

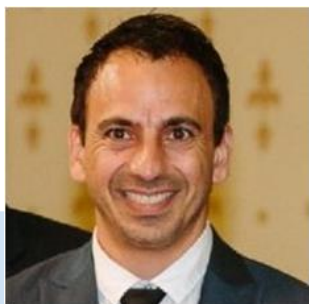
# PRODUCT COMPLIANCE

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Classification and Labeling of  
Chemicals worldwide.



# Your Speakers



## Claude Neri

*B.App.Sci(Hazmat), B.S.C(Hons)*  
*Head of Compliance and Research*

Claude Neri is the Head of Compliance and Research at Chemwatch with over 17 yrs experience in the chemicals management industry.

Professional experience as an (M)SDS author, Chemical Database Manager and Chemical Safety Projects Manager includes the successful management of a wide variety of projects such as chemical database and integrated solutions for web applications, molecular modeling and QSAR techniques.

Claude has advised many companies and several government agencies with respect chemicals management and classification issues.

Claude holds B.Sc. degrees in Environmental Management of Hazardous Materials and Mathematics and a M.Sc. in Analytical Chemistry.



## Jerome Marinkovic

*Director of Product Research & Development, Chemwatch*

Jerome is the Director of Product Research & Development at Chemwatch with over 8 years experience in the chemicals management marketplace.

His professional experience in chemical risk assessment includes development and deployment of the Chemwatch control banding risk assessment and approval system.

Jerome has advised many companies and government departments on chemical risk management with a particular focus on risk analysis issues and techniques.

Jerome holds a B Sc degree in Marine Biology and a Graduate Certificate in Software Project Management.

# In This Webinar



Today we will cover :

- **What you may not know about GHS**
  - Revisions/Building Blocks
  - Toxicity data, ATEs and M-Factors
  - Substance Classification
- **What you may not know about GHS SDS**
  - Required Structure
  - Format Differences
- **What you may not know about GHS labels**
  - General Requirements
  - Differences between jurisdictions
- Solutions for jurisdiction specific requirements on SDS & label

# About Us

## We are:

- An international company, headquartered in Australia, with offices throughout Europe, the US and Asia-Pacific
- A large employer of science graduate and postgraduates (including chemists, toxicologists and OHS specialists) and IT specialists (over 250 world-wide)
- A successful company with over 25 years of service to the chemicals safety community
- Over 5000 clients globally, including hospitals, research institutes, and government departments.



# What you may not know about GHS?

## GHS Published Revisions

GHS Rev. 1 (2005):	<ul style="list-style-type: none"><li>•New hazard category added (aspiration hazard)</li><li>•Guidance for the use of precautionary statements, pictograms and for the preparation of SDS.</li></ul>
GHS Rev. 2 (2007):	<ul style="list-style-type: none"><li>•Updated classification details for explosives, carcinogens, respiratory and skin sensitizers, toxic by inhalation (gases) and gas mixtures.</li></ul>
GHS Rev. 3 (2009):	<ul style="list-style-type: none"><li>•More details on labelling requirements</li><li>•New subcategories for respiratory and skin sensitizers</li><li>•New hazard class for substances and mixtures hazardous to the ozone layer.</li></ul>
GHS Rev. 4 (2011):	<ul style="list-style-type: none"><li>•New hazard categories-stable gases and non-flammable aerosols</li><li>•Updates in the precautionary statements and in their applications.</li></ul>
GHS Rev. 5 (2013):	<ul style="list-style-type: none"><li>•New test method for oxidizing solids</li><li>•Updated classification details for skin corrosion/irritation, severe eye</li><li>•Damage/irritation and aerosols</li><li>•Updated classification and labelling summary tables</li><li>•New hazard pictogram table</li><li>•More updates in the precautionary statements.</li></ul>
GHS Rev. 6 (2015):	<ul style="list-style-type: none"><li>- New hazard class is introduced (Desensitised explosives)</li><li>- Sub category is introduced for flammable gas (pyrophoric gas)</li><li>- New H statements / P statements; new label examples.</li></ul>
GHS Rev. 7 (2017):	???????

