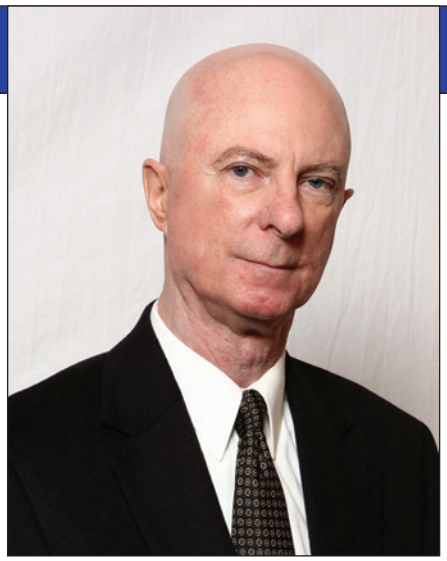

Hazardous chemicals:

Implementation of new global labelling system not without its challenges

By Colin Laughlan
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>>> While the Canada-U.S. alignment promises to deliver significant benefits...the much needed world-wide harmonization is facing major challenges...

As the world strives to implement the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals, many issues that could impact its effectiveness on hazardous cargo management remain outstanding. The GHS, as it is known, is a plan launched by the UN in 2003 to improve how information on hazardous chemicals is classified and communicated through internationally standardized labels and safety data sheets. Here in Canada, aligned implementation with the United States is scheduled to take effect by June 1, 2015 under a joint action plan of the Regulatory Cooperation Council (RCC) announced in 2011. While the Canada-U.S. alignment promises to deliver significant benefits to industry in both countries, the much needed worldwide harmonization is facing major challenges — and one Canadian scientist is leading the charge to fix some big problems at the global level.

"We're supposed to have harmonization and we don't have it," Dr. Jacques Cerf told BC Shipping News. Cerf is one of world's leading experts on the GHS. A pioneer in its development at the UN in the 1990s, the Canadian scientist is now a GHS/WHMIS (Workplace Hazardous Materials Information System) consultant to the Chemistry Industry Association of Canada (CIAC). He is also CIAC's representative on the Current Issues Committee for the GHS implementation managed here by Health Canada.

In a mid-December 2014 missive to his colleagues involved in the bilateral implementation, Cerf exhorted them to "demonstrate leadership in promoting harmonized implementation of the GHS globally." That would include, he added, "facilitating global implementation of the GHS through guidance documents and recommendations as well as monitoring implementation in the various countries to ensure that harmonization does take place." Cerf would have his peers work through the UN's Sub-Committee of Experts on the GHS and other international fora. "There are already major differences between countries in the way the GHS is being implemented," he advised. "If we want a truly globally harmonized system, we probably need to have in place a process similar to that developed by the RCC but at the global level,"

Background

In 2009, the Organization of Economic Cooperation and Development (OECD) conducted a review of GHS classifications that showed a large number of discrepancies across countries or regions. The review was carried out on a sample of pesticides and industrial chemicals banned for health or environmental reasons under the UN's Rotterdam Convention. The study concluded that the main reason for the diverging classifications was differences in the datasets. However, other noted reasons included different interpretations of the data, differing applications of classification criteria, as well as questions concerning the judgment of the classifier.

"The trouble is you have different people making different interpretations and in general you have fairly strict criteria," said Cerf. "For example, for carcinogens you can also use your judgment if a chemical or substance is a carcinogen or not — a toxicologist who has a strong personality may decide it's the way to see things, so you end up with inconsistent classifications for some products.

"What is more of a problem is the inconsistent implementation of the GHS worldwide," said Cerf. "In certain countries, because they don't want to reduce the level of protection of the users, they keep in their updated legislation some elements of the old one, and you end up with inconsistent regulations worldwide. For example, between China and Canada or the U.S., between Europe and the U.S., there are differences in the end result — which is the safety data sheet and the label," said Cerf. On the global scene, he pointed to other political alignments that have already formed.

"We've ended up with three blocs really, with differences within blocs themselves: the Asian Bloc; the American Bloc which includes South America, Central America, and North America; and the European Bloc which includes, probably, Africa — that is, African countries implementing the GHS will probably take the European model," Cerf said.

Canada's aligned implementation, as announced by the federal government in 2011, "delivers on an important Canada-United States Regulatory Cooperation Council commitment." The alignment was heralded as a means of reducing trade barriers while enhancing the competiveness of suppliers in workplace chemicals, with a net benefit to Canadians of more than $400 million in increased productivity, and decreased health and safety costs over a 20-year period. Additional "non-quantifiable" benefits from the reduction in trade barriers were also cited.

