



Introduction to the GHS and its relevance to the Fertilizer Industry

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March 2022

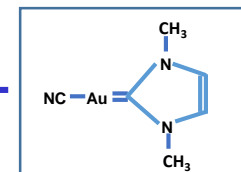
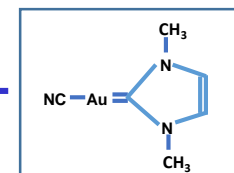


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PART A:

- What is the GHS?
- Why do we need the GHS?
- What does the GHS do for us?
- GHS target audiences.
- GHS scope.
- GHS why and how in South Africa.



WHAT IS THE GHS

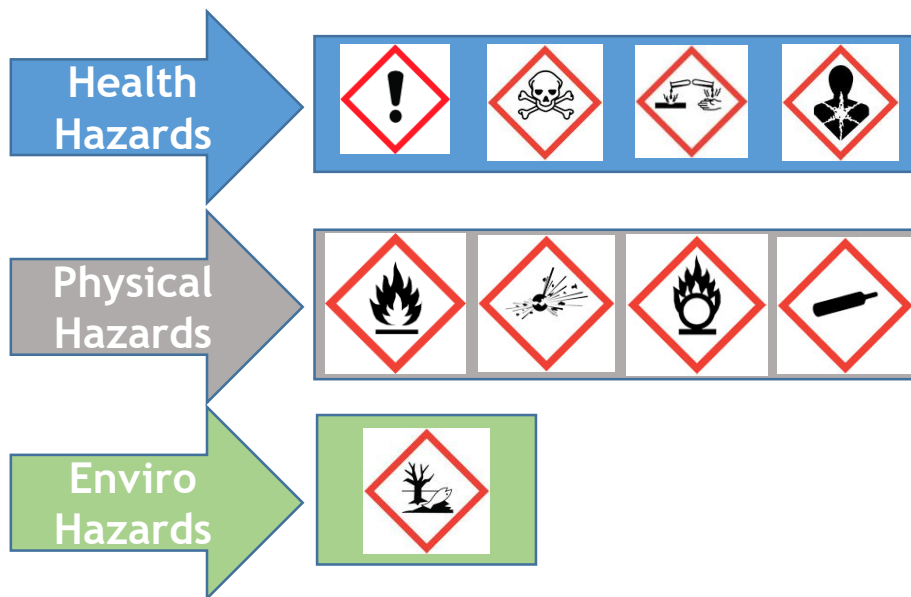
The GHS is an acronym:

“The Globally Harmonized System of Classification and Labelling of Chemicals”

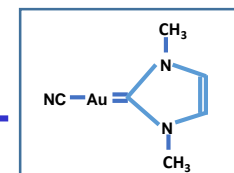
GLOBAL
IMPLICATIONS



HARMONIZED
SYSTEM



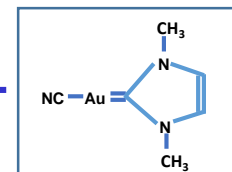
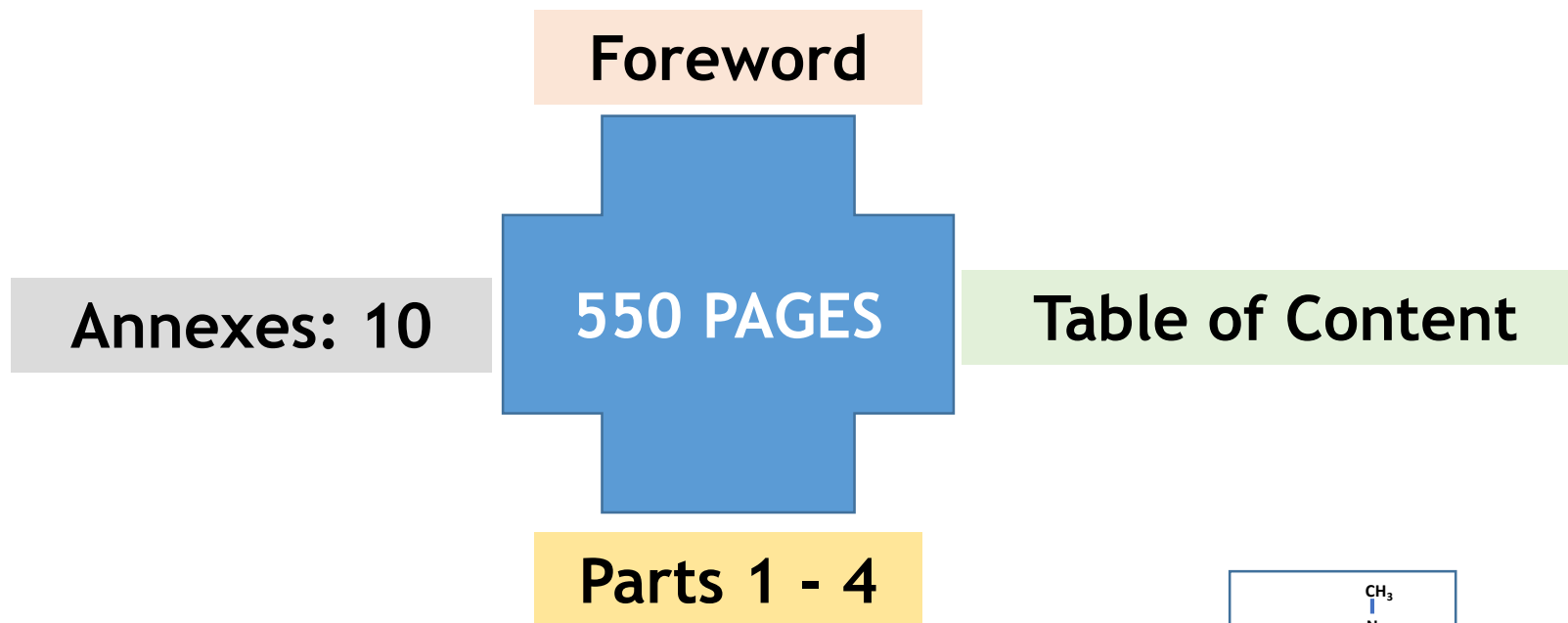
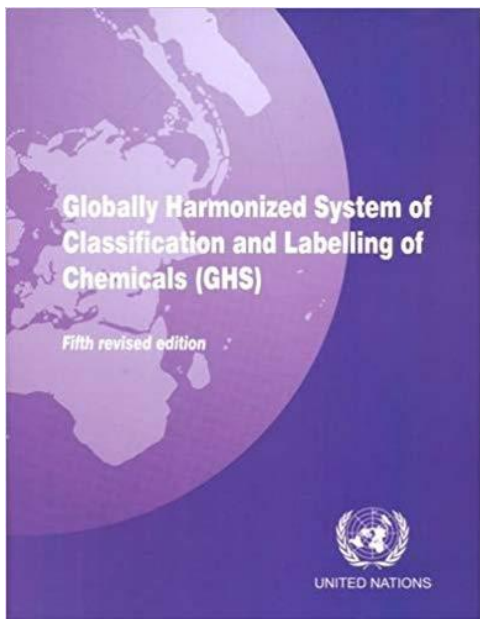
CLASSIFICATION AND
LABELLING OF CHEMICALS



WHAT IS THE GHS

The GHS has been internationally agreed-upon; it was developed and is managed by the United Nations.

The UN document that contains the GHS requirements is referred to as “**The Purple Book**”.



WHAT IS THE GHS

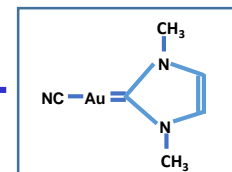
The GHS is not a regulation, but rather a framework, or guidance.



Countries are expected to use the Purple Book to develop **their own Regulations** applicable to:

- Classification of chemicals
- Labelling of chemicals
- Safety Data Sheets

The GHS provides the **underlying infrastructure and basis** for establishing a comprehensive national chemical safety programme.



WHAT IS THE GHS

A common and coherent approach or system (international) to standardize how hazardous chemicals are **defined** and **classified** and for communicating information on labels and safety data sheets.

Classifying
chemicals



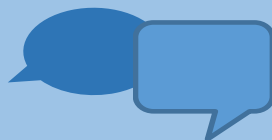
According to
their types of
hazard



Communicating
chemical hazards



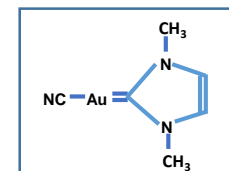
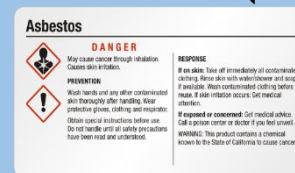
To workers and
users of chemicals



Supplying standardized
communication tools



Chemical labels and Safety
Data Sheets (SDSs)



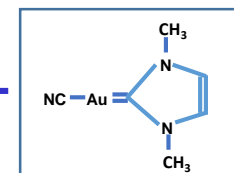
WHY DO WE NEED THE GHS?

Worldwide, most countries already have regulatory systems in place for chemical classification and hazard communication.



PROBLEM!!!!

Different systems with different requirements.

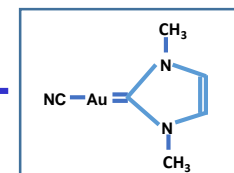


WHY DO WE NEED THE GHS?

Significant differences resulting in, for the same chemical:

- Multiple classifications - different hazard descriptions
- Different labels
- Safety Data Sheets with information that differs

Why is it important to have a global harmonized classification system for chemicals???

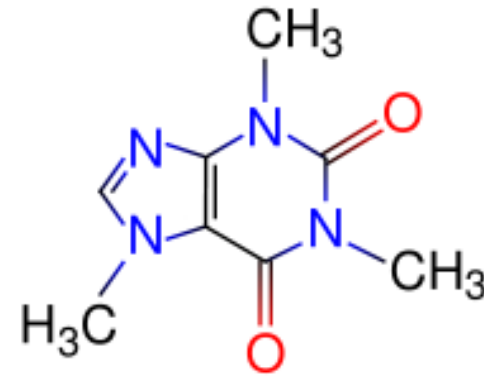


WHY DO WE NEED THE GHS?

