

WORLD FOCUS

Connecting
the global OSH
community

NOVEMBER 2016

A TECHNICAL PUBLICATION OF ASSE'S INTERNATIONAL PRACTICE SPECIALTY

GHS Safety Data Sheets

What Harmonization Actually Means

By A Javier Quintero Saavedra

Working in the marine terminals and longshoring industry that caters to ships engaged in international trade allows one to gain a perspective of the impact on safety data sheets (SDS) brought about by the implementation (via national regulations across the globe) of the United Nation's (UN) Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

UN member states that lack or have few regulations on chemicals and SDS will certainly benefit from GHS. However, a paradox exists because at least one of the systems that formed the basis for GHS has evolved on its own and currently requires so called extended SDS (e-SDS) that go beyond what GHS-compliant SDS intended to cover.

Allowances made by GHS in addition to the stances taken by some key players might cause international OHS professionals, particularly those from regional offices or global headquarters, to wonder how GHS SDS will fit into the chemical management plans present in their work sites across a significant number of countries.

GHS Fundamentals Explained

As GHS (or the purple book) reads in section 1.1.1.5 of Chapter 1.1, upon the international mandate adopted



©ISTOCKPHOTO.COM/CELEOP

Allowances made by GHS might cause international OHS professionals to wonder how GHS SDS will fit into chemical management plans in their work sites across a significant number of countries.

at the 1992 UN Conference on Environment and Development, work began with the examination of existing systems. The following were deemed to be major and were used as the primary basis to prepare the first edition of GHS:

- requirements of systems in the U.S. for the workplace, consumers and pesticides;
- requirements of Canada for the workplace, consumers and pesticides;
- European Union directives for classification and labelling of substances and preparations;
- UN recommendations on the transport of dangerous goods, which are also known as the UN Orange Book.

The UN Economic and Social Council's Subcommittee of Experts on the GHS (GHS Subcommittee) maintains the GHS with UN Economic Commission for Europe (UNECE) providing secretariat services via its Transport Division. First adopted in December 2002 and published in 2003 under the code ST/SG/AC.10/30, GHS is updated every 2 years and its current revised edition is the sixth, published in 2015 as ST/SG/AC.10/30/Rev.6 available in English as a [free download](#).

As stated in 1.1.2.1 in Chapter 1.1, GHS includes the following elements:

- harmonized criteria for classifying substances and mixtures according to their health, environmental and physical hazards;

- harmonized HazCom elements including requirements for labelling and SDS.

Most readers are aware that GHS-compliant SDS should be presented in a format consisting of 16 standardized headings as follows:

- 1) Identification;
- 2) Hazard(s) identification;
- 3) Composition/information on ingredients;
- 4) First-aid measures;
- 5) Firefighting measures;
- 6) Accidental release measures;
- 7) Handling and storage;
- 8) Exposure controls/personal protection;
- 9) Physical and chemical properties and safety characteristics;
- 10) Stability and reactivity;
- 11) Toxicological information;
- 12) Ecological information;
- 13) Disposal considerations;
- 14) Transport information;
- 15) Regulatory information;
- 16) Other information.

However, make no mistake. SDS from different countries may be akin to false friend words (i.e., words in two languages that look or sound similar, but differ significantly in meaning). To put in proper context, it is worth quoting 1.1.3.1.5.1 in Chapter 1.1, which reads:

Consistent with the building block approach, countries are free to determine which of the building blocks will be applied in different parts of their systems. However, where a system covers something that is in the GHS, and implements the GHS, that coverage should be consistent. For example, if a system covers the carcinogenicity of a chemical, it should follow the harmonized classification scheme and the harmonized label elements.

Shortly after, 1.1.3.1.5.4 provides guidance on the interpretation of the building-block approach and states that hazard classes are building blocks. Within a hazard class each hazard category can be seen as a building block with some restrictions to this latter principle applying to preserve consistency.

As far as SDS are concerned, 1.5.3 provides general guidance for compiling them and while Table 1.5.1



©ISTOCKPHOTO.COM/123ARTISTIMAGES

lists cut-off values/concentration limits for each health and environmental hazard class, 1.5.3.1.4 states that in accordance with the building-block approach, some competent authorities may choose not to regulate certain categories within a hazard class. This means that in such situations, no obligation to compile an SDS exists.