A look at some of the GHS discrepancies around the globe suggests the Canadian chemist and his colleagues will be facing some major challenges, not only in chemistry but in personalities and politics as well.

Cultural differences affect GHS

If varying scientific interpretations of the GHS were not enough to contend with, cultural differences and language in some countries also pose challenges to a successful global scheme. A 2008 academic paper in Japan, the first country to adopt the GHS, observed that a recognition test of GHS pictographic labels revealed some respondents had difficulty in understanding the meanings of the GHS pictograms, possibly because the earlier Japanese system did not require pictographic labels.

In a subsequent paper from the region, it was further noted that language came into play. Countries that use English as their national language had no need to translate the GHS document, but in Malaysia it was thought important to translate technical terms and terminology into the Bahasa Malaysia language, as well as adapting training manuals used in Japan. Indeed, it was recommended that general awareness GHS training courses in both countries be developed for industry workers and government technical officers, and that GHS elements such as pictograms be incorporated into the curricula of primary and secondary schools, and universities.

Environmental hazards omitted

One of the outcomes of the Canada-U.S. alignment is that the Environment Hazard Class has been omitted from the GHS implementation. Health Canada's explanation: "The Workplace Hazardous Materials Information System is limited to chemical hazards for Canadian workplaces. As environmental hazards are not considered workplace hazards, the adoption of the GHS environmental hazards classes is not being proposed in Canada."

It`s not a decision that sits well with British Columbia marine life authority Dr. Peter Ross, Director of the Ocean Pollution Research Program at the Vancouver Aquarium. Shortly after a pregnant Orca was found dead off the BC coast in December 2014, Ross told BCSN, "A lot of what we see in marine mammals or Killer Whales tends to be chemicals that end up in the environment because of general dissemination."

Some of the new GHS pictograms (top row) compared with the old WHMIS symbols (bottom row). For some symbols — like the new GHS symbol for "Explosives" — the meaning partially overlaps with the old WHMIS symbol referring to "Dangerously Reactive Materials". Additional changes can be found in the labelling format and Safety Data Sheet (SDS) information.

As one example of a workplace chemical that is hazardous to the aquatic environment, Ross pointed to the common blue fire-retardant insulation containing Hexabromocyclododecane (HBCDD) used as cladding on many buildings under construction. "Most of our supplies come from the U.S. It's an aquatic hazard, it's endocrine disrupting, it's persistent," he said. "Disposal is an issue since landfill leachate and sewage effluent can carry the chemicals to marine life. Killer Whales have large habitat needs, live very high in the food chain, so this makes them very vulnerable to toxins in the food chain."

Cerf concurs with Ross that Environmental Hazards should be included in Canada's GHS and will be striving to complete the implementation. "It may as well be there as required by the GHS — and there with criteria — so it's consistent one country to another," Cerf said. "Actually we [CIAC] have officially requested that they try to do it because the U.S. and Canada are working at the level of the RCC — that would be a good project for them, to look at the environmental criteria and try to come up with a solution to get that into the picture as well."

A harmonized system is needed

Despite its challenges, the GHS is a much-needed system in Canada. "Ultimately, the system, even with its problems, is dramatically improved over what came before," Dr. George Astrakianakis, associate professor in UBC's School of Population and Public Health, told BCSN. "My focus is on occupational health," he said, explaining the problems encountered when employed at the Occupational Health and Safety Agency for Health Care in British Columbia. "We had to manage all the chemicals and hazardous products used in health care facilities in B.C. There was so much variability on the manufacturers' data sheets, it was an enormous problem because you put the administrators in the position of being toxicologists. We saw the GHS, at least from an administrator's perspective, as a god-send."

Industry costs and benefits

In Canada, the new GHS symbols, signal words, and hazard statements will replace those of the Workplace Hazardous Materials Information System (WHMIS), a familiar industry standard for the last 25 years. The federal government estimates that Canadian industry will incur one-time costs totalling $268.3 million for personnel training, GHS classification of chemicals, development of Safety Data Sheets and compliant labels, and incremental costs of $3.1-million annually for colour printing starting in 2016. Cost savings to industry are not expected until 2019 when $3.4 million in annual savings from streamlined updates would be delivered to industry.

GHS training and software

The Canadian Centre for Occupational Health and Safety provides, in French and English, GHS/WHMIS fact sheets, e-learning courses, and software for GHS labels and Safety Data Sheets: ccohs.ca/products/courses/whmis_ghs_intro/

Several private sector companies can also be found online for GHS compliance training, some with software to manage comprehensively the new international classifications under the GHS.

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