# What you may not know about GHS?

Jurisdiction	Rev	Jurisdiction	Rev	Jurisdiction	Rev	Jurisdiction	Rev
Argentina	4	Greece	4	New Zealand	3	United Kingdom	4
Australia	3	China (Hong Kong)	4	Philippines	5	United States	3
Austria	4	Hungary	4	Poland	4	Vietnam	3
Belgium	4	Iceland	4	Portugal	4	Netherlands Antilles	4
Brazil	4	India	4	Korea, Republic Of	3	Bulgaria	4
Canada	5	Indonesia	4	Russian Federation	4	Colombia	4
Chile	4	Ireland	4	Singapore	4	Kazakhstan	4
China	4	Italy	4	Slovakia	4	Norway	4
Croatia (Local Name: Hrvatska)	4	Japan	4	Slovenia	4	Romania	4
Cyprus	4	Latvia	4	South Africa	4	Zambia	4
Czech Republic	4	Liechtenstein	4	Spain	4	Serbia	4
Denmark	4	Lithuania	4	Sweden	4	Tajikistan	4
Estonia	4	Luxembourg	4	Switzerland	4	Malta	4
Finland	4	Malaysia	3	Taiwan	4		
France	4	Mexico	5	Thailand	3		
Germany	4	Netherlands	4	Turkey	3		

# What you might not know about GHS

## Building Blocks - WHY SHOULD YOU CARE?



Each jurisdiction makes a decision of **which GHS revision** to implement.

The building block approach allows countries to implement GHS into their own jurisdiction the best it suits them.

The downside is that this approach leads to differences in GHS requirements country-by-country.

**As an example:**

Hazard Categories	HCS 2012 (USA)	Australia WHS	EU CLP	China GHS
ADDITIONAL	Simple Asphyxiants Combustible dusts Pyrophoric gas Hazards Not Otherwise Classified(HNOC)	AUH codes and statements	EUH codes and statements	None
OMITTED	Acute toxicity Cat 5 Skin corrosion/irritation Cat 3 Aspiration hazard Cat 2 All aquatic and environment categories	Acute toxicity Cat 5 Skin corrosion/irritation Cat 3 <b>Serious eye damage/irritation Cat 2B</b> Aspiration hazard Cat 2 <b>Flammable gas Cat 2</b> All aquatic and environment categories	Acute Toxicity Cat 5 <b>Flammable liquids Cat 4</b> Skin corrosion/irritation Cat 3 <b>Serious eye damage/irritation sub-Cat 2B</b> Aspiration hazard Cat 2 <b>Acute hazard to the aquatic environment Cat 2, 3</b>	None

# Sourcing Information

## **GHS classification lists you may not know about:**

- CHRIP (Chemical Risk Information Platform) - GHS Classification Results by MHLW and MOE (Japan)
- China Classification Information Sheet of Hazardous Chemicals
- CCID (Chemical Classification and Information Database) - New Zealand GHS classification database
- Canada Hazardous Products Regulations - Prescribed Classifications
- HCIS (Hazardous Chemicals Information System) - Australian official GHS classifications.
- KOREA GHS classification list by TCCA - The amended list of GHS classification and labelling for Toxic Chemicals (4th)
- South Africa List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)
- Thailand Hazard classification according to the GHS
- Malaysia Industry Code of Practice On Chemicals Classification And Hazard Communication

## **Information sources for GHS classification you are likely to know about:**

- Annex VI of CLP (Regulation (EC) No 1272/2008)
- C&L Inventory (ECHA)
- REACH Registration Dossiers (ECHA)