LD₅₀ oral rat = 257 mg/kg

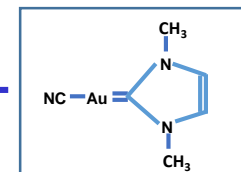
- Australia harmful
- Canada toxic
- China not hazardous
- EU harmful
- India non toxic
- Japan toxic
- New Zealand hazardous
- USA toxic

Caffeine



UN GHS: toxic

NOTE: Information obtained from Merck



WHY DO WE NEED THE GHS?

Different hazard descriptions.

Ammonium Nitrate

Colorless crystals; odorless. Irritating to eyes/skin/respiratory tract. Also causes: difficulty breathing, acidic urine, systemic acidosis, and abnormal hemoglobin. Strong oxidizer capable of igniting combustible materials.



CAS No. 6484-52-2

Different Labels.

CONFUSION

Ammonium Nitrate

nitric acid, ammonium salt; norway saltpetr

DANGER! OXIDIZER! IRRITANT

Emergency Overview:

Colorless crystals; odorless. Irritating to eyes/skin/respiratory tract. Also causes: difficulty breathing, acidic urine, systemic acidosis, and abnormal hemoglobin. Strong oxidizer capable of igniting combustible materials.

Precautionary Measures: Avoid exposure to skin. Wear protective clothing: Goggles, Gloves, Apron.

First Aid Procedures: Inhalation: Remove to fresh air and support breathing as needed. Eyes/Skin: Remove contaminated clothing. Flush with plenty of water for at least 15 minutes. Ingestion: Do not induce vomiting! Consult physician immediately!

Fire Procedures: Noncombustible. However, it is a strong oxidizing agent capable of igniting combustibles.

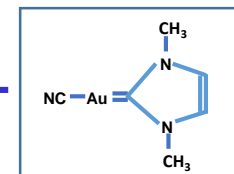
Spill Procedures: Notify safety personnel, isolate and ventilate area. Remove combustibles from spill area. Apply soda ash. Neutralize with 6M HCl. Take up with inert material such as sand or vermiculite. Cleanup personnel should protect against exposure.

CAS No. 6484-52-2

Different SDSs.



This leads to inconsistent protection for those potentially exposed to the chemicals, as well as creating extensive regulatory burdens on companies producing chemicals.



WHY DO WE NEED THE GHS?

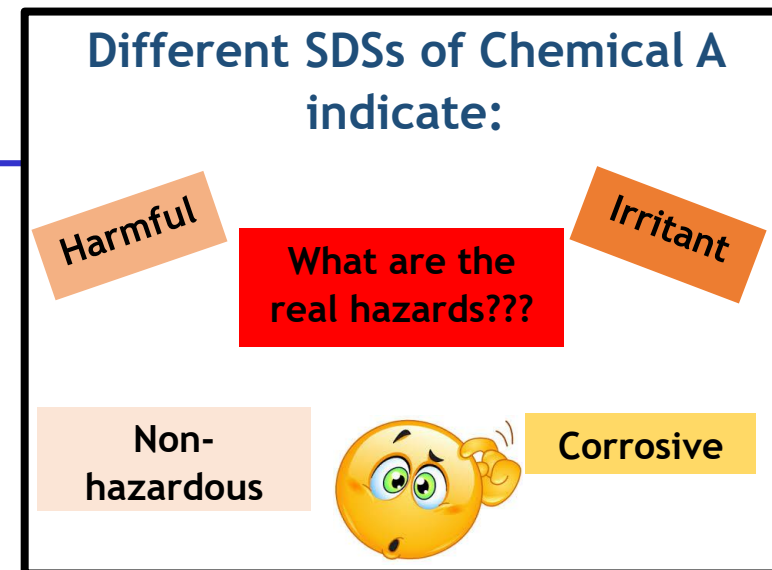
Disparity and inconsistency –
These differences impact on both
protection and **trade**:

PROTECTION

Inconsistent information for the same
chemical could lead to incorrect handling



Credit: <https://www.electraining.com.au/courses/handling-and-storage-of-dangerous-goods-and-hazardous-substances/>

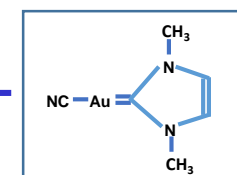


TRADE

Compliance with multiple regulations
regarding classification and labelling is costly
and time-consuming



Credit: <http://www.safetyaction.com.au/latest-news/articles/2016/april/ghs-transition-countdown/>



WHY DO WE NEED THE GHS?

Need for global alignment:

UN published the GHS first in 2003.

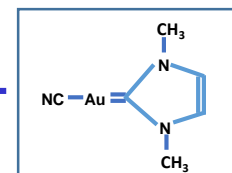
The GHS was developed and implementation started globally. More than 67 countries have already implemented.

Updated, revised and improved every two years. The 9th revision was published in 2021.

Purple Book is the primary information source on the GHS and provides the information governments need to create a hazard communication system that is compatible with basic international requirements.



Available to anyone and well maintained by the UN.



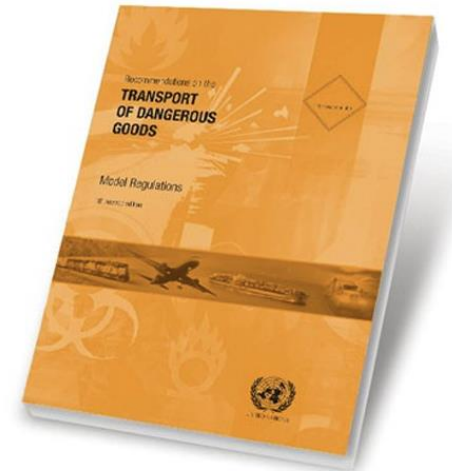
WHY DO WE NEED THE GHS?

Management of chemicals to link with other management systems:

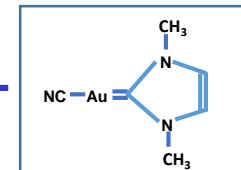
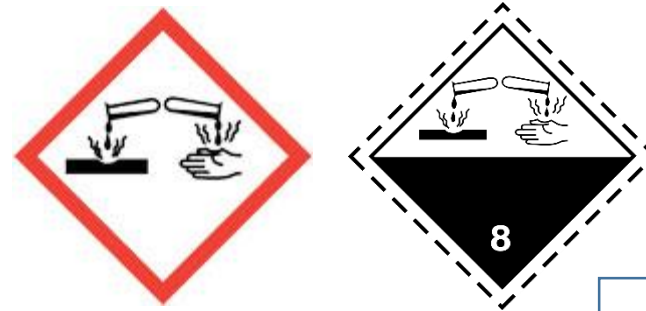
Purple Book - not developed in isolation.



Links well with the requirements for the transportation of Dangerous Goods.



Example: Substance classified as a Skin Corrosive Category 1 in the GHS will be classified as a Class 8 substance for Dangerous Goods purposes.

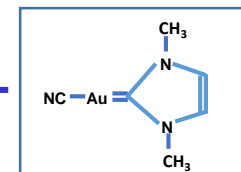
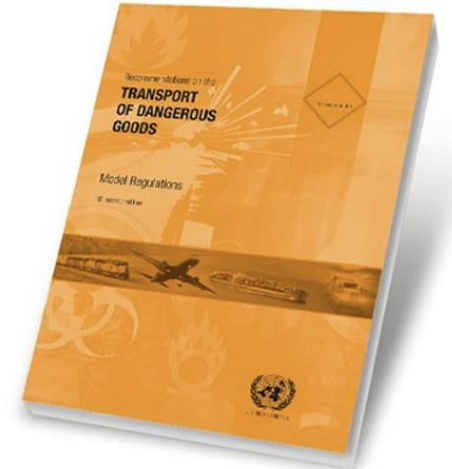


WHY DO WE NEED THE GHS?

GHS and Dangerous Goods requirements:

Examples of important GHS hazard classes that are included in the transport requirements for dangerous goods:

- Acute toxicity
- Skin corrosivity
- Hazardous to the aquatic environment
- Physical hazards e.g. flammable solids and liquids, oxidisers, etc.



WHY DO WE NEED THE GHS?

To protect the user:

Replace the assortment of hazardous material classification and labelling schemes previously used around the world.

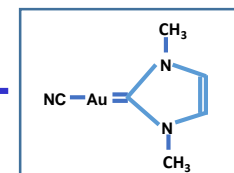
More effective chemicals hazard communication worldwide.

Facilitation of trade in chemicals.

To enhance safety.

Enhances both employer and worker comprehension or understanding of chemicals hazards.

To provide a chemical classification and labelling system that is updated and maintained internationally.



WHAT DOES THE GHS DO?

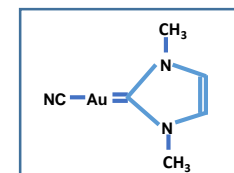
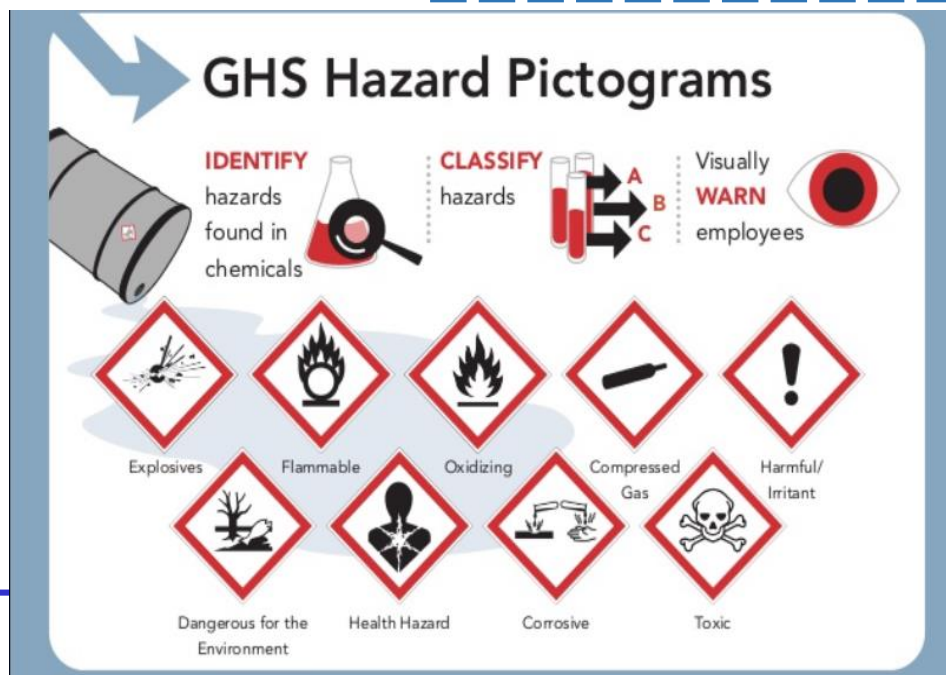
Supplies a standardised classification method:

What do you need to be able to do a classification (information/data)?

