

Global Harmonized System commands a Global Solution for SME

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Abstract:

The Global Harmonized System (GHS)^{1,2} has been developed by several international organizations together with countries and group representations over the nineties and it will be soon coming to the recommendation stage. This paper will briefly review the impact of a similar main change happened in 1992 in the EHS North American market and project what could be the impact of the expected GHS worldwide. The author will discuss the importance of information technology and consulting partnerships in regard to the need, almost obligation, of outsourcing parts of this process for small and medium size enterprises that do not have sufficient human and technological resources. We estimate there will be a need for an important investment from the global chemical industries in order to maximize the benefits of harmonization for the years following the recommendations. We will cover marketing, regulatory, technological issues for hazardous material management and emergency situations in a way that attendees will be able to better position their own companies or organizations.

Introduction

Based on an economical synopsis report from the American Chemistry Council (ACC), the chemical industry represented sales of 435 billion USD in 2000. According to ACC, this figure represents 10% of the global export market and the most important sector for investment in R&D, including EHS&T. The report also mentions that in the second quarter of 2000, after-tax profits reached 3 billions USD, an increase of 24% over the same period of 1999. The overall chemical industry for year 2000 is expected to come up with after-tax profits of 45 billions dollars, mainly coming from the pharmaceuticals.

"While global demand for industrial chemicals is still rising, overall demand for chemicals appears to be slowing," stated more recently T. Kevin Swift, Senior Director of Policy, Economics and Risk Analysis at ACC. "However, export demand remains strong, up 9 percent from a year ago (July 1999-July 2000, the latest month for which data is available). In the past year, exports of industrial chemicals were up 22 percent." A high of 80 billion dollars in overall export of chemicals is also a

driving force for a high demand of EHS&T worldwide products and services, and of course an assurance that the companies will be in a position to invest into compliance activities.

Knowing that two of the main partners of the US in chemical trading are Western Europe and Japan, we can foresee the importance of harmonizing the classification of chemicals and the documents describing their hazards and safe handling (Material/Safety Data Sheets and Labels). Back in 1992, the American National Standard Institute (ANSI) came up with the Z400.1³, 16-section format for the MSDS. This change induced investments of several billions of dollars from the US chemical industry, alone. Considering that this modification was strictly affecting the format of one document and mainly in North America, we can expect a much more important worldwide impact from the coming GHS.

When talking about investment supporting the new MSDS format, we must consider the need for information technology. The nineties have shown an increase in the number of EHS software development companies, proposing solutions to minimize the impact of writing and managing the growing number of documents to be distributed in different countries with different regulations.

While West European countries have several specific requirements regarding chemical classification and SDS, there exists some common basis upon which European import-export companies can count on. In North America, exporting between the US and Canada already poses an important challenge. Not only the approach of hazard description versus hazard classification is different. But the Canadian Workplace Hazardous Material Information System (WHMIS) introduces graphical elements in label preparation (slanted border, hazard symbols) that the United States Hazard Communication System (HCS) is not considering, nor the 1992 Z129.1 labeling standard, even in the recently revised version.

Several large chemical companies have decided to invest millions of dollars to develop their own IT system in order to create, manage and distribute their MSDS and labels. Since the advent of the Internet, they very often had to reinvest because they realized that posting documents on their Web site introduced an important return on investment (ROI) for the years to come. As to small and medium size companies, we have seen investments in off-the-shelf software packages often combining specialized databases and consulting as value-added products and services.

Today, many of the IT companies have disappeared. Others have consolidated their share of the market and only a few are still emerging. We think that this is partly because the market is expecting a major change. In that context, developers and EHS managers are waiting to see what will finally be recommended and enforced, before investing again.

This paper attempts to highlight what must be considered in reviewing a global solution that would be applicable to small, medium and large organizations. In this respect, please keep in mind that smaller players must, even more than the big ones, plan in advance to spread the investment over several years to minimize the impact, while keeping up with the GHS agenda.

Process of creating, managing and distributing chemicals before the GHS

Let's consider a chemical company looking to introduce a new product in several markets (North America, Europe and Asia Pacific). After all tests have successfully demonstrated the ability of the new material to fulfill the needs of the customers, research in national inventories must confirm that all ingredients are cleared in all destinations. Language must be assessed and the company's EHS experts must examine the product composition and propose the content of the needed regulatory documents. They will do so on the basis of their knowledge of the specific regulatory requirements of the country and of specialized chemical and regulatory databases. The regulatory and hazard information will be centralized in order for the spill, first aid and emergency management specialists to propose the text that will complete their sections in respect with the company's procedures and specific countries' requirements.

