

HazCom Compliance

A Critical Component of a Comprehensive SH&E Compliance Program

By Kami Blake

Hazard Communication Standard (HCS) compliance has evolved significantly as:

- it has become a part of a broader SH&E and supply chain compliance effort;
- the MSDS has evolved into a clearinghouse document for regulated material data that exceeds the scope of workplace safety;
- technology has progressed rapidly, providing automated solutions to collect, access, store, refresh (update), analyze, aggregate, integrate and transfer critical SH&E information;
- data management and records retention has stretched across the entire product life cycle.

Expanding global requirements, when combined with an increasing public demand for ecological and environmental performance, have created a comprehensive data demand for hazardous substances. Examples of these expanding global requirements include UN's Globally Harmonized System of Classification and Labelling of Chemicals (GHS); Europe's Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH); regulatory agency reforms including EPA's reform of the Toxic Substances Control Act (TSCA); increased enforcement from EPA, OSHA and Depart-

ment of Homeland Security (DHS); and proposed rules by Pipeline and Hazardous Materials Safety Administration (PHMSA). The need for a broad spectrum of readily accessible data is driving the development of global compliance tools supported by comprehensive, complex data repositories.

Fortunately, more than 30 years ago, HCS created a vehicle to warehouse and distribute vital product- and substance-level hazard information. Today, the MSDS is the initial data source for key product and material metadata. What once existed as a stand-alone workplace safety compliance requirement has evolved into the cornerstone of a comprehensive SH&E compliance program.

SH&E & Supply Chain Compliance Efforts

Better business decisions are based on quality data, which begins with an accurate chemical inventory. Complete inventory lists account for pure substances, mixtures, intermediates, regulated byproducts and use chemicals. Cradle to grave, supply chain tracking has led to a life cycle chemical management approach.

This methodology is becoming widely accepted as an industry best practice. It defragments the operational disciplines and requirements of research and development (R&D), manufacturing, transport, use and disposal. What

were once separate silos of expertise, technology, data and applicable regulations now can be effectively integrated into a single managed system.

Life cycle chemical management integrates three equally important pillars of information.

1) Organizational data is generally company and facility specific. It includes site inventory lists, line item quantity and usage data, and custom product information unique to an organization or location (e.g., internal item numbers, SAP material identifier, waste codes).

2) Product- and substance-level data are a combination of metadata indexed directly from MSDS and classified data (chemical, transportation and waste) that are derived from MSDS information and regulatory analysis.

3) Regulatory content consists of chemical abstracts service registration number specific lists that identify regulated substances, key data elements and parameters (e.g., exposure limits, *de minimis* quantities, reporting thresholds, carcinogenic, mutagenic, toxic to reproduction identification), reporting agency information, and full or abbreviated regulatory textual references. The breadth of global chemical regulation can be overwhelming.

The value of MSDS has broadened ambitiously beyond a document required to comply with right-to-know laws. Beyond the value of the hard copy document itself, the content value is immeasurable. Consequently, MSDS management programs have transformed into chemical inventory management and compliance systems. These integrated solutions bring together organizational information, product- and substance-level data along with regulatory content to quickly identify regulated materials and the application of regulatory requirements.

Early Effects of Technology

To effectively manage the life cycle of hazardous materials, companies have:

- developed a comprehensive program to meet the needs and objectives of all affected parties;
- accounted for multiple data sources;
- implemented data-driven, solution-oriented environmental management information systems (EMIS).

Figure 1

Complex Regulatory Landscape



The technology available to support these efforts has progressively improved. When the focus was primarily on document management, image scanning and optical character recognition (OCR) enabled full document text searches to quickly identify specific words or text strings. Although OCR offers significant research benefits for some industries (e.g., the legal profession), it is not the best data management option for HazMat compliance. Additionally, it offered no solutions to address document accessibility (e.g., MSDS difficult to obtain).

Electronic information availability swept across the globe with the advent of the Internet. Since the mid-1990s, the Internet has had a drastic impact on culture and commerce. Few industries have failed to capitalize on its benefits. In the late 1990s, free online repositories enabled access to electronic MSDS.

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Although something was better than nothing, many of the available documents were of extremely poor image quality or, in many instances, rekeyed into a standard format with no link to the manufacturer's original source document. Another challenge that surfaced quickly was the lack of access to current MSDS. Free sites lacked the resources to structure a database that offered current and archived MSDS, and to support the document obtainment effort required to acquire and process newer versions.

As chemical manufacturers streamlined document distribution by including links to required MSDS on their company websites, MSDS management solutions (e.g., on-demand, fax back) supported by internally developed proprietary repositories entered the market. To expand compliance with HCS, MSDS solution providers developed web-hosted, Internet-accessible applications that enabled the creation and maintenance of facility chemical inventory lists and the capability to cross-reference associated MSDS to each inventory line item.