How to do the classification - for each hazard type and class.

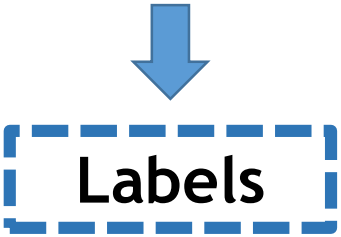
What criteria to use when doing the classification.

What to do with the outcome of the classification?

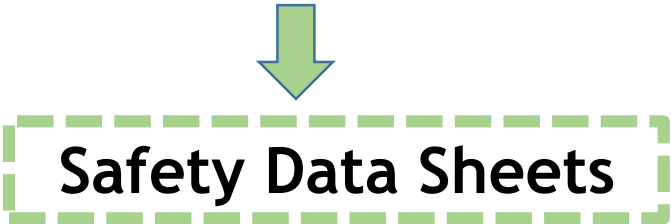


WHAT DOES THE GHS DO?

Standardizes the content and format of hazard communication tools:

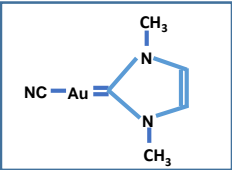


Required label elements.



Required sections, order and content.

Safety Data Sheet	
SECTION 1 - IDENTIFICATION	
Chemical Name: AMMONIUM NITRATE	MSDS No: 001
Manufacturer: AMMONIUM NITRATE	Date: 01/01/2008
Product Number: 001	Revision: 001
SECTION 2 - HAZARD IDENTIFICATION	
Classification: Explosive (H228)	Signal Word: EXPLOSION
Label: Explosive (H228)	Pictogram: Explosion
Precautionary Statements: Keep away from heat and open flames. Do not store in a confined space.	



WHAT DOES THE GHS DO?

Global effect:

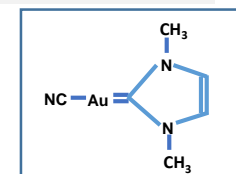
Promotes safer transport, handling and use of chemicals world wide.

Trade effects:

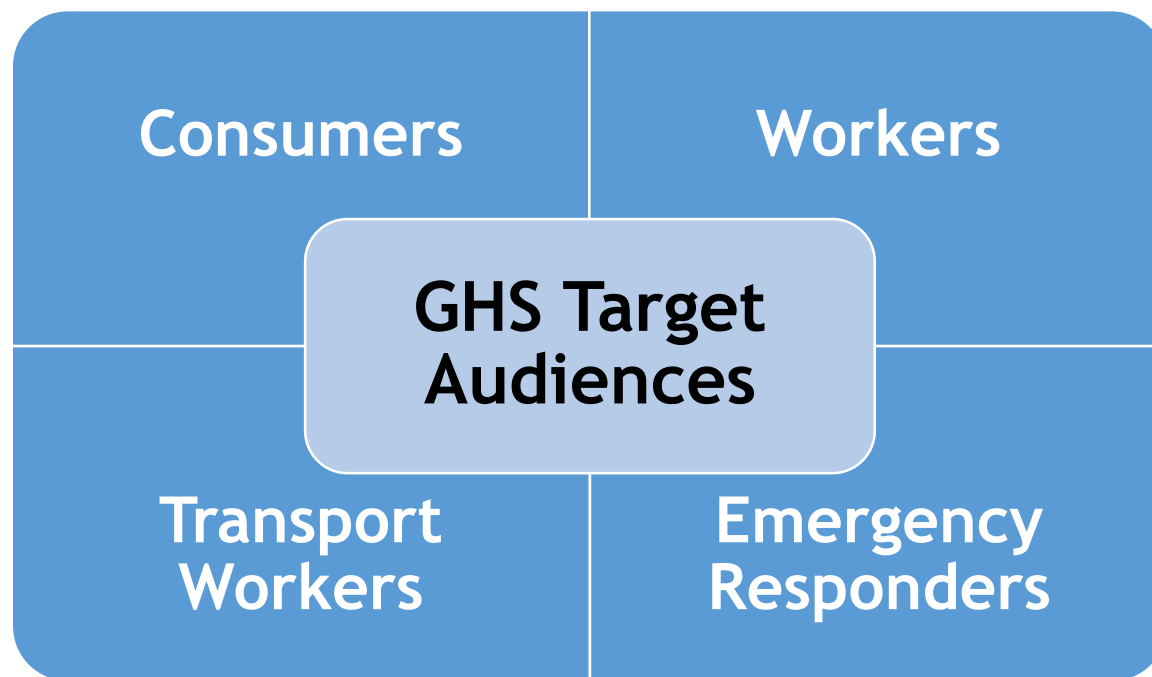
Facilitates international trade in chemical products by promoting greater consistency in regulatory requirements.

Effects on current and new knowledge:

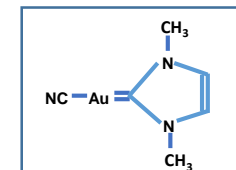
Reduces the need for testing and evaluation as it utilizes current knowledge if and where possible.



GHS TARGET AUDIENCE



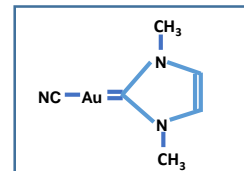
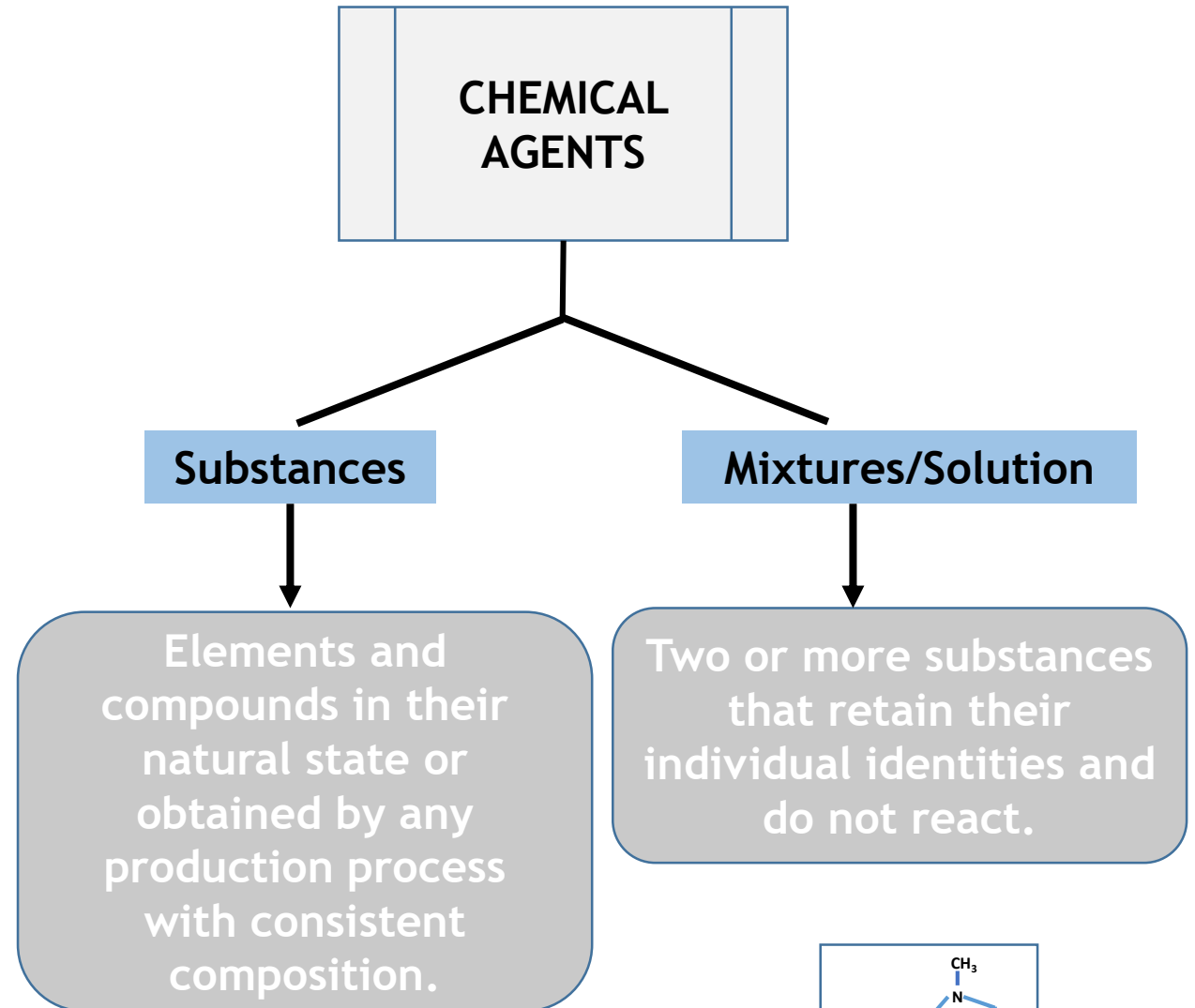
- Warehouses
- Construction
- Chemical & pharmaceutical manufacturing
- Agricultural manufacturing and application
- Metallurgical
- Petrochemical



WHAT IS INCLUDED IN THE GHS SCOPE?