Most probably, an ISO/European format⁴ will be adopted in order to ensure compliance in that continent. Specific information will then be added in some sections in order to complete the overall requirements in all targeted markets. The final document will then be translated in the appropriate languages and in some cases (Europe, Canada, Japan...) hazard symbols will be assigned to the product in order to create compliant labels.

We can expect the company to have a Web Site on which the MSDS will be posted and accessible to its customers - or the entire Web community - on top of being sent to each customer with the product and its appropriate label.

If we consider each step of this process, we expect that the time taken by the experts to gather and validate the information, write or select the phrases of all required sections of both documents and assign the compliant hazard symbols represents roughly 1/3 of the overall process. Almost all of the remaining investment is confined in the IT solution and shipping costs. But this assumption is valid in the case where the regulatory systems and documents are different from country to country, as they currently are. What can we expect if we enforce the GHS? Would the impact be similar for small and medium versus large organizations? Would it be similar everywhere in the world? What would NOT be covered?

Process of creating, managing and distributing chemicals in the context of a GHS

First, let us differentiate between a small-medium size company that operates in one country (United States, Canada, Germany or Japan). Most likely the process of creating, managing and distributing its products and documents is far less complex than for a larger company exporting to different geographical areas with different jurisdictions. For the 'non-exporting' SME, the process of gathering information on the hazards and classification of the ingredients and the final product is confined to one country. In that case, considering that the proposed GHS² would be based on the hazard classification of the chemicals, mixture rules based on the application of 'concentration cut-off' instead of mathematical hazard evaluation and some hazard symbols, the impact will be different in type but rather similar in size. Considering the countries mentioned above, the company will already be supporting or using one or two but not all three elements (classification and/or cut-off and/or symbols) and so

will have to review its process for all products. Of course, language will remain an issue even with the GHS, but we assume that the company was already dealing with it before.

Considering only the (M) SDS and label, the ingredients' disclosure and classification sections, together with the introduction of symbols, we can suspect that the wordy sections describing first aid, spill, emergency procedures, etc., would still be the same after the GHS, minimizing the impact in re-writing the documents to be compliant with the new system.

When considering large 'exporting' companies, we can expect the impact to be all together more important but also more rewarding in the short-term. In fact, the process of review, classification, etc., will simply have to be done once. As their products would be classified the same way everywhere, wordy sections will essentially remain the same. For them, the GHS sounds very promising. But one must consider the will for larger organizations to adopt new IT systems (reviewing their own system or transitioning to another one coming from specialized developers) and ensuring the necessary transition from actual to the new documents.

On the management side of the puzzle, a globally harmonized system will obviously have a positive impact on emergency procedures. Considering an international disaster involving different countries having to deal with chemicals, the potential danger of misleading or incompatible information driven by multi-jurisdiction documents would be minimized if not completely avoided. The proposed symbols within the GHS ^{2,5} would also contribute to ease the identification of chemical hazards in the case of emergency situations where, very often, we cannot easily recover documents and even access master information libraries describing the content of tanks, containers, sheds, etc... We therefore encourage the group to finalize the work on symbols to come with an adequate representation of the main hazards (based on transport symbols and other proposals of experts).

Evaluating the main components of a global solution

Getting back to basics, one will need the SAME ingredients-based information and several countries specific regulatory requirements (National Inventories...). Then starts the review of this basic information together with the one on the final product in accordance with the classification and mixture rules of the GHS.

In this review process some companies may adopt two different approaches. The first one would consist in comparing the 'current' country-specific classifications and bridging the gaps in between. Another approach would require a bottom to top analysis starting with the data and matching the GHS rules and criteria. It is foreseeable that smaller 'non-exporting' companies will tend to 'bridge the gaps' between the old system and the GHS and it could be the easiest (cheapest) way to go. After all, the GHS classification criteria are somehow similar to those existing in countries where a system is now enforced. On the other hand, it is advantageous to apply the bottom-to-top approach for companies already dealing with several different systems. The analysis of data and mixture' rules will be a major step in the process, moreover when a company carries multiple different lines of products, having each specific hazards, leading to a new classification. Knowing that several IT software

developers have adopted rule-based solutions, there could be an interesting momentum for them, to offer their customers to support the GHS as soon as it is officially recommended and enforced/supported by a number of countries. The level of automation and the possibility for the developers to smoothly introduce the new GHS rules and criteria and to generate the appropriate output (class-es and symbols) will be critical in their survival. One can hope (expect) that the GHS will stimulate IT developers to offer country specific 'transformers' or 'simple-to-use engines' able to convert a single classification into the GHS, highlighting to the user what must be checked more in depth before adopting the proposed results.