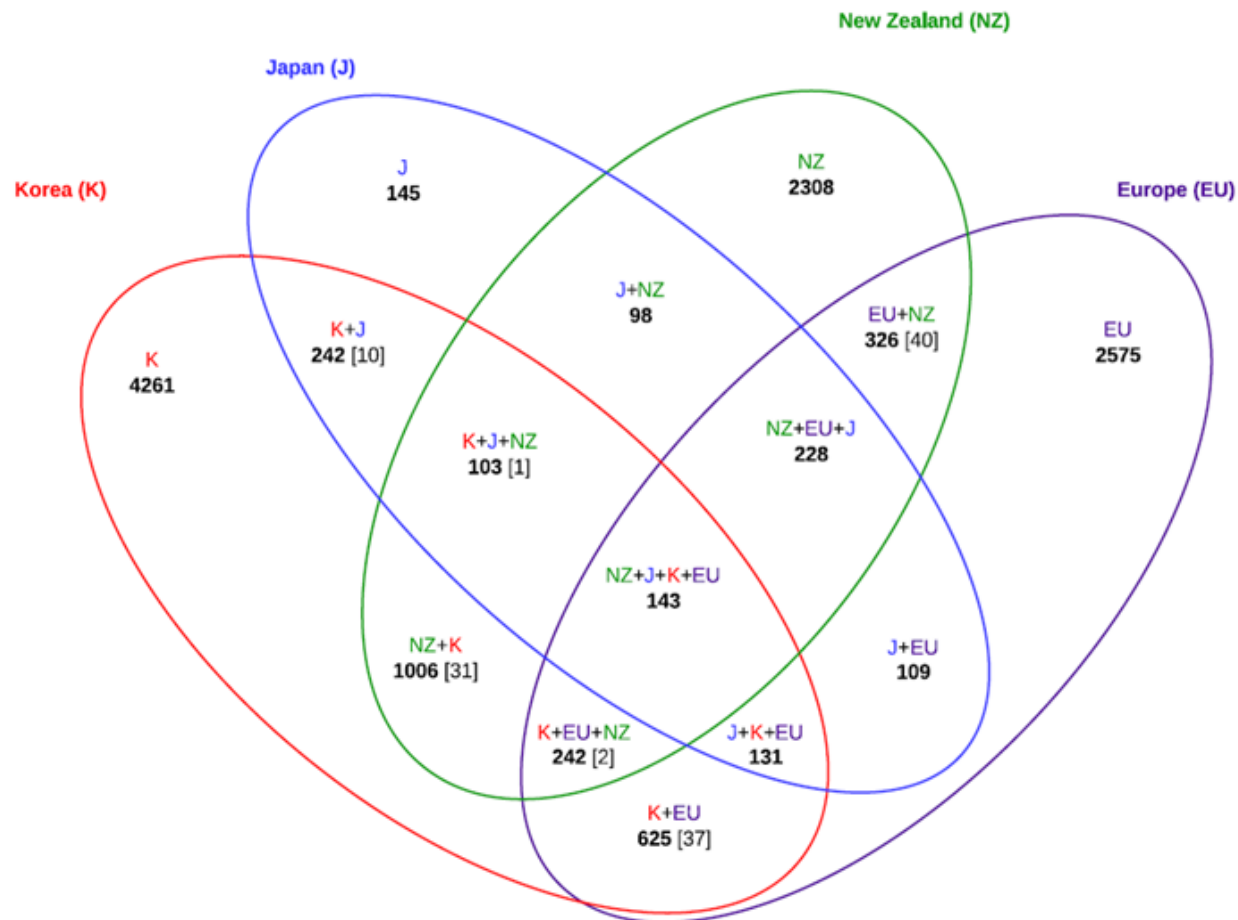
# Substance Classification - A 'Black' Art?

## Hazard Classification comparison across regions

[Number in brackets reflect the number of classification matches]

The same substance can be classified differently under different GHS jurisdictions.

- Little as 8% agreement.
- \*Chemicals differ significantly.
- Korea & NZ are heavy on environmental hazards
- The C&L Inventory includes every classification submitted by M/I for the chemicals they placed on the market.
- Companies' classifications also can differ significantly.



# PURE SUBSTANCE LIBRARY

## WHY SHOULD YOU CARE?



Where any one substance is produced by two companies, the level of disagreement on the classification of hazard/risk is greater than 50%!

*An irritant is an irritant, a toxin is a toxin and a burn is just that. A chemical exhibits the same properties and hazards no matter who supplies it. There should be no grey zone or subjective guess. Right?*

	Manufacturer 1	Manufacturer 2	Manufacturer 3	Manufacturer 4	Manufacturer 5
Manufacturer 1	-	<b>58%</b> (1720/2960)	<b>57%</b> (1798/3165)	<b>58%</b> (3308/5745)	<b>54%</b> (5137/9520)
Manufacturer 2	<b>58%</b> (1720/2960)	-	<b>61%</b> (565/933)	<b>61%</b> (1148/1890)	<b>63%</b> (1818/2897)
Manufacturer 3	<b>57%</b> (1798/3165)	<b>61%</b> (565/933)	-	<b>57%</b> (61/107)	<b>56%</b> (1601/2848)
Manufacturer 4	<b>58%</b> (3308/5745)	<b>61%</b> (1148/1890)	<b>57%</b> (61/107)	-	<b>60%</b> (3018/5014)
Manufacturer 5	<b>54%</b> (5137/9520)	<b>63%</b> (1818/2897)	<b>56%</b> (1601/2848)	<b>60%</b> (3018/5014)	-

IT'S NOT THE HAZARD. IT'S THE RISK

# So Who is Right?

Example: **Carbon Black - C&L Inventory**

<https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/13192>

How do you know which classification is correct in the inventory?

