-savings. Not only will the associated hardware/software and related personnel overhead be avoided, but the extended ability to purchase only the level of service needed helps you avoid over-purchasing unnecessary modules and services. Because SaaS

systems are very often adaptable, they can also be integrated with other processes, such as the physical inventory module mentioned above.

Software that allows for multiple user levels will also assist with compliance. Based on user need, information can be presented in a clear and concise manner, from workplace labels, to MSDS summary information, therefore helping employees quickly access and understand hazardous chemical data. When information is presented consistently at the appropriate user level, compliance training becomes much more efficient and effective, which will become more important as training to incorporate GHS begins.

One of the greatest benefits of web-based software is the global accessibility it affords. When dealing with banned chemicals and the approval of chemicals prior to purchase, this benefit is invaluable. Corporate EH&S personnel can approve chemicals from anywhere in the world prior to purchase. Additionally, web-based systems can easily link world-wide facilities, providing a birds-eye view of corporate vendors, and allowing for vendor consolidation. The end result is lowered costs and heightened compliance.

Regulatory Management

Regulatory Management is a complex and detailed portion of the EH&S role. Regulatory compliance in North America alone includes many levels of reporting and material tracking, from Title V/Air Permitting to SARA Reporting for Tier II and Form R-TRI, to Industrial Hygiene Sampling and Assessment to Inventory Review, and more. Depending on the size of a corporation's global footprint, the list of regulatory needs for compliance can become quite extensive. Finding a system that is scalable and adaptable to specific needs based on new and changing regulatory requirements (like DHS, REACH, and GHS) is imperative. This is where SaaS web-based technology can provide a level of flexibility that can greatly assist with the management of global and changing regulatory needs.

If a technological solution is in place for MSDS management and chemical inventory control, using the associated data for regulatory compliance is a logical next step. Based on regulatory needs, a SaaS vendor for MSDS management can provide deeper levels of service. An integrated system should allow for one-point entry and requires a robust database that allows for cross-referencing of data against regulatory lists (like DHS and REACH), data searching, and report integration. When a chemical is entered into the database and the MSDS data indexed, the use of that data should be leveraged by all areas of EH&S compliance. Physical properties should be searchable, advanced regulatory reporting mechanisms should use data to determine which chemicals are reportable and they should insert reportable information (such as location data) already tracked by the system, and regulatory lists should be cross-referenced to help determine what hazardous materials are on-site and where they are located at any moment. When the MSDS is lacking information, systems with advanced algorithms can use available data to assist in the actual classification of a product, resulting in more comprehensive hazard assessment. If the inventory system is tracking quantities and is integrated with the regulatory compliance system, easily importing that quantity data into a regulatory report will significantly cut down on time and user error caused from duplication of work.

As with MSDS Management, there are multiple technological solutions for Regulatory Management, and most would agree that the task of regulatory compliance is much too complex for manual processing. Solutions are available, from internal, in-house client-server applications

to SaaS applications. One major benefit of using a web-based system for regulatory compliance is the assurance of updates. As indicated previously, the regulatory climate is changing. Partnering with a vendor who has regulatory expertise and is able to ensure the software is updated with the latest regulatory requirements, list updates, and reports will be essential to helping you reach your compliance goals. Understanding the associated costs for such updates will also be an important part of ensuring overhead remains in a manageable range.

Multi-Language, Multi-Country Management

As corporations expand over-seas, purchasing software that is scalable and flexible enough to allow for simple addition of facilities and their associated languages and regulations will be important. Interfaces, as well as data, will need to be presented in the local language of the personnel. As corporations expand globally, the diversity of language and dialect being introduced is great. It may be difficult to find one software vendor that is able to support every possible language necessary for the present and future of a growing corporation. Therefore, finding software that is built in such a way that allows for fast translation of interfaces and related fields into the necessary languages may be a better option. Understanding the associated costs with such upgrades and the drain on internal resources for applying such changes will be important. A SaaS vendor should be able to supply such translation services efficiently and should manage all associated hardware and software updates with little or no strain on your internal resources.