The GHS covers all types of chemicals e.g. substances, mixtures including dilute solutions and formulations.

Included: additives to preserve stability and impurities from processes.
Excluded: solvent which may be separated without affecting the stability of the substance or changing its composition.

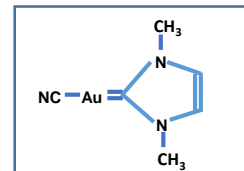


WHAT IS INCLUDED IN THE GHS SCOPE?

MIXTURE NOTE: Special rules apply to the classification of mixtures.

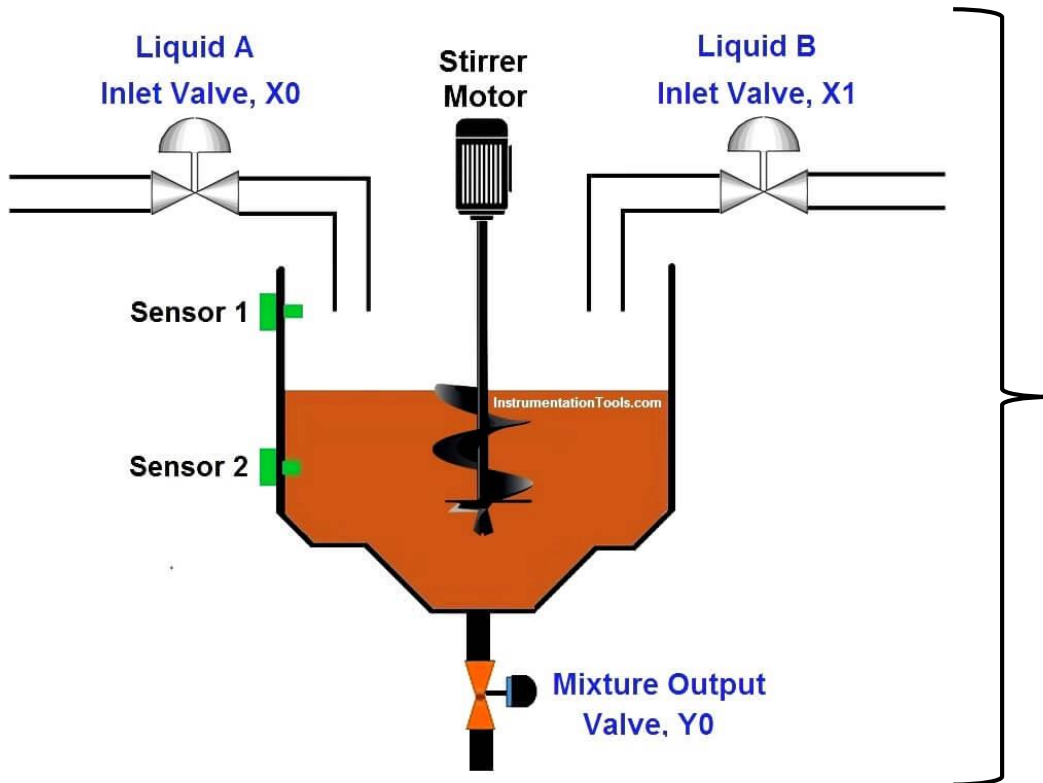
The GHS covers **all hazardous chemicals products**, such as those used for the following purposes:

- Industrial chemicals
- Consumer chemical products
- Pesticides
- Agricultural chemicals e.g. fertilizers, herbicides, fungicides, etc.
- Pharmaceuticals



WHAT IS INCLUDED IN THE GHS SCOPE?

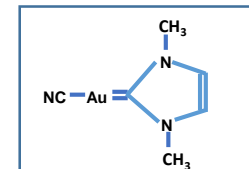
Why are fertilizers included??



Whatever process is used in the manufacturing of the product, the output will be a mixture containing chemicals. Some of the chemicals in the product might be hazardous (classified in the GHS) and could contribute towards the hazards of the product.



This will be determined by the GHS classification process.



GHS - WHY AND HOW IN SOUTH AFRICA?



REMEMBER:

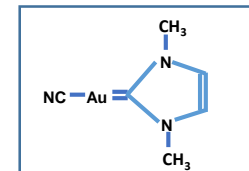
The GHS is a set of guidelines for ensuring the safe production, transport, handling, use and disposal of hazardous materials.



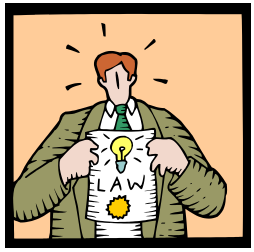
To improve safety and health of workers through more effective communications on chemical hazards.



SA has a well developed chemical and agricultural industry and had no choice other than to also plan for, and implement the GHS!!



GHS - WHY AND HOW IN SOUTH AFRICA?



Internationally an expectation that countries should adopt the GHS into their regulatory systems and those with existing systems should harmonize them to be consistent with the GHS.

International pressure



- Requirement for trade across national borders.
- UN and other organisations.

Obligations

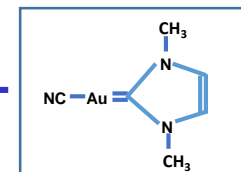


- SADC and its GHS Policy.
- SAICM commitments.

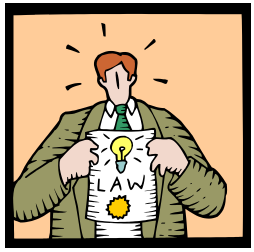
Africa - making progress



- Zambia & Mauritius.
- Now also the SA.



GHS - WHY AND HOW IN SOUTH AFRICA?



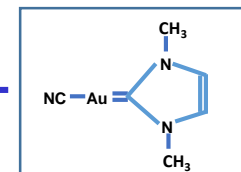
SA was lagging behind, but is now picking up speed!

Regulations for
Hazardous Chemical
Agents - 2021.

GHS now law in SA and
integrated into the
Occupational Health and
Safety Legislation.

Compulsory deadlines and new
expectations for manufacturers,
suppliers and employers.

GHS applies to all industries in SA. It gets a bit complicated though, as there are different regulatory departments - with different responsibilities (e.g. Labour and Employment, Agriculture, Transport, Environment etc.).



GHS - WHY AND HOW IN SOUTH AFRICA?

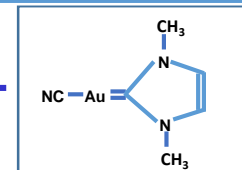
What will be required in terms of some of the new expectations??

NEW REGULATIONS FOR HAZARDOUS CHEMICAL AGENTS - GHS BASED

RE- CLASSIFICATION

RE-LABELLING

NEW/REVISED SDS



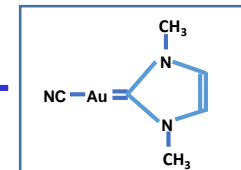
GHS IMPLEMENTATION IN SOUTH AFRICA - GENERAL EXPECTATIONS & CURRENT LEGISLATION

Manufacturers and importers of hazardous chemicals shall:

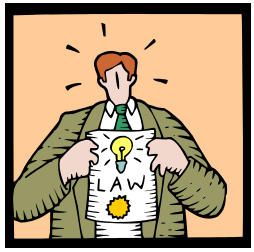
DETERMINE: If the chemical is hazardous - carry out a GHS classification using GHS classification criteria.

REVIEW AND CHANGE: The information on the label and in the Safety Data Sheet (SDS).

INFORM AND TRAIN: Personnel and customers on the new GHS requirements.

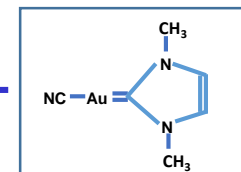


GHS - WHY AND HOW IN SOUTH AFRICA?



Resources for GHS implementation:

- SANS 10234 - 2019. Aligned with GHS Revision 4. Not incorporate into the SA OHASA, but referred to in the Regulations for Hazardous Chemical Agents- 2021.
- SANS 11014 - 2010. Safety data sheet for chemical products - Content and order of sections. Aligned with GHS requirements for SDSs.
- 9th (2021) edition of the Purple Book.
- Numerous GHS guidelines published globally, training courses, etc.



GHS - WHY AND HOW IN SOUTH AFRICA?

What if we do not do it or refuse to do it??? Bad news!!

Expect the unexpected when things go wrong!

OFFENCES AND PENALTIES- RHCA (2021)

Any person who contravenes or fails to comply with any provision of regulation 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 14A, 14B, 14C or 14D shall be guilty of an offence and liable on conviction to a fine or to imprisonment for a period not exceeding six months and, in the case of a continuous offence, to an additional fine of R500 for each day on which the offence continues or additional imprisonment of one day for each day on which the offence continues: Provided that the period of such additional imprisonment shall in no case exceed 90 days.

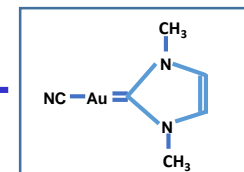
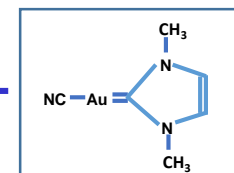


TABLE OF CONTENT

PART B:

- **GHS elements and the basics of how it works:**
 - GHS classification.
 - GHS Labels.
 - GHS SDSs.
- **Other GHS impacts:**
 - Confidentiality.
 - Labelling GHS versus transport of dangerous goods labelling.
 - Company level GHS implementation - compliance options.



GHS CLASSIFICATION

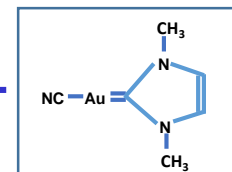
Starting point and means assigning the correct GHS **hazard classes** and **categories** to a hazardous chemical agent.