## General Information

EC Number	EC Name	CAS Number
215-609-9	Carbon black	1333-86-4

Notified classification and labelling according to CLP criteria

Classification		Labelling			Number of Notifiers
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)	
Not Classified					1694
Carc. 2	H351 (Inhalation)	H351 (by inhalation e...)		GHS08 Wng	396
					68
STOT SE 3	H335 (Respiratory sys...)	H335		GHS07 GHS08 Wng	52
Carc. 2	H351	H351		GHS08 Wng	45
					35
STOT SE 3	H335 (Respiratory tra...)	H335		GHS07 GHS08 Wng	34
Carc. 2	H351	H351			

# Substance Classification - Toxicity Data

What toxicity data will you need to help classify a substance?

- Human data
- Animal test data
- Environmental data
- Estimated data(QSAR)

GHS provides calculations and cut-off values to classify hazardous chemicals using their available toxicity data.

# Substance Classification - SCLs, ATEs and M Factors

- Acute Toxicity Estimate(ATE) - The Acute Toxicity classification of a substance is derived using the LD50 /LC50 where available or an ATE.
- Specific concentration limit - a concentration limit different from the generic concentration limits assigned to a hazard category applied to certain substances.
- M-factors (Multiplying factors) – for highly ecotoxic substances, used in calculating mixture classifications. Specific M-factors can be mandated by Annex VI of CLP(EU).

# What you may not know about GHS SDS?

Similarly to the building block approach the SDS format is not harmonised within countries that have implemented GHS. GHS only provides a generic description for Safety Data Sheets, which can be modified by the competent authority with additional requirements regarding content and format.

GHS SDS requirements:

- 16 headings in the given order
- generic description of the recommended content
- clear, easy to read language

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

# What you may not know about GHS SDS?

## Some differences

### EU:

- compulsory SDS template to use - 16 headings and many sub-heading
- every sub-heading must be included and filled with data or if no data is available then a reason for that

### US:

- the 16 Section must be included
- Section 12-15 are not enforced
- extra statements - i.e. regarding limited disclosure

### Japan:

- special requirements for section 3 and 15 (METI, ISHL numbers etc.)

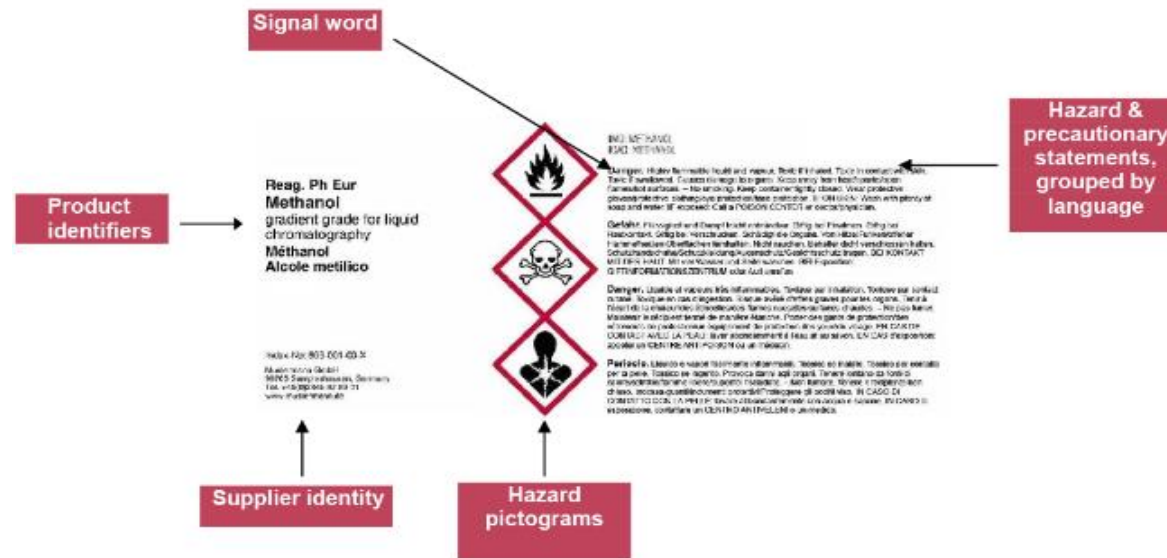
# What you may not know about GHS Labels?

