ChemAlert. Newsletter

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GHS Implementation Status Update

By Vince Pacecca, Chief Scientific Officer.

As mentioned in previous issues, the effort required to transition ChemAlert to the Globally Harmonised System (GHS) has been enormous. It began over 5 years ago when we first began reclassifying ChemAlert reports and labels, followed by the creation and modification of numerous Stock Reports which are affected by the GHS, such as the Placarding Report.

We are extremely well placed in relation to the 1/1/2017 deadline, however achieving 100% conversion to the GHS in relation to providing unaltered supplier SDSs will, sadly be impossible.

Before expanding on the above, it is important to provide some perspective in terms of the SDSs used by our clients. Firstly, despite several thousand sites, and hundreds of thousands of users having access to ChemAlert, you may be surprised to know that only around 110,000 chemical products, or SDSs, are actually being utilised according to ChemAlert usage statistics.

Competitor claims of databases containing millions of SDSs are amusing to say the least. Not only would the task of properly maintaining the SDSs be very difficult, our extensive experience and understanding of chemical usage indicates that only a very small portion of the SDSs would ever need to be accessed.

Whilst we will continue to maintain our entire database of SDSs, I will focus on the ~110,000 in use. Of these supplier SDSs, we have already obtained about 60,000 which meet the requirement of the GHS format. Importantly, ChemAlert enables you to identify the type of SDSs using the "SDS Format" search parameter. The type is also listed in the CSV version of many of the Stock Reports.

That leaves around 50,000 active SDSs to update. You may well ask, why are they not updated already? Despite our efforts we are, unfortunately, at the mercy of suppliers for the following reasons:

- A large number of suppliers are yet to update their SDSs and fully intend to use every last minute before the 1/1/2017 deadline. In fact about 20% of the 50,000 are dated 2015 or later.
- WA, Victoria and the ACT* are yet to adopt the WHS, and therefore suppliers based in these regions may not update to the GHS until fully obliged to do so.
- Surprisingly, despite the 5 year transition period, some suppliers are not even aware of the requirements to update to the GHS.
- It is important to note that 40% of the 50,000 are currently classified as Non-Hazardous. Whilst some may be upgraded to Hazardous based on the new criteria, there appears to be a general reluctance to upgrade.

However, rest assured that the ChemAlert team is doing everything possible to ensure that the SDSs affecting you are updated. As 2017 approaches, we will continue to leave no stone unturned in our efforts to contact suppliers requesting SDSs that meet the requirements of the GHS. Furthermore, we rely on the support of our clients who receive updated SDSs when they purchase chemicals. We also encourage all clients to use the "Upload SDS" function within ChemAlert so that our scientific team can prioritise reviewing and updating the SDS within ChemAlert.

* The ACT have adopted WHS excluding hazard chemicals (GHS)

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Get Your Free GHS Health Check!

If you're at all unsure whether you will be GHS compliant by the deadline, please don't hesitate to contact your Account Manager for a free Health Check.

We'll go through your ChemAlert stock data and advise exactly whether you are or aren't GHS compliant, and recommend measures to take before 2017 to bring you in line with the new GHS regulations.

For Cloud Hosted clients this simple process can be done over the phone. Self hosted clients will need to make an appointment for us to pay a visit.

Disclosure of Ingredients in Accordance with the WHS

By Brandon Weall, ChemAlert Scientific Advisor

Manufacturers vary greatly in both the preparation and presentation of their respective Safety Data Sheets, and as such, the information contained can also differ in representation and accuracy. Unfortunately, this variance can result in the generation of non-compliant SDSs, which will inadvertently lead to the unwanted introduction of risk in the workplace. One example of non-compliance issues which may arise relates to the mandatory disclosure of hazardous ingredients. To dispel any misconceptions and assist in the creation of further awareness, we have prepared the following to provide insight into the disclosure of ingredients on SDSs, in terms of legislative compliance.

What ingredient information must be disclosed?

According to the WHS Regulations (Schedule 8, Clause 2) and the WHS Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (Chapter 3, Section 3), the identity of a chemical ingredient must be disclosed if it has been allocated a Hazard Classification and Category (according to the GHS), except in such cases whereby the Hazard Classification allocated to the ingredient falls outside the scope of the WHS Regulations:

- Acute Toxicity – Category 5 (oral, dermal and inhalation);
- Skin Corrosion/Irritation – Category 3;
- Serious Eye Damage/Eye Irritation – Category 2B;
- Aspiration Hazard – Category 2;
- Aquatic Toxicity (all categories);
- Flammable Gas – Category 2;
- Ozone depletion.