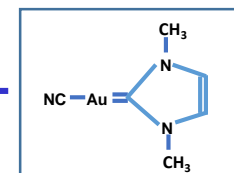
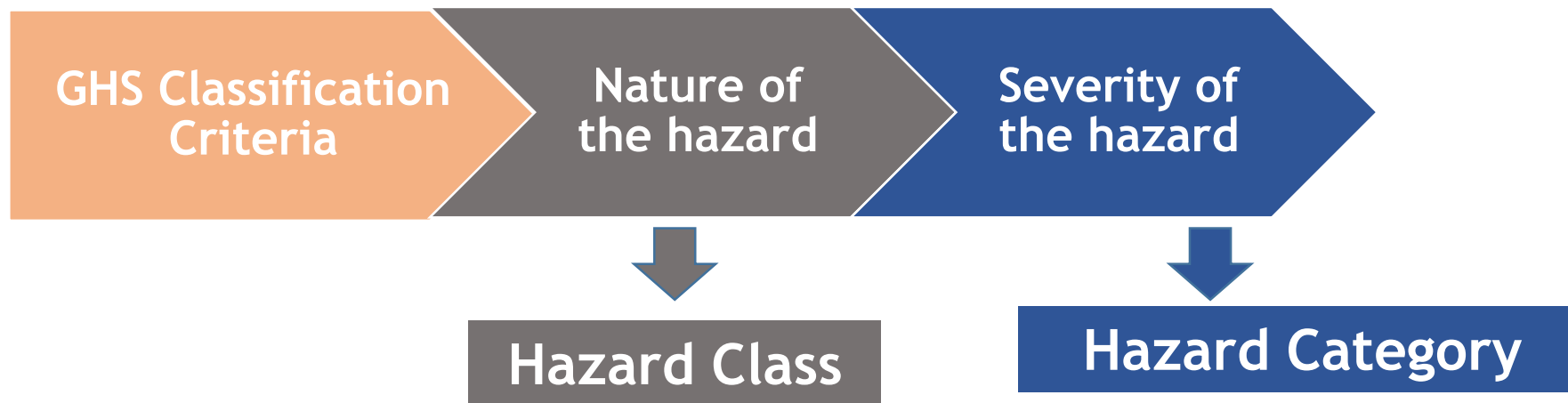
Then communicated to the relevant target audiences.

GHS Classification

Classification Basis: Intrinsic properties of chemicals

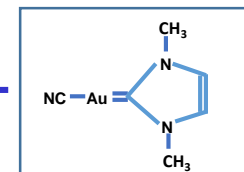
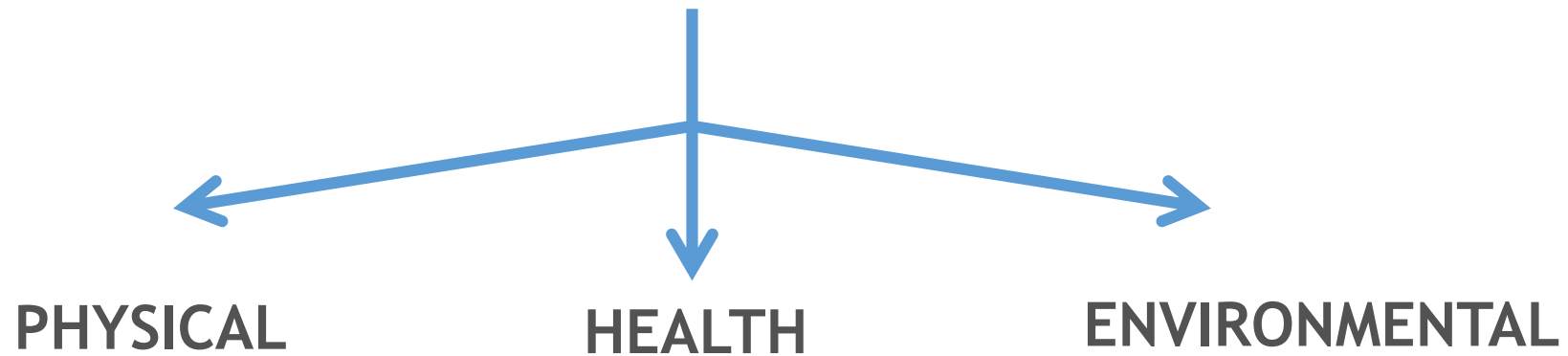


GHS CLASSIFICATION



GHS CLASSIFICATION

THREE MAJOR HAZARD GROUPS

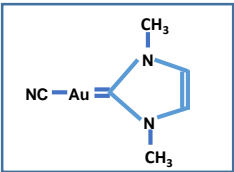
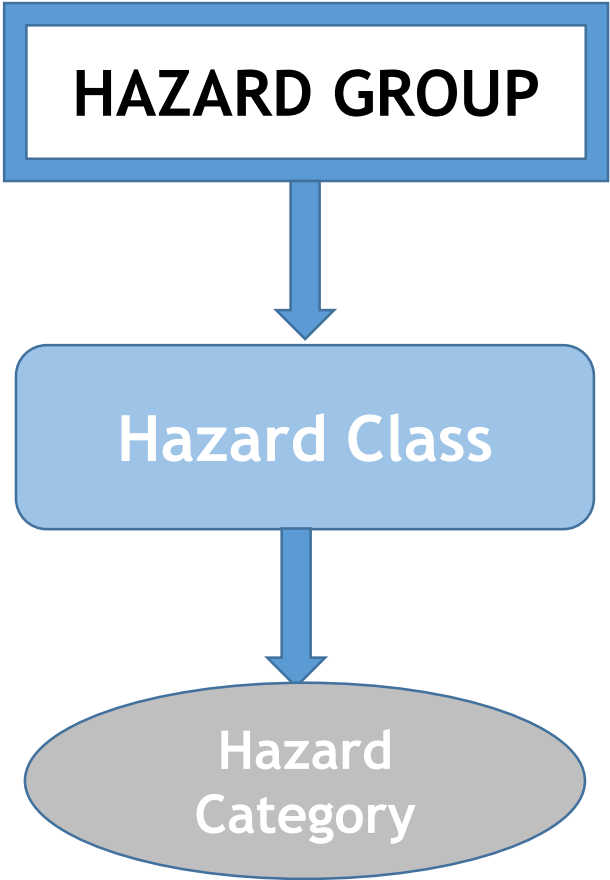


GHS CLASSIFICATION

In the GHS all of the hazard classes and their categories are **very specifically defined**.

Acute Toxicity Oral & Dermal

GHS Category	Classification Criteria			
	Oral		Dermal	
	LD ₅₀ (mg/kg body weight)	Hazard statement	LD ₅₀ (mg/kg body weight)	Hazard statement
Category 1	< 5	Fatal if swallowed	< 50	Fatal in contact with skin
Category 2	5 - 50	Fatal if swallowed	50 - 200	Fatal in contact with skin
Category 3	50 - 300	Toxic if swallowed	200 - 1000	Toxic in contact with skin
Category 4	300 - 2000	Harmful if swallowed	1000 - 2000	Harmful in contact with skin
Category 5	2000 - 5000	May be harmful if swallowed	2000 - 5000	May be harmful in contact with skin

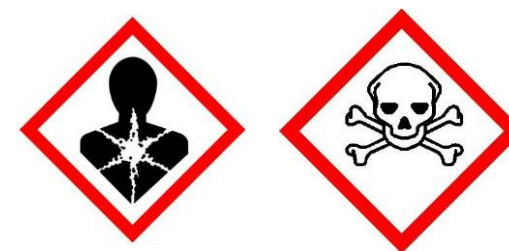


Source: (UN 2011)

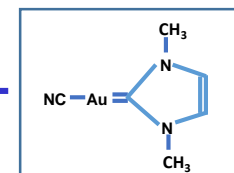
GHS CLASSIFICATION

There are 10 GHS Health Hazard Classes.

- Acute Toxicity (Oral/Dermal/Inhalation)
- Skin Corrosion/Irritation
- Serious Eye Damage/Eye Irritation
- Respiratory or Skin Sensitization
- Germ Cell Mutagenicity



- Carcinogenicity
- Reproductive Toxicology
- Specific Target Organ Toxicant - Single Exposure
- Specific Target Organ Toxicant - Repeated Exposure
- Aspiration Toxicity



GHS CLASSIFICATION

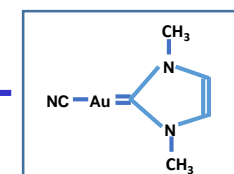


There are 17 Physical Hazard classes.

- Explosives
- Flammable Gases
- Aerosols
- Oxidizing Gases
- Gases Under Pressure
- Flammable Liquids
- Flammable Solids
- Self-Reactive Substances
- Pyrophoric Liquids



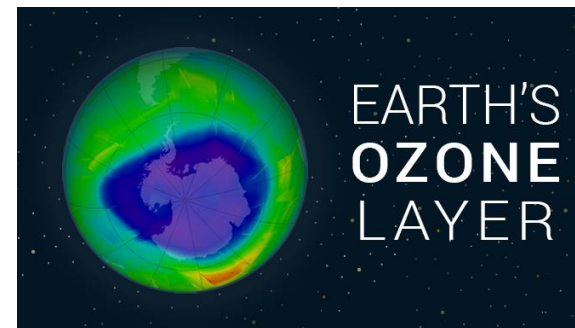
- Pyrophoric Solids
- Self-Heating Substances
- Substances which, in contact with water emit flammable gases
- Oxidizing Liquids
- Oxidizing Solids
- Organic Peroxides
- Corrosive to Metals
- Desensitized explosives



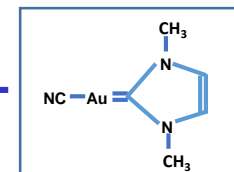
GHS CLASSIFICATION

There are 2 Environmental Hazard classes.

- Hazardous to Aquatic Environment (Acute/Chronic)
- Hazardous to the Ozone Layer



Credit: <https://earthhow.com/ozone-layer/>



GHS CLASSIFICATION

GHS Category

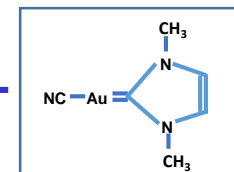
The hazard category reflects the severity of the hazard!

Depending on the Hazard Class, there may be one or several hazard categories to classify the hazards into.