Multiple versions of MSDSs will need to be tracked to ensure employees have access to necessary data in a language they understand. It is likely, in the case of a multi-national company, that finding suppliers able to provide a MSDS in every language of the corporate personnel will be difficult. The detail of data tracked by the software as well as interface translations offered will help to ensure that all personnel are able to access the MSDS related data in their local language. SaaS applications that support local languages will allow for user-based language preferences without forcing a high-level of redundancy. If a database is delivered via the Internet, software can be built so that every user views the same data, but in the language they prefer, based on specified preferences.

Finally, tracking appropriate data based on regulatory needs of a specific country within which business is conducted is also necessary. The software vendor should understand the implications of conducting business in, for instance, a EU state. The software should support the tracking of information necessary for REACH and GHS compliance. This includes hazard statements, precautionary statements, and associated pictograms. SaaS flexibility will provide user-based preferences ensuring information is tailored to a specific user's location. For instance, a person in Ohio may not need to view the same pictogram as a person in Ireland. A web-based system can be set-up in such a way that each person in a corporation can view the same chemical, but only view the data necessary for their specific scenario. Meaning, Ohio can view ANSI Symbols, while Ireland can view EU pictograms, and both can view GHS pictograms.

Product MSDS Management

Authoring compliant product MSDSs is also an extensive task, especially when products are exported internationally. With the adoption of the GHS, the assessment of data and related classification will be greatly modified. As a result, most product MSDSs will need to be updated, as will most authoring systems. The benefits of a web-based application are consistent with the other areas of regulatory compliance. A system that is maintained and updated by a vendor with

personnel who specialize in technology saves internal resources. Updates to regulations can also be managed and applied by the vendor. Here, it is even more imperative that the vendor selected is able to understand the complex requirements involved in authoring MSDSs. Because of the nature of web-based technology, implementation is much easier and more streamlined with the elimination of software installation. Additionally, many systems come with pre-populated phrase libraries and integrated resources allowing the user to begin document creation much faster.

A web-based system can also provide instant, linkable access to external resources like the NIOSH pocket guide, quickly providing invaluable access to pertinent information. A system that supplies extensive international regulatory support, tracking, and classifications is important. SaaS applications have the flexibility to allow for the inclusion of extensive regulatory lists and cross-references on a per-document basis, based on export requirements for that product. Another export consideration would be the ability to produce a document in multiple languages.

Web-based accessibility allows many users to work on the same document, based on specified document preferences. This means that each business unit can enter its own information, allowing each unit to specialize while creating a team authoring approach. Finding a system with advanced document control, organization and version management is necessary to properly reach this goal.

Integrated web-based systems can easily distribute authored data sheets once complete, turning distribution into a one-click action. With secure web-hosting, SaaS services can make product MSDSs available to your customers directly from a corporate webpage. A deeper level of service would allow for customer profiles and preferences linked with their specific purchasing histories. A web-based system can provide customers with automatically updated MSDSs as they are revised, helping meet compliance goals for both the supplier and end-user.

Finding Your SaaS Solution

Find a vendor that is able to understand the unique needs of your corporation! In light of the impact of national and international regulations, your organization should look for a system that accurately maintains changing environmental & safety regulations and assists with cross-referencing those regulations for efficient environmental reporting. Ensure the system can be customized to support your specific requirements, that it is user-friendly, and that it is intuitive.

Customer Service availability is also important, even beyond tech support. Many SaaS vendors provide associated services, from MSDS Management, to Training, to Physical Inventory Support. Based on need, finding a vendor that is able to provide you with MSDSs that are current and updated could be important. In light of the coming GHS transition, all MSDSs will need to be updated and the associated data fields will also likely require updates. Whether related to a regulatory change (like the GHS) or a growing corporation that is adding facilities, services for indexing associated data can provide the extra resource necessary to stay compliant during such transitions.

With increasing complexity of global economics, international regulations, and multi-agency reporting requirements, it is important to find a system that provides your EH&S department with 100% due diligence for meeting the requirements and at the same time removes the increased requirements from their already full plates. In the long run, your company will save time and money and allow it’s EH&S professionals more time to focus on other core competencies, such as incident reduction, assessments, and proactive environmental and safety measures.