In such cases the identity of an ingredient deemed to be hazardous must be disclosed. The manufacturer may elect to use a generic name (Schedule 8, Clause 3) to maintain the confidentiality for proprietary reasons, as long as it conforms to the following requirements:

I The identity of the ingredient(s) is commercially confidential;

II An exposure standard for the ingredient has not been established;

III The generic identity of the ingredient(s) does not cause the correct Hazard Classification of the hazardous substance to include any other Hazard Classification or Category; and

IV The ingredient has been allocated any of the following hazard classifications and categories:

a Acute Toxicity – Category 4 (oral, dermal, inhalation);

b Aspiration Hazard – Category 1;

c Serious Eye Damage/Eye Irritation – Category 2A;

d Skin Corrosion/Irritation – Category 2;

e Specific Target Organ Toxicity (Single Exposure) – Category 3.

Furthermore, according to WHS Regulations, where the identity of an ingredient(s) must be disclosed according to Clause 2 (see above), the proportion(s) of the ingredient(s) must also be disclosed. The concentration/proportion of the ingredient(s) must be represented as either an exact concentration (as per Weight or Volume), or as falling within an appropriate percentile range (ie. <10%, 10–30%, etc.) as disclosed in the Code of Practice.

In essence, the chemical identity and concentration/proportion of an ingredient which has been allocated at least one Hazard Classification and Category within the scope of the WHS Regulations must be disclosed on the SDS.

Do the ingredient(s) provided need to add up to 100%?

It is worth keeping in mind that whilst the Code of Practice specifies "where possible, the percentage composition [of ingredients] should add up to, or indicate a total of 100%", it is not a legislative requirement. Thus, a manufacturer may choose not to disclose ingredient information comprising the total product, and still remain in compliance with WHS Regulations.

Do Non-Hazardous Ingredients Need to be Listed?

According to WHS Regulations, the disclosure of both the chemical identity and proportion of non-hazardous ingredients is not a legislative requirement. The manufacturer is also not required to include any statement such as "other ingredients determined to be non-hazardous" in the absence of specific ingredient information. What this means is that theoretically, the SDS for a non-hazardous product can contain no ingredient information, and still be legislatively compliant.

We believe that it is in the best interest of safe work practices that manufacturers disclose the identity and proportion of both hazardous and non-hazardous ingredients on SDSs. Correct ingredient information is invaluable in ensuring a safe working environment for everyone.

Regulations can vary between different jurisdictions. State and Territory specific Regulations can be found online at www.austlii.edu.au. Alternatively, please do not hesitate to contact ChemAlert Support for further information.

Vince's Article of the Month.

This is an excerpt from an article written by Simon Cotton from the University of Birmingham, and was originally published by The Conversation on 16 April 2016.

The Top 5 Deadliest Poisons on the Planet

When asked to name a poison, people may well think of cyanide, arsenic, or strychnine. But these are not the most toxic substances known.

Assessing toxicity is not easy. The chemical state of a substance is important, as is how we ingest it. If we swallowed liquid mercury metal (as distinct from inhaling the vapour), it would very likely pass straight through us harmlessly. And yet when in 1996 an American professor got just a drop or two of the compound dimethyl mercury on her rubber gloves, it penetrated the gloves and her skin, sending her into a fatal coma some months later.

Nevertheless, here is a representative selection, in ascending order, of five truly deadly poisons, all at least a hundred times more toxic than cyanide, arsenic, or strychnine.

5 RICIN

This extremely toxic plant poison was famously used to kill the Bulgarian dissident Georgi Markov, exiled in London. On 7 September 1978, he was waiting for a bus near Waterloo Bridge, when he felt an impact on the back of his right thigh. He was taken to hospital with a high fever and died three days later.

An autopsy revealed a tiny platinum sphere in his thigh which had been drilled to take a small amount of ricin and may have been fired from an air gun.

Ricin is obtained from the beans of the castor oil plant, in the solid fibres remaining after the oil is extracted. It is a glycoprotein that interferes with protein synthesis in the cell, causing cell death. It has a ledal dose of 1-20 milligrams per kg if orally ingested, but far less is required to kill if inhaled or injected (in Markov's case).