Hazard sub-categories: certain hazard categories are composed of optional sub-categories that may be implemented at the discretion of the Regulator

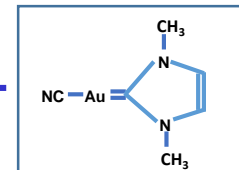
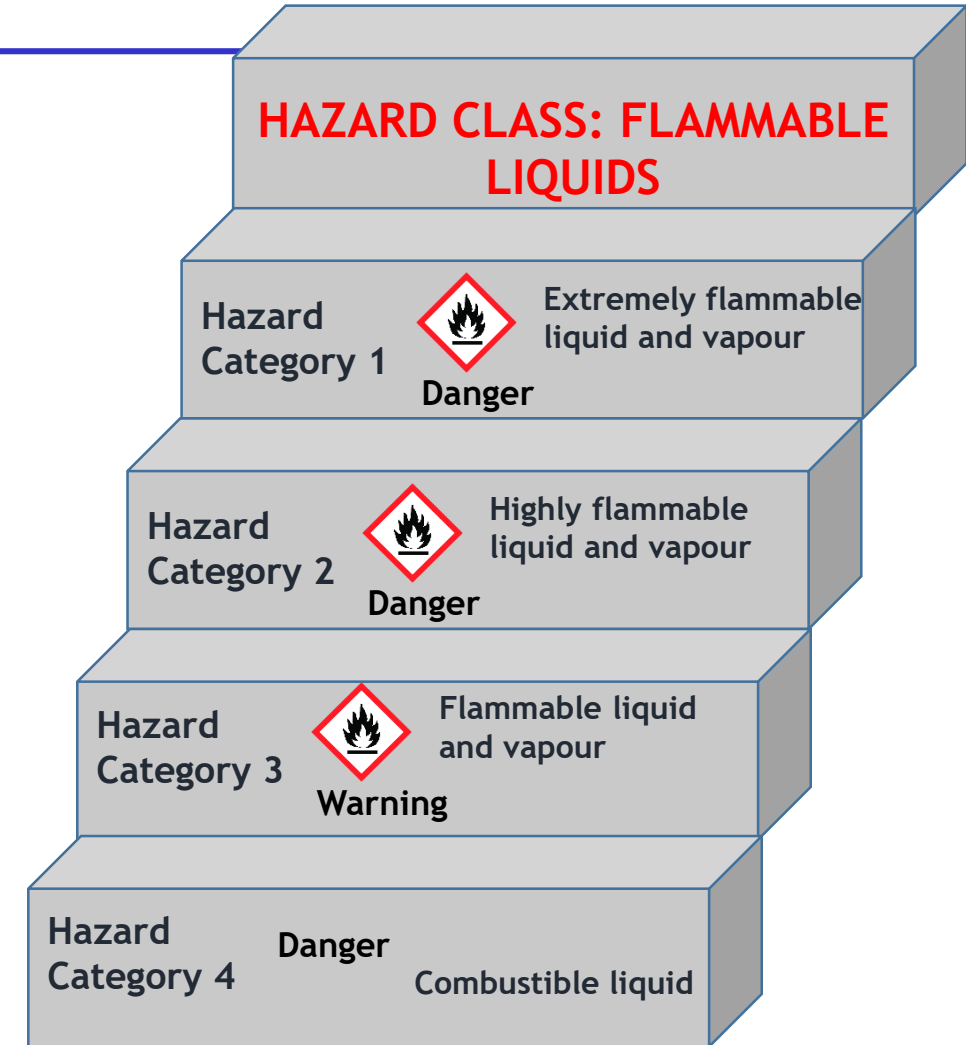
Classification in a given category is based upon whether or not a chemical meets the classification criteria associated with that category.



GHS CLASSIFICATION - HAZARD CATEGORIES

■ Specific classification criteria - flammable liquids :

- Category 1: Flash point $<23\text{ }^{\circ}\text{C}$ and initial boiling point $\leq 35\text{ }^{\circ}\text{C}$
- Category 2: Flash point $<23\text{ }^{\circ}\text{C}$ and initial boiling point $>35\text{ }^{\circ}\text{C}$
- Category 3: Flash point $\geq 23^{\circ}\text{C}$ and $\leq 60\text{ }^{\circ}\text{C}$
- Category 4: Flash point $>60^{\circ}\text{C}$ and $\leq 93\text{ }^{\circ}\text{C}$



GHS CLASSIFICATION - WHAT IT MEANS (PROCESS)

1.

- Identify the **relevant data** regarding the hazards of a substance or mixture - **Hazard Identification Step**.

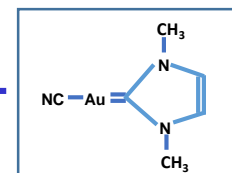
2.

- **Review and quality check the data** to ascertain what hazards are associated with the particular substance or mixture - **Hazard Assessment Step**.

3.

- **Decide** whether the chemical will be classified as hazardous **and the degree of hazard**, where appropriate, by **applying the GHS criteria and rules** and comparison of the data with agreed hazard classification criteria - **Hazard Characterization Step**.

Document
the process:
Classification
Rationale

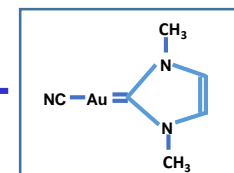


GHS CLASSIFICATION - WHAT IT MEANS (FERTILIZERS)

Collection of data:

- Determine if the fertilizer has been tested for physical, health and environmental hazards - look for “Test Data”.
- If no Test Data: find available hazard data for each ingredient in the fertilizer - its GHS classification.
- Record the data for each ingredient in the Classification Rationale (CR).

Challenge:
To find reliable,
verified and good
quality test data
for each
ingredient.

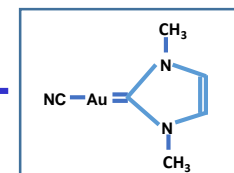


GHS CLASSIFICATION - WHAT IT MEANS

The classification process should consider:

- The exact composition of the mixture (%m/m) - look at the formulation.
- Complexes formed, neutralization, buffering, chelation, etc.
- Supplier SDSs.
- Fertilizer analysis reports.
- Classification of similar fertilizers in terms of content.

Each mixture is unique in terms of composition and hazard assessment must take this into consideration.

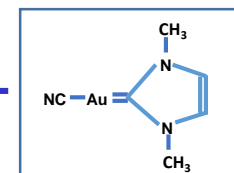


GHS CLASSIFICATION - WHAT IT MEANS

The Classification Rationale:

- Is a technical document.
- Thoroughly documents the complete classification process.
- Supplies a record of the data used in the classification. Also includes the source of the data.
- Reflects all classification decision taken.
- Shows how the GHS classification criteria was applied for each relevant hazard.
- Documents the outcome of the classification process in terms of hazards classes and hazard categories applicable to the product.

Can be used for compliance purposes, business contingency, classification disputes, customer information, etc.



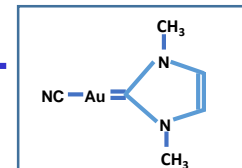
GHS CLASSIFICATION - WHAT IT MEANS

What to do with the outcome of the classification:

- Use when developing the product label.
- Use when developing the SDS.
- Use when completing the documentation for product registration.
- Use when training own employees, sales & marketing teams and customers on the product hazards.

CR NOTE:

Indications are that the CR will be a legally required document that will have to be submitted during registration, renewals, etc.

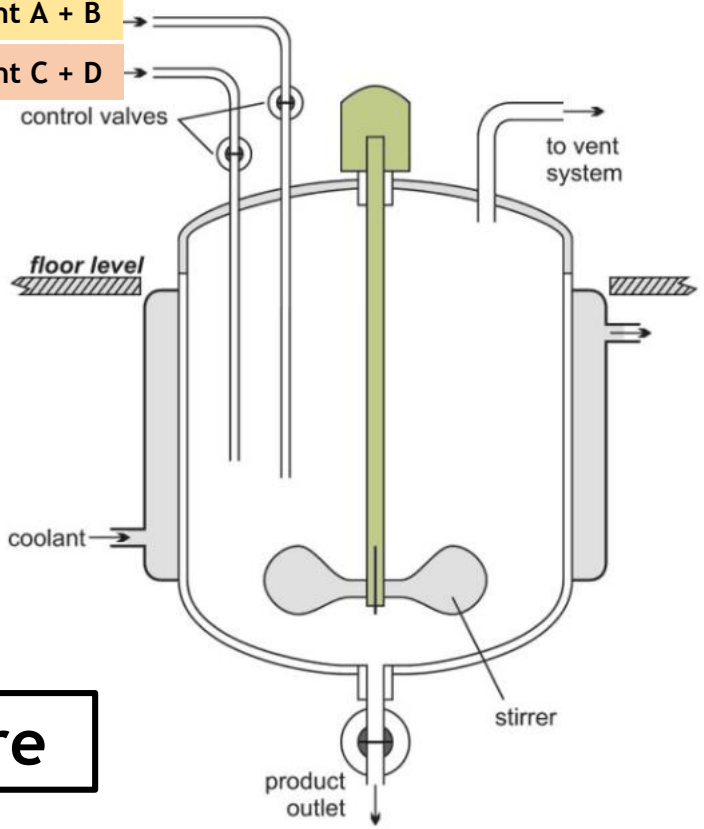


GHS CLASSIFICATION - FERTILIZERS

A + B + C + D

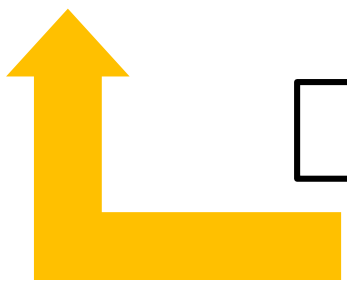


Ingredient A + B
Ingredient C + D



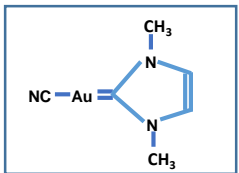
- A = Cu salt
- B = Water
- C = Complexing Agent
- D = Aqueous Ammonia

Determine the GHS classification of AC and D and use this data for the classification of the fertilizer product.