## General Elements Required

**Product identifier:** Name/Ingredients

**GHS Signal word:** Danger/Warning

**Pictograms:**



**Hazard Statement:** Eg. Causes severe skin burns and eye damage(H314)

**Precautionary Statement:** General, Prevention, Response, Storage, Disposal

**Manufacturer/Supplier Info:** Name, Address and Telephone Number other contact info

**Supplementary Information:** Can be divided into obligatory and non -obligatory



# What you may not know about GHS Labels

## HAZARD PICTOGRAMS

Generally speaking, the following rules apply for the use of hazard pictograms on a label.

## HAZARD STATEMENTS




All of the assigned hazard statements must appear on a label

## SIGNAL WORDS

Where the signal word “Danger” applies, the signal word “Warning” should not appear

## PRECAUTIONARY STATEMENTS

Many jurisdictions ([EU](#), [Korea](#), and [Australia](#)) have limited the number of precautionary statements on a label to make a label more readable. Normally not more than six to ten precautionary statements are required

if		appears		Shall not appear.
if		appears		Shall not appear for skin or eye irritation.
if		appears for respiratory sensitization		Shall not appear for skin sensitisation or skin and eye irritation
if		transport pictogram is used,		GHS pictogram for the same hazard shall not appear on outer package.

# What you may not know about GHS Labels?

- Use a harmonised set of label elements and pictograms.
- Have varying rules regarding the size of containers, mandatory element and layout
  - The CLP and WHS Regulation defines minimum dimensions on the size of the label and some of its elements
  - There is no required format for how a workplace label must look in HCS and no particular format an employer has to use
  - Omission of certain label elements if packaging is so small
- Multiple Hazards and Precedence of Hazard Information.
- Idiosyncratic Requirements

# What you may not know about GHS Labels?

EU Sample Label against USA Sample Label

## EU Sample Label

**Flammosol** — Product identifier

Contains: Aliphatic hydrocarbons 95% Toxicole 5% — Identity and proportion of each chemical ingredient

500ml

**DANGER** — Signal word

  — Pictograms

Highly flammable liquid and vapour  
Toxic if swallowed  
Causes skin irritation — Hazard statements

Reacts violently with water — Supplemental hazard statement EUH014

Keep away from sparks and open flames. – No smoking.  
Wear protective gloves and eye and face protection.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Store locked up in well ventilated place. Keep cool.  
Dispose of contents / container in accordance with local regulations.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth.  
IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use.  
If skin irritation occurs: Get medical advice/attention. Rinse skin using plenty of soap and water.  
In case of fire: Use powder for extinction.

Precautionary statements

Refer to the Safety Data Sheet before use. — Other useful information



Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000 — Name, address and telephone number of the manufacturer or importer.

## USA Sample Label

**Flammosol** — Product Identifier

500ml

**DANGER** — Signal word

  — Pictograms

Highly flammable liquid and vapour  
Toxic if swallowed  
Causes skin irritation — Hazard statements

Keep away from sparks and open flames. – No smoking.  
Wear protective gloves and eye and face protection.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
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Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000 — Name, address and telephone number of the manufacturer or importer.

# What you may not know about GHS Labels?

Australia Sample Label against USA Sample Label displaying differences in precedence rules for hazard pictograms

## Sample Label AUSTRALIA

Flammosol  
FLAMMABLE LIQUID, TOXIC N.O.S.  
(aliphatic hydrocarbons, toxicole)  
UN 1992

4 L  
**DANGER**



**Highly flammable liquid and vapour**  
**Toxic if swallowed**  
**Causes skin irritation**

IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use. Rinse skin using plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth.

Store locked up in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with Jurisdictional regulations.

Refer to the Safety Data Sheet before use.  
Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000  
[www.madeup-chemical-company.com.au](http://www.madeup-chemical-company.com.au)

In case of fire: Use powder for extinction.  
Keep away from sparks and open flames. - No smoking.  
Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Wear protective gloves and eye and face protection.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

## Sample Label USA

Flammosol  
FLAMMABLE LIQUID, TOXIC N.O.S.  
(aliphatic hydrocarbons, toxicole)  
UN 1992

4 L  
**Danger**



**Highly flammable liquid and vapour**  
**Toxic if swallowed**  
**Causes skin irritation**

IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use. Rinse skin using plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth.