4 VX

The only synthetic compound in our top five, VX is a nerve agent with the consistency of engine oil. It emerged from ICI's research into new insecticides in the early 1950s but proved too toxic to use in agriculture. VX kills by interfering with the transmission of nerve messages between cells; this requires a molecule called acetylcholine.

After acetylcholine has passed on its message, it needs to be broken down (otherwise it will keep sending the message) by an enzyme catalyst called acetylcholinesterase. VX and other nerve agents stop this enzyme from working, so muscle contractions go out of control and you die of asphyxiation.

Nerve agents were made by both sides during the Cold War, but VX became particularly well-known after featuring in Hollywood blockbuster film The Rock. Only one person is known to have been killed by VX, a former member of the Aum Shinrikyo cult. It has a lethal dose of as little as 3 micrograms per kg.

3 BATRACHOTOXIN

We've all heard of South American Indians using venom-tipped blowpipes to hunt their prey. Curare is the best known, and comes from a plant. The most toxic, however, come from the skins of tiny frogs, and the deadliest of all is Batrachotoxin.

Native Indians in Western Colombia collect the Phyllobates frogs and sweat out the poison over a fire before putting it on their darts. The lethal dose is around 2 micrograms per kg, meaning that an amount the size of two grains of table salt will kill you.

Batrachotoxin kills by interfering with sodium ion channels in the cells of muscles and nerves, jamming them open so that they do not close. The continued migration of Na+ ions results ultimately in heart failure.

Interestingly, captive-born frogs of these species are not poisonous, suggesting that the poison is derived from the beetles they eat.

2 MAITOTOXIN

There are a number of potent marine toxins, such as Saxitoxin, which are often the cause of poisoning after eating contaminated shellfish. These are often associated with harmful algal blooms in the sea.

Maitotoxin is the most lethal of these substances, reckoned to have a lethal dose about an order of magnitude less than batrachotoxin.

Formed by a dinoflagellate, a kind of marine plankton, it has a very complicated structure, which presents a massive challenge to synthetic chemists. Maitotoxin is a cardiotoxin. It exerts its effects by increasing the flow of calcium ions through the cardiac muscle membrane, causing heart failure.

1 BOTULINUM TOXIN

Scientists differ about the relative toxicities of substances, but they seem to agree that botulinum toxin, produced by anaerobic bacteria, is the most toxic substance known. Its lethal dose is tiny. 1 nanogram per kilogram. Extrapolating from its effect on mice, an intravenous dose of just 10-7g would be fatal to a 70kg person.

It was first identified as a cause of food poisoning due to incorrectly prepared sausage (Latin, botulus) in late-18th century Germany. There are several botulinum toxins, with type A being the most potent. These are polypeptides, consisting of over 1,000 amino acid molecules joined together. They cause muscle paralysis by preventing the release of the signalling molecule (neurotransmitter) acetylcholine.

This same paralysing property is fundamental to the clinical use of the botulinum toxin in cosmetic Botox. Targeted injections of tiny amounts of the toxin stop particular muscles from working, relaxing muscles that would otherwise cause wrinkly skin. But it has also been applied to a range of clinical conditions, such as paralysing muscles that, if untreated, would cause crossed eyes (strabismus).

There is increasing interest in using the properties of toxic substances medicinally. The venom of the lethal Brazilian pit viper, Bothrops jararaca, for example, contains blood-pressure reducing molecules that have led to pioneering treatments for high blood pressure.

As Paracelsus is reported to have said 500 years ago: ***"All things are poison, and nothing is without poison: the dose alone makes a thing not poison."*** And he had a point. Ultimately, we are surrounded by potentially dangerous substances. It's only the dose that makes it deadly.