UNECE provides information on countries that are implementing GHS with their respective national regulations. A total of 72 countries are listed but this includes all 31 European Economic Area (EEA) states. The **Danish-based DHI group also has a web page** on GHS implementation.

Outside the European EEA and North America including Mexico, only a few countries are among those that have already implemented GHS either as mandatory or voluntary, or are implementing it. These countries include Brazil, Uruguay, Serbia, Switzerland, Turkey, New Zealand, Australia, Malaysia, The Philippines, Japan, Republic of Korea, People's Republic of China, Vietnam, Thailand, Indonesia, Singapore, South Africa (voluntary), Russian Federation (voluntary), Chile (implementation in progress) and Argentina (implementation in progress).

The global current picture is better set at more than 50 countries benefiting or about to benefit from GHS.

The European Paradox

A distinct aspect that may lead to GHS-compliant SDS being of significantly different information quality are national regulations in respect of registration, authorization and restriction of chemicals.

One of the most prominent cases is that of the **EEA**. While **Regulation (EC) No. 1272/2008 on the classi-**

fication, labelling and packaging of substances and mixtures (CLP regulation) is the one implementing the GHS into the EEA, **Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH regulation)** applies to all chemical substances including those present in clothes, furniture and electrical appliances, to name a few. Chemicals marketed in the EEA must be registered, authorized or subject to restriction.

European Chemical Agency (ECHA) receives dossiers prepared by manufacturers or importers on registering their respective substances. This is followed by the evaluation process. Substances of very high concern (i.e., those that may have serious effects on human health or the environment) undergo another step, namely the so-called authorization process that may derive into a restriction procedure, which applies to substances that may pose an unacceptable risk to human health and the environment.

In practical terms, Annex XIV to the REACH regulations lists substances that have passed the authorization process, while Annex XVII lists the substances subject to restrictions. The remaining registered substances are kept on **ECHA's database of registered substances**.

The European CLP and REACH regulations benefit from their predecessors, namely the Dangerous Substances Directive and the Dangerous Preparations Directive, which were first enacted in 1967 and 1998, respectively.

While the REACH regulation is the main legislative EEA instrument for chemicals, some of them fall under the Biocidal Products Regulation, the feed and food regulations under the control of **European Food Safety Authority**, and other particular regulations.

This is the case in the U.S., with the agencies involved being OSHA, EPA, Pipeline and Hazardous Materials Safety Administration, and Consumer Product Safety Commission; and regulations in place such as OSHA's **HazCom Standard; Toxic Substances Control Act; Federal Insecticide, Fungicide and Rodenticide Act; Federal Food, Drug and Cosmetic Act; Consumer Product Safety Act; and the Federal Hazardous Substances Act**.

Australia, Canada, Japan, New Zealand and other Organization for Economic Cooperation and Development countries also benefit from thorough, long-standing albeit periodically updated legislation controlling the marketing and use of chemicals. **European regulations** similar to the REACH regulation have started to flourish in developing countries such as Malaysia, but legislation previously in place was somewhat scarce.

Lastly is the issue of the European mandate to compile e-SDS. **ECHA offers an eGuide** that provides advice for recipients of SDS. Additionally, **a video transcript** about exposure scenarios is available.

If the following three conditions are met, e-SDS may apply:

- 1) a substance is registered under REACH;
- 2) the registrant manufactures or imports more than 10 tonnes per year of the substance;
- 3) the chemical safety assessment shows that the substance is hazardous.

Some exceptions apply but they are not addressed in this article.

Exposure scenarios in an e-SDS summarize the key information from the chemical safety assessment prepared for the registration of the chemical in question. They describe how the registrant recommends to control the exposure to workers, consumers and the environ-



ment to ensure the safe use of the substance. The recommended conditions are presented in terms of operational conditions and risk management measures.

Once an e-SDS a work site receives a registration number (in the EEA the onus is on manufacturers and importers to make available up to date SDS), the site has 12 months to match its controls with those described in the e-SDS or to arrange alternate ones that ensure REACH compliance, particularly by applying the so-called scaling approach.