We estimate there will also be an interesting market for consulting firms willing to offer their services in the process of the 'conversion' to SMEs choosing to invest an money only within the time taken to make the transfer and not for the years to come.

Getting prepared for the GHS

We can expect that some companies and emergency management organizations will take advantage of the released information on the coming GHS to start building their transitional tools. As soon as final information is released by the international bodies involved in the making of the GHS, one can get prepared, using the main issues and proposed rules, keeping detailed adjustments for the official endorsement. In doing so, SMEs and emergency management organizations as well, will be able to spread the investment over several years (1-2 or 3 maximum, starting in 2001) minimizing the cost impact and ensuring they will ready when the new system will take place.

The importance of changes commanded by the GHS and their applicability in ALL countries will require three years for all types of organizations to prepare for the transition, large or small, corporations or not-for-profit emergency management organizations. However, it would be important to start investing now in this transition.

We would recommend chemical SMEs to look for alternatives in getting prepared for the GHS. Some could make a decision to entirely outsource this transitional process, asking consulting firms for GHS compliant MSDS and labels to be available in the language(s) they need. The documents shall be provided in electronic format so they can post them on their Web Site or email them to customers. Acrobat (PDF) format could be considered because it keeps all colors, graphics, etc., in compressed files. This support is already being extensively used and easy to download or e-mail. Acrobat Writer is accessible and affordable, allowing any company and organization to perform the daily-weekly document modifications (Lot number, catalog number...).

Others may choose to outsource only the classification of their chemicals. Given their products re-classified under the GHS and the correspondent symbols allocated for the label, they could require, or expect, their off-the-shelf software to cover the GHS, allowing them to input the new classification and symbols, keeping essentially the rest of the 'wordy' or 'national inventories' information untouched. Finally, we feel that only a few SMEs will undertake the whole process themselves and redo-rewrite all documents on the basis of the new system.

We are aware that the large chemical companies are now working some of the main technological issues of the new millennium (B2B, Internet procurements, etc...) through consortiums. They individually invest millions of dollars in building the 'marketplace' solutions or 'networks', focussing essentially on the commercial and financial side of the trade. We recently proposed ⁶ to consider compliance and the GHS within these plans as soon as possible, to avoid redoing that critical piece of the puzzle. We wish to emphasize again in repeating the same warning to all individuals and organizations driven more strictly by the financial-administrative departments, to discuss the issue with their regulatory departments, as well. At least something should be built, maybe in parallel but sure in conjunction, with the financial part of it.

In conclusion, we hope that the international consulting community will unify itself under some type of consortium, as well, in order to be able to serve the enormous demand that is expected by SMEs and emergency management organizations in order for them not to miss the 'rendezvous' of the GHS. The Internet serves this unification very nicely. SMEs can reach a local expert from anywhere in the world for FREE, asking for solutions, questions, etc...and investing only when a real workable solution is proposed. We favor consortiums in which there are both services and strong technological background so SMEs can maximize their return on investment in getting the knowledge and the IT they need from or through the same network. But for that to work in the context of the coming system, the first question shall be: 'What would you suggest to do to ease our transition to the coming GHS?' The way the contact will answer this question will indicate if you are in good hands, or not, to face the coming challenge. Let's remember that, as for chemical reactions, in order to create-synthesize a new chemical, you often have to supply much more energy than you normally found within the products themselves, but when completed, the reaction may release so much energy that the net result is very highly positive. We expect an important amount of money to be invested between now and the end of the transitional period of the GHS. On the other hand, we firmly believe that once adopted and enforced, the GHS will generate very important cost savings and ROI allowing investment recovery within 3 years, at the most. This is why we strongly encourage SMEs and emergency management organizations to start moving along the path of the GHS to spread their investment over 2-3 years so to remain competitive at all time in this struggling worldwide chemical market.

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Dr. Luc Séguin, Ph.D. (Chemist) is the President and CEO of Kemika XXI, an Internet based consulting firm on chemicals, health, safety and the environment. Before founding Kemika XXI, Dr. Séguin spent 10 years as President and Chief Scientist at Atrion International (now Clear-Cross), a logistic and MSDS authoring software company. He contributed to documents that were submitted to the Coordinating Committee of the Global Harmonisation System. Dr. Séguin wrote several papers about international health, safety and transport regulations. He gave numerous lectures and seminars related to national and international chemical regulations. At Kemika XXI, Dr. Séguin chairs the Board of Directors and the Editorial committee. He is also President of the Québec Professional Corporation of Chemists (2,500 members).

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