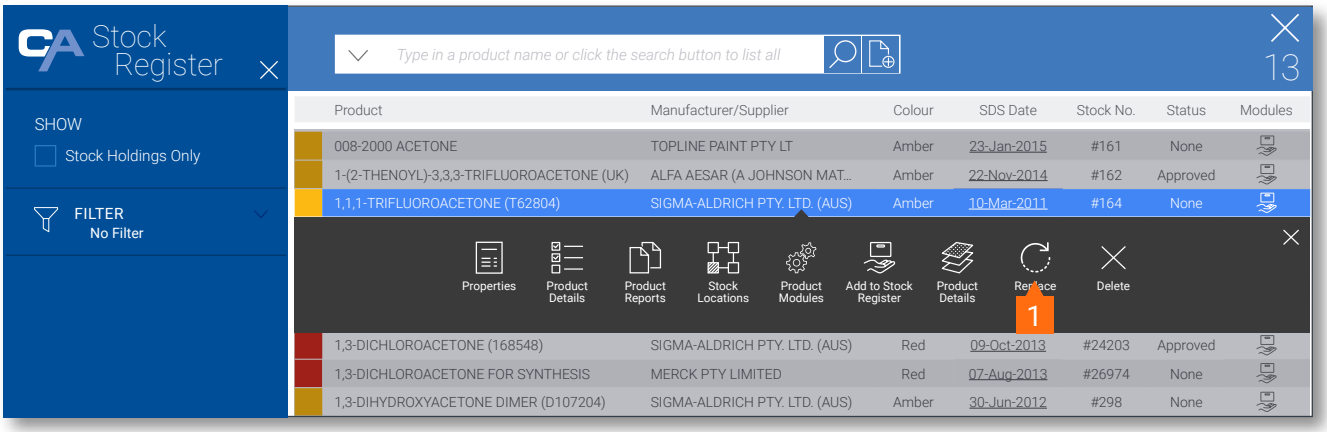
NEW DATES FOR PUBLIC TRAINING

A new schedule of dates for ChemAlert public training courses has now been set. This will be the full 2 day comprehensive course for AU $850 per person. Please see the available dates here or see the website for more details or to enrol.

LOCATION	DATES
Melbourne	16–17 August 2016
Sydney	18–19 August 2016
Adelaide	23–24 August 2016
Brisbane	24–25 August 2016
Perth	29–30 August 2016

ChemAlert Pro User Tip

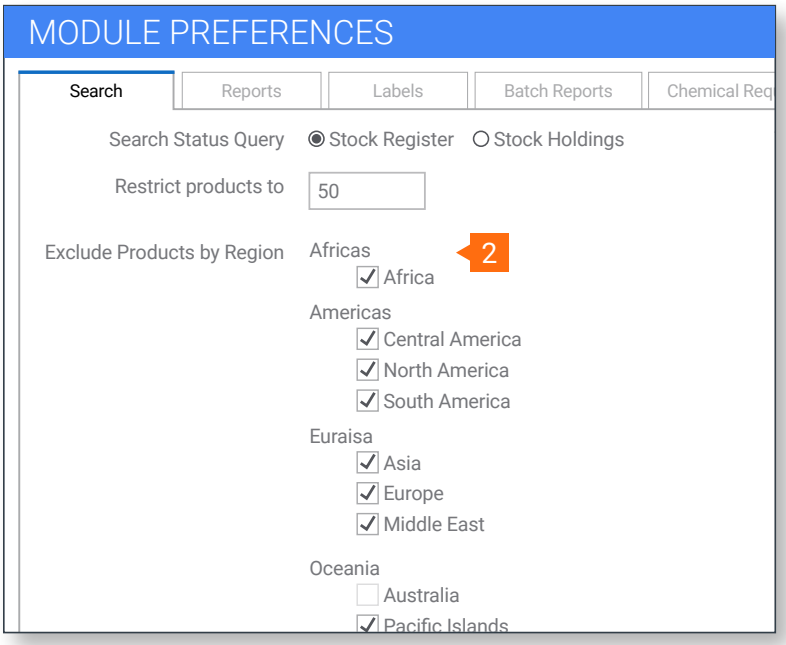
By John Mavromatis, ChemAlert Account Manager



Replacing Non-Compliant SDSs in your Stock Register

Having issues with non-compliant foreign SDSs? In Issue #7 of the Newsletter we looked at how you can identify Non-compliant foreign SDSs in your Stock Register. But did you know that you can easily replace these SDSs rather than deleting/re-submitting?

1. Simply right click on the product in question and select "Replace". From there, find the correct SDS and it will update your Register and Holdings.
2. In Business Unit Preferences you can limit ChemAlert to show region-specific SDSs only, thus ensuring your staff do not accidentally select foreign SDSs.



safety in action perth
1–2 JUNE 2016
Perth Convention & Exhibition Centre

This year ChemAlert will be exhibiting at Safety In Action in both Perth and Sydney.

This will be a great opportunity for all HSE professionals to come along and see what ChemAlert can do, or even just to pick our brains on chemical safety practices and statutory requirements.

We hope to see you there!

safety in action sydney
6–8 SEPT 2016
Sydney Showground, Olympic Park