Many organizations pursued internally developed systems to manage site inventories, associated MSDS and a small amount of indexed data. Although many of these systems were sufficient to meet and increase HCS compliance when launched, application limitations and resource requirements

quickly antiquated their usefulness. With the expansion of corporate stakeholders beyond safety management extending to the entire chemical life cycle up and down the supply chain, more sophisticated solutions were needed.

Technology Today

The globalization of commerce, expansion of regulatory agency requirements, increased public awareness and expectations have drastically modified the regulatory landscape. To meet new and evolving compliance challenges, organizations must have access to a broad base of integrated data that is accurate, up to date and easily adapts to change. Current issues driving regulatory data requirements and expanded solution capabilities include:

- nonlegislative TSCA reform (e.g., reduction of confidential business information, electronic inventory update reporting filings);
- GHS, OSHA's pending promulgation of the proposed rule;
- REACH/classification, labeling and packaging and preparation of complex and data-driven exposure scenarios;
- an increase in materials that are regulated and restricted for transport and disposal;
- lithium batteries: Consumer Product Safety Commission (CPSC) and Transportation Security Administration (TSA) weighing the necessity of stricter regulation;
- green initiatives and the push for zero waste.

Automated solutions and data repositories that support chemical safety and compliance both up and down the supply chain can offer various capabilities bundled with integrated data packages. Research, analysis, extensive substance and product-level data, custom search and query options, regulatory reporting, inventory maintenance, change management, regulatory alerts, chemical approval workflows and various other features can be incorporated into a solution. Some advanced systems also offer components to help facilitate economical purchasing decisions, green product analysis and mobile access to key MSDS data. Many outsource providers support compliance tools with

timely access to global SH&E expertise and consultation.

Organizations with business management software not amenable to bolted on or stand-alone applications can opt to have the data fed directly into their enterprise-level systems. Data transfer technology has improved greatly in the past decade and can offer streaming real-time data feeds.

Fast-paced technological advancements that keep up with the ever-changing world of SH&E compliance make maintaining a disorganized binder of hard copy MSDS seem antiquated. The stand-alone HCS requirement is now a critical component of an inclusive EMIS to fulfill downstream customer information requirements and leverage data for procurement, R&D, manufacture, transport, use and disposal. Integrated solutions address the regulatory mandates of OSHA, DOT, EPA, CPSC, TSA, DHS and global regulatory directives and requirements.

Reasons to consider outsourcing chemical inventory:

- Leverage experienced inventory specialists
- Cost effective using latest inventory tools
- Accurate chemical inventory by location
- MSDS/SDS collection updated

Reasons not to perform inventory on your own:

- Lack of tools reduces efficiency
- Accuracy questionable
- MSDS/SDS will still need to be acquired

Shifting Regulatory Landscape

Global directives and requirements, including REACH, continue to expand. GHS is also on the verge of having a major U.S. impact. On July 11, 2011, Deputy Assistant Secretary of Labor for OSH Jordan Barab stated in a DOL live Q&A session, "As reflected in our most recent regulatory agenda, later this year, OSHA will publish the final rule to align the current HazCom Standard with the GHS and the Electric Power final rule."

When asked if OSHA was still on track to publish the final rule aligning the HCS to GHS, Barab responded, "Yes, we have updated the timeframe to publish a final rule in September 2011." This may give the agency some extra time to review and consider if the



recently published amendments for the 4th edition UN GHS should in any way affect the final rule.

Promulgation of the final rule will have a dual effect on the supply chain. Upstream, manufacturers and distributors will be required to conform to new SDS (the *M* will be dropped) format and content requirements.

This involves new hazard determinations and terminology, as well as signal words and hazard symbols. The new format also includes significantly more data points than the MSDS information currently required by HCS. Producers, importers and distributors will have a 3-year transition period to be in full compliance. OSHA estimates

that the cost of classifying chemical hazards in accordance with GHS criteria and revising SDS and labels to meet new format and content requirements would be \$11 million a year on an annualized basis for an estimated 90,000 establishments.

The proposed rule includes a provision that requires employers to train all employees on the new label elements and the standardized SDS format within 2 years after publication of the HCS final rule. Consequently, OSHA estimates the expense to downstream users to train employees to become familiar with new warning symbols and the revised SDS format under GHS would cost \$44 million a year on an annualized basis for all

affected workplaces. In total, adoption of the new GHS rule will affect an estimated 5 million workplaces.

Looking Ahead

What lies ahead may involve a total supply chain solution that provides data and analysis tools from material origin (i.e., working conditions in the country of manufacture) to the water and energy resources consumed in production and packaging to strategic waste data designed to provide and improve a "zero waste rating" prior to use or production. The role of HCS and its mandate for MSDS has provided a vital foundation for HazMat safety and compliance well beyond the workplace.

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