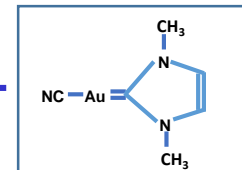
Fertilizer mixture

B + AC + D



GHS CLASSIFICATION - WHAT IT MEANS

- GHS is a self-classification system using, as far as possible, existing available data. Examples of data obtained from sources (primary or secondary) could include:
 - company test data
 - testing done by others
 - raw material SDS information
 - literature
 - practical experience
 - national/regional data bases - ECHA, NITE, EPA



GHS LABELS & LABEL ELEMENTS

Have a quick look:

Nine Pictograms in the GHS associated with the nine GHS hazard classes.



Pictograms are intended to immediately alert the user/handler to the hazards of the product that they might be exposed to.



POTASSIUM NITRATE

KNO₃

Pure, BP, FCC

CAS Number 7757-79-1
E252

Other Names:

Salt peter, Nitre, Nitrate of potash

P210, P220, P221, P261, P264,
P271, P280, P302+P352,
P304+P340,
P305+P351+P338, P312,
P321, P332+P313,
P337+P313, P362,
P370+P378, P403+P233,
P405, and P501



H272: May intensify fire;
oxidizer

H315: Causes skin irritation

H319: Causes serious eye
irritation

H335: May cause respiratory
irritation

Weight 90g












D I O E



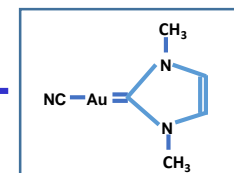
7 448351 011048

GHS LABELS & LABEL ELEMENTS

- A pictogram is a graphical presentation of a chemical's hazard.
- GHS pictograms are composed of black symbols on a white background with a red diamond frame.
- The pictograms on the label and SDS are determined by the chemical hazard classification.

GHS01 Explosive 	GHS02 Flammable 	GHS03 Oxidising 
GHS04 Gas Under Pressure 	GHS05 Corrosive 	GHS06 Acute Toxic 
GHS07 Harmful / Irritant / Skin sensitiser 	GHS08 Carcinogen / Germ cell mutagen / Reproductive toxin 	GHS09 Hazardous to the aquatic environment 

Credit: <https://www.york.ac.uk/biology/intranet/health-safety/chemical-safety-2/classification-of-chemicals/comparison-of-old-and-new/>

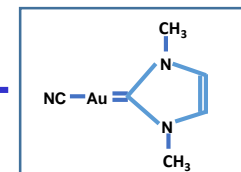


GHS LABELS & LABEL ELEMENTS

- Labelling is the **cornerstone** of GHS compliance.
- The label informs the user **about the hazards** of the specific substance that a person will be working with.
- The label information also supplies advice on **essential safety precautions** and how to prevent an injury/illness when working with the hazardous substance or mixture.



Credit: <http://www.seton.com/blog/2013/02/ghs-labels-and-tags-help-you-maintain-compliance>

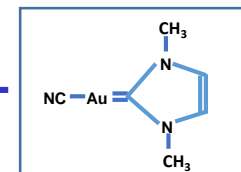


GHS HAZARD COMMUNICATION ELEMENTS - LABELS

- In addition to standardizing labels, there was an additional challenge to creating the GHS labelling system.
- The labels had to convey information to workers around the world who use many different languages.

As a result, GHS labels use a combination of pictograms and text to convey information.

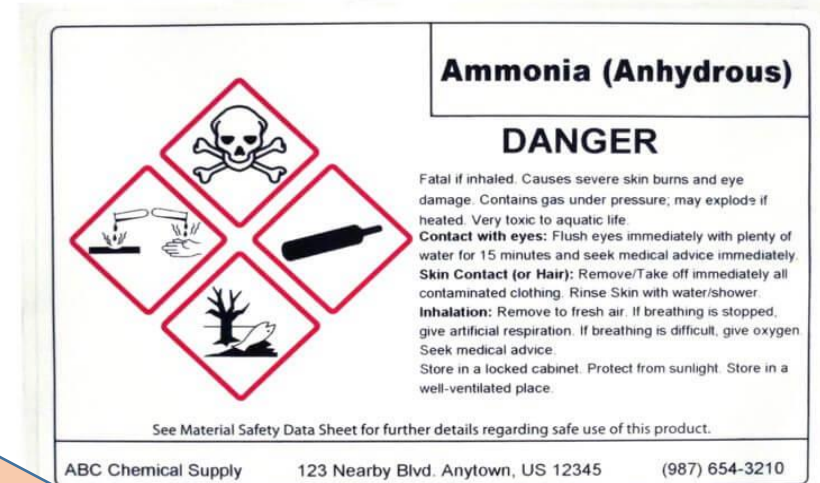
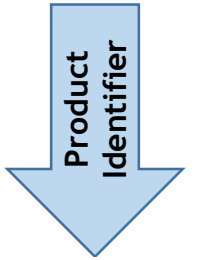
- Some of the information used on the label are "text" elements and some are "visual".
- While the GHS does not require a specific label format, it does have a recommended order and positioning of the elements on the label.



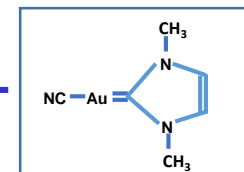
GHS LABELS & LABEL ELEMENTS

THE CORE ELEMENTS OF A GHS LABEL INCLUDE

- **Product identifier** - the chemical identity (name) of a substance or the identities of the hazardous ingredients in a mixture - as it appears on the SDS. This appears at the top of the GHS label
- **Supplier identification** - the name, address and telephone number of the supplier.



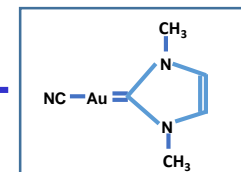
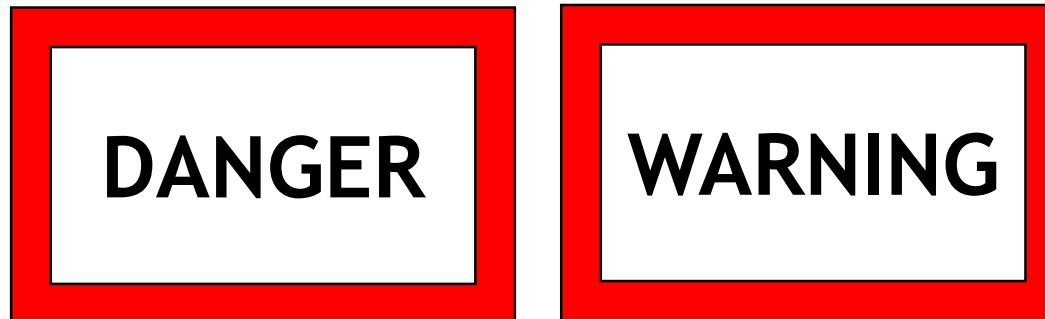
Supplier ID



GHS LABELS & LABEL ELEMENTS

THE CORE ELEMENTS OF A GHS LABEL INCLUDE

- **Signal Word** - Danger (more severe hazard) or Warning (less severe hazard). Only one of the two must appear on the label.



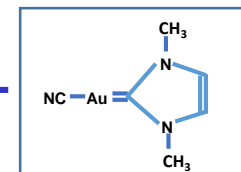
GHS LABELS & LABEL ELEMENTS

- **Hazard statements** - standardized and assigned phrases that describe the hazard(s) as determined by the hazard classification.
- **Precautionary statements** - standardized phrases that describe measures to minimize or prevent adverse effects.
- **Hazardous ingredients that contribute/cause the GHS classification** - chemical identity & % composition.

H301: Toxic if swallowed

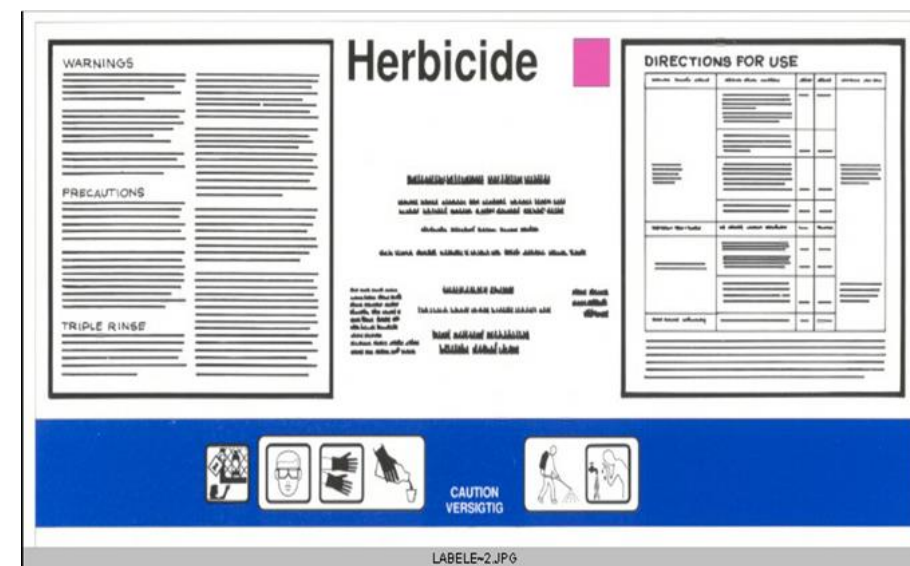
P233: Keep container tightly closed

Potassium carbonate: 30% - 40%
Tetrapotassium pyrophosphate: 10% - 15%
Tetrasodium ethylene diamine tetraacetate: 5%

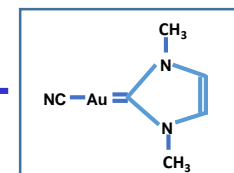


GHS LABELS & LABEL ELEMENTS

- Supplemental information - the label producer (manufacturer/importer) may provide additional instructions or information that it deems helpful. It may also list any hazards not otherwise classified under this portion of the label.
- An example of the above includes PPE pictograms indicating what workers handling the chemical may need to wear to protect themselves.
- Other supplementary information may include directions of use, expiration date or fill date.



Credit: <https://www.pestmanagementacademy.com/learn/level-1/module-1/section-1/manual.php>



GHS HAZARD COMMUNICATION ELEMENTS - LABELS

Components Of A GHS-Compliant Label

product identifier

AMMONIA

signal word

DANGER

hazard statement

TOXIC IF INGESTED


precautionary statements

Wash hands thoroughly after handling. Keep container tightly closed when not in use. Keep away from heat, sparks and open flames - may explode when exposed to high heat. Use in an open area that is well-ventilated. Breathing in ammonia is irritating and corrosive. Wear protective gloves and safety goggles to prevent burns and irritation.