Endnotes

1. OSHA, March 2004, Executive Summary.
2. OSHA, October 2006, Slide 26.
3. OSHA, October 2006, Slide 2.6
4. Mataloni, 50.
5. Mataloni, 44.
6. US Chamber of Commerce, 9.
7. http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm.
8. DHS, November 20, 2007, "Regulation".
9. DHS, January 8, 2008, "Interim Final Rule: Chemical Facility Anti-Terrorism Standard (CFATS)".
10. DHS, November 20, 2007, "Regulation-Note".
11. DHS, November 2, 2007, Bullet 9.
12. DHS, November 20, 2007, "Facility Exemptions", Bullets 4 and 5.
13. DHS, November 20, 2007, "Facility Exemptions".
14. McNeil
15. McNeil
16. UNECE, "European Union (EU) and European Economic Area (EEA)".
17. Mayo
18. Europa, "What is REACH".
19. UNECE, "European Union (EU) and European Economic Area (EEA)".
20. Enterprise and Industry
21. ECHA, "Evaluation: Checking of testing proposals".
22. ECHA, Authorisation, "Step 2: Prioritisation process (by authorities)".
23. ECHA Authorisation, "Step1:Identification of substances of very high concern (by authorities)"
24. SiteHawk, "Hazard Information: Health Hazards (Mixtures)".
25. SiteHawk, "Hazard Information- Statements".
26. UNECE, GHS Amendments, 67.
27. UNECE, GHS Amendments, 67.

Bibliography

Chamber of Commerce, "United States Business Facts," http://www.uschamber.com/research/bizfacts.htm , accessed February 2008.

DHS. "Chemical Security-Interim Final Rule. Chemical Facility Anti –Terrorism Standard (CFATS)." www.dhs.gov/xprevprot/laws/#4. January 11, 2008.

DHS, "Fact Sheet: Chemical Facility Anti-Terrorism Standards: Appendix A." www.dhs.gov/xnews/releases/pr_1193971307036.shtm . November 2, 2007

DHS, "Identifying Facilities Covered by the Chemical Security Regulation." www.dhs.gov/xprevprot/programs/gc_1181765846511.shtm . November 20, 2007.

ECHA "Authorisation" http://reach..jrc.it/authorisation_en.htm accessed February 2008

ECHA "Evaluation." http://reach.jrc.it/evaluation_en.htm. accessed February 2008.

Enterprise and Industry, "GHS-European Commission Adopted Proposal," http://ec.europa.eu/enterprise/reach/ghs_en.htm June 16, 2007

Europa, "REACH". http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm., February 22. 2008

Jacobson, Simon and Masson, Colin. "Technology Options to Support EH&S Compliance". AMR Research, Inc. 12 Feb. 2007.

Matoloni, R. "Operation of U.S. Multinational Companies in 2005." http://www.bea.gov/scb/pdf/2007/11%20November/1107_mnc.pdf, accessed January 2008

Mayo, R. "REACH & EU + GHS & UN =?". www.SiteHawk.com. May 24, 2007.

McNeil, D. "Chemical Security Anti-terrorism Standards." ASSE Webinar. February 13, 2008.

Mizoras Konary, A "IDC Analyze the Future-Competitive Analysis- Worldwide Software as a Service 2003 Vendor Shares: SaaS and Enterprise ASP Competitive Analysis 10/2004, Volume 1

OSHA. "Hazard Communication in the 21st Workplace." GHS Workshop, March 2004. http://www.osha.gov/dsg/finalmsdsreport.html

OSHA. "OSHA Implementation of the Globally Harmonized System." GHS Workshop, 10/20/2006. http://www.osha.gov/SLTC/pptpresentations/oshaghsworkshop.html.

SiteHawk, www.ghsinformation.com accessed February 2008

Stier, Kim and Roetcisoender Carma; Occupational Hazards, May 2007, 55-56
Global harmonization in (M)SDS Management, SiteHawk

UNECE, "GHS: Status of Implementation," www.unece.org/trans/danger/publi/ghs/impmentation_e.htm#Europen%20Union%20and%20European%20Economic%20Area, February 22. 2008.

UNECE, "GHS Amendments to the First Revised Edition (2005)-ST/SG/AC.10/34/Add.3-English pdf," www.unece.org/trans/danger/publi/ghs/ghs_rev01/01amend_e.html