ECHA's Practical Guide 13 (version May 2, 2016) explains how downstream users can handle exposure scenarios. If a particular site is not covered by exposure scenarios in the relevant e-SDS, various options exist that include informing the supplier so that the scenario may be assessed and brought into the e-SDS to preparing a downstream user chemical safety report for which

ECHA's Practical Guide 17 is available. ECHA's practical guides are available in 23 official languages.



Conclusion

Every time a ship calls at any port where a company operates carrying dangerous goods in transit, local maritime safety, port authorities should ask for SDS to augment the information available on the **International Maritime Dangerous Goods Code**. This is a prudent approach for companies to practice. While they do not handle the goods in transit, port workers are exposed to them and, generally, any SDS provides more information than the standard IMDG Code emergency schedules that are aimed for use by shipboard crews rather than shore personnel.

If a ship's or shippers' interests do not make available any SDS, an Internet search may produce some SDS, even those GHS-compliant, that are well short of what ought to be a good source of information. ■

A Javier Quintero Saavedra, MSc, CMIOSH, EurOSHM, is head of the HSE Department of Terminales Maritimos de Galicia SL (TMGA) from the ports of La Coruna and Ferrol, NW Spain. He began his career as deck cadet in the Spanish Merchant Navy, progressed to deck officer, then pursued a career in the marine cargo and P&I surveying and consultancy business. He had a major involvement as coordinator for the survey team that followed up oil recovery at sea and shoreline clean-up operations in the wake of tanker *Prestige* oil spill. He earned an MSc in Nautical Science

Future Research

The author encourages OSH professionals who have a chemistry degree to consider publishing an article that addresses the reliability and accuracy of SDS from countries or regions that enjoy a better enforcement of chemical safety.

For example, check out SDS section 8 in respect to exposure controls and personal protections. In working with SDS, have you found the guidance that directs one to wear eye or hand protection, yet does not specify which type of gear to use, including no reference to a relevant consensus standard? Or worse, finding that a particular respiratory protection equipment prescribed does not appear to match with information available in sections 2, 3 and 10 of the SDS in question?

All in all, there is plenty of room for improvement and while professional occupational hygienists are those better suited to deal with chemical hazards, many of them are actually safety hazards rather than occupational disease hazards and, therefore, warrant the attention of professional safety engineers that must hone their skills accordingly.

and Maritime Transportation from the University of La Coruna; an MSc in Occupational Safety and Health from the University San Pablo—CEU of Madrid (65 ECTS); and has professional certificates in safety, industrial hygiene and ergonomics and applied psycho sociology. Saavedra is a member of the Portuguese SPO-SHO; a member of the International Cargo Handling Coordination Association and is on its International Safety Panel. He is also a professional member of ASSE, and is on the Advisory Committee to the International Practice Specialty and is its subliaison for Portugal.



Network on
LinkedIn



Find us on
Facebook



Read
ASSE's blog

- International Information
- International Resource Guide
- Journal of SH&E Research
- Networking Opportunities
- *Professional Safety* Journal
- Publication Opportunities
- Volunteer Opportunities



Search our
knowledge base



Follow us on
Twitter

When you see this symbol,
click it to learn more



World Focus • International Practice Specialty

Officers

Administrator

Edwin Yap
edwin.yap@esis.com

Assistant Administrator

Bala Siva Srikanth Adivi,
CSP, CMIOSH
absrikanth@gmail.com

Member Portal Coordinator

Javier Saavedra, MSc,
CMIOSH, EurOSHM
ajaviersaavedra@hotmail.com

World Focus is a publication of ASSE's International Practice Specialty, 520 N. Northwest Highway, Park Ridge, IL 60068, and is distributed free of charge to members of the International Practice Specialty. The opinions expressed in articles herein are those of the author(s) and are not necessarily those of ASSE. Technical accuracy is the responsibility of the author(s). Send address changes to the mailing address above; via fax to (847) 768-3434; or via e-mail to customerservice@asse.org.



ASSE Staff

Manager, Practice Specialties

Charlyn Haguwood
chaguwood@asse.org

Communications Team

Tina Angley
Cathy Baker
Brendan Hilliard
Sue Trebswether
COPSPublications@asse.org