Store locked up in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with Jurisdictional regulations.

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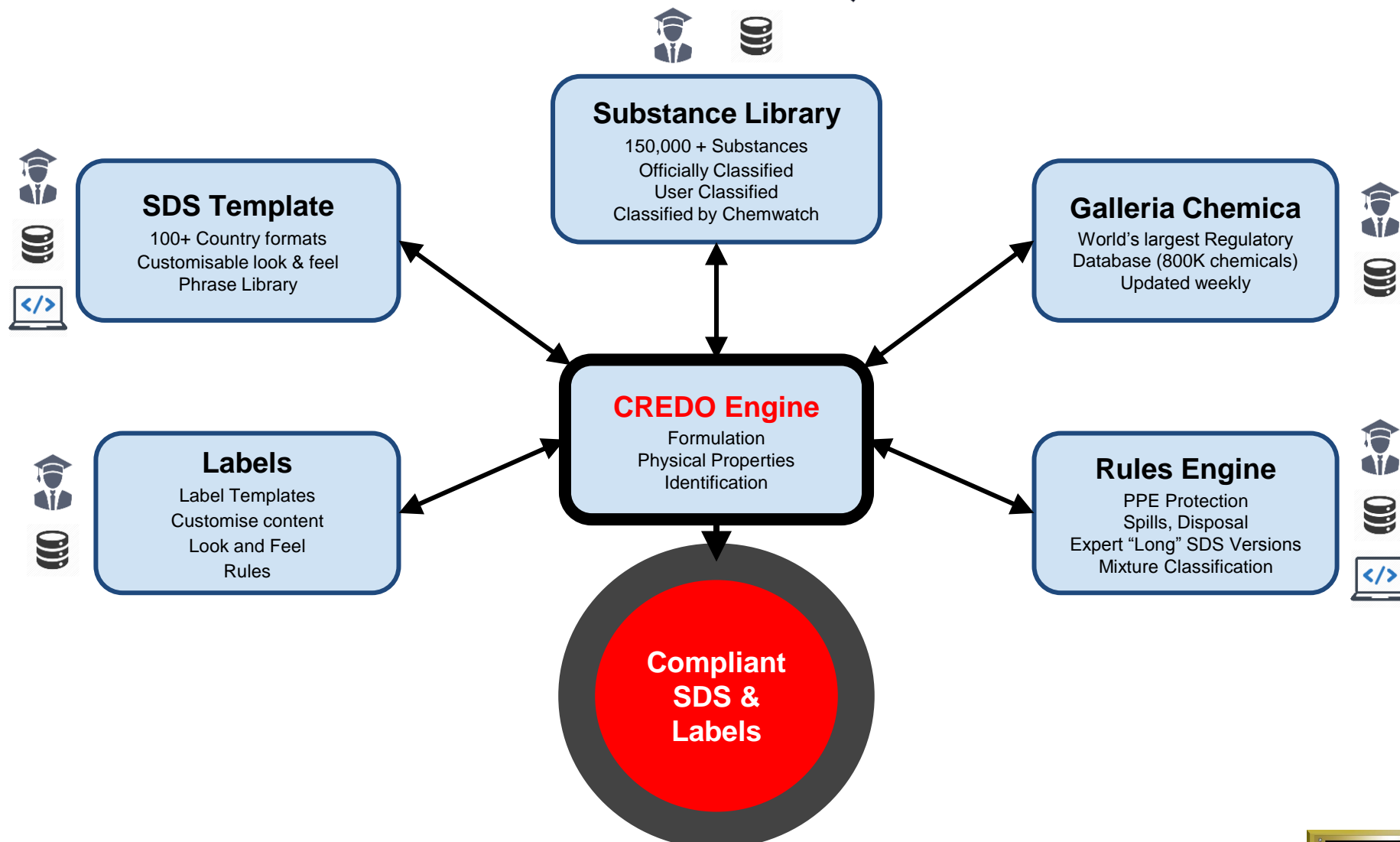
Ingredients Missing

Signal Word

Extra Pictogram

# CREATING COMPLIANT SDS AND LABELS

## WHAT ARE THE "INGREDIENTS"?



IT'S NOT THE HAZARD. IT'S THE RISK





[www.chemwatch.net](http://www.chemwatch.net)

<sup>79</sup> AuthorITe

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