If swallowed: Immediately call Poison Control or doctor/physician. Drink water or milk to dilute ammonia.

supplier information

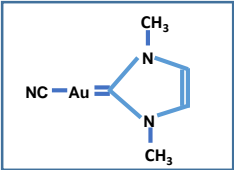
ABC Chemicals - 123 Main Street - Cincinnati, OH - www.abcchem.com - 800-733-5252



pictograms

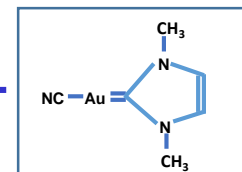
See Safety Data Sheet (SDS) for further details regarding safe use of this product.

Credit: <https://www.general-data.com/about/blog/ghs-compliant-labels-what-are-essential-components>



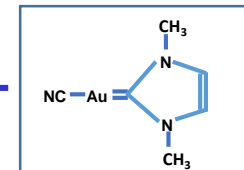
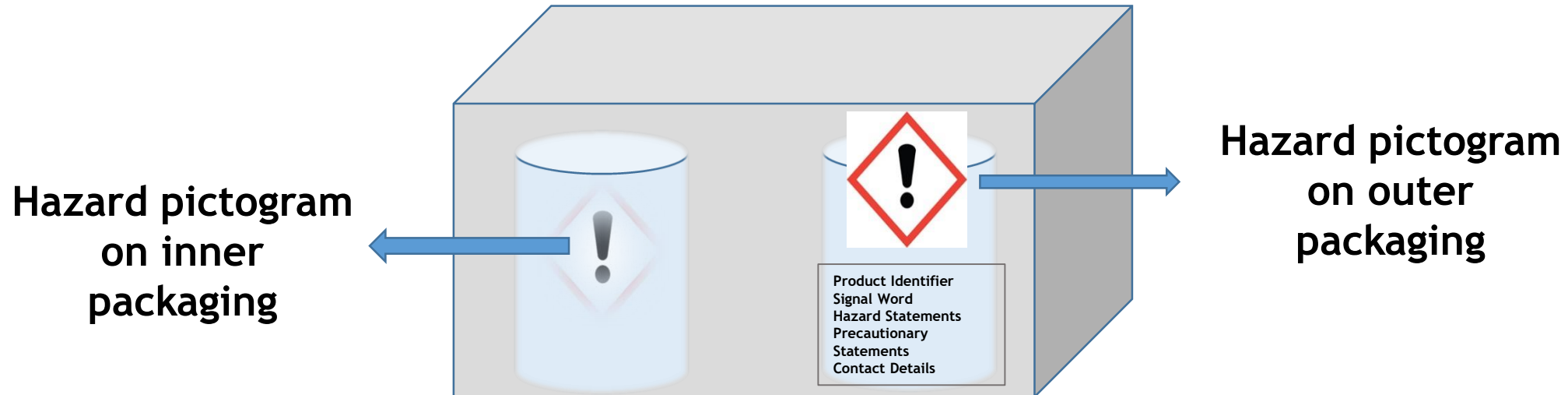
GHS LABELS & LABEL ELEMENTS

- There is no standardised format for labels. Manufacturers can produce labels as they wish, as long as the required label elements are present.
- Labels must be legible, in English and prominently displayed. Other languages may be displayed in addition to English.
- Not all substances and mixtures classified and labelled according to the GHS require classification and labelling under the provisions of the transport of dangerous goods legislation, i.e. if they are not considered hazardous for transport (e.g. carcinogens and substances toxic to reproduction - CMRs).
- Example - a mixture which is classified as being harmful or causing skin sensitization. The mixture is not classified under the SA transport legislation. The label on the inner and outer packaging will be the following:



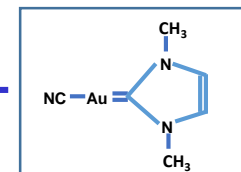
GHS LABELS & LABEL ELEMENTS

Outer and Inner Packaging



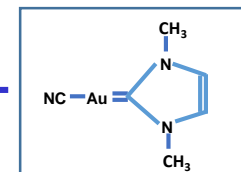
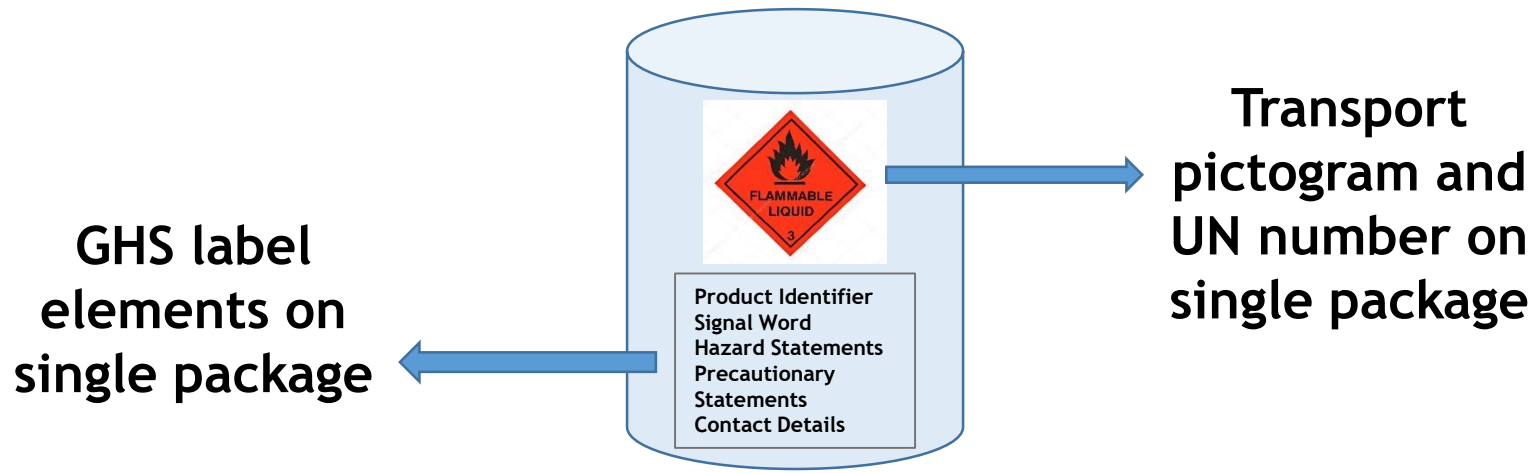
GHS LABELS & LABEL ELEMENTS

- When an agent is classified under the GHS and the dangerous goods legislation for the same hazard, the outer packaging must display the transport label for the specific hazard and the inner label must display the GHS pictogram:



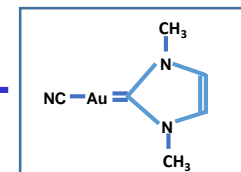
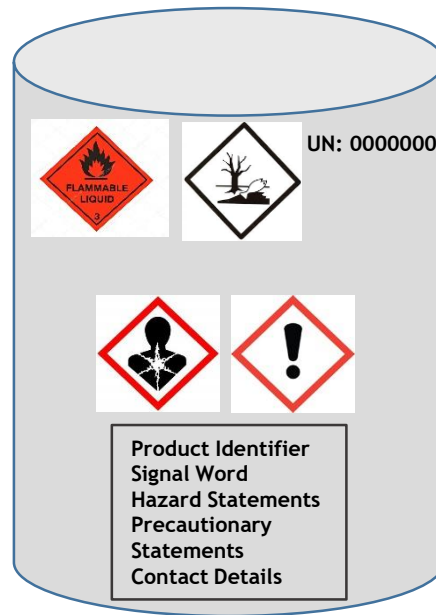
GHS LABELS & LABEL ELEMENTS

- Where there is no inner packaging (i.e. single packages like drums), labelling under the provisions of both the transport of dangerous goods legislation and the GHS is required.
- When the hazard pictograms for transport and the GHS are the same, the GHS pictogram(s) need not appear:



GHS LABELS & LABEL ELEMENTS

- For a mixture single packaging label (e.g. a 200 litre drum) classified under both transport and GHS criteria, the transport and GHS label elements must be shown on the packaging. The GHS pictograms for flammability, and aquatic hazards (acute and chronic) have been omitted as the underlying hazards are already covered by the corresponding transport pictograms.



GHS LABELS - FERTILIZER LABELS



3-18-18 LIQUID FERTILIZER

GUARANTEED ANALYSIS

TOTAL NITROGEN (N)	3.00%
0.80% Ammoniacal Nitrogen	
2.20% Urea Nitrogen	
AVAILABLE PHOSPHATE (P ₂ O ₅)	18.00%
SOLUBLE POTASH (K ₂ O)	18.00%
Derived from urea, anhydrous ammonia, phosphoric acid and potassium hydroxide.	
Weight per gallon: 11.8 lbs. @ 68°F	



KEEP OUT OF REACH OF CHILDREN

WARNING

HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION.

PRECAUTIONARY STATEMENTS: Wash hands, forearms and face thoroughly **after** handling. Do not eat, drink or smoke **when** using this product. For specific treatment see First Aid section on this label.

PERSONAL PROTECTIVE EQUIPMENT: Wear protective gloves / protective clothing / eye protection / face protection. Take off contaminated clothing and wash it before reuse.

FIRST AID: IF SWALLOWED: Rinse mouth. Call a poison center / doctor if you feel unwell. IF ON SKIN: Wash with plenty of water. If skin irritation occurs, get medical attention.

DISPOSAL: Dispose of contents / container in accordance with local / regional / national regulations.

DIRECTIONS FOR USE

This product is a commercial fertilizer used as plant food in agricultural crop production. For specific application rates follow the recommendation of a qualified individual or institution, such as, but not limited to, a certified crop advisor, agronomist, university crop extension publication, or apply according to recommendations in your approved nutrient management plan.



WARNING: This product can expose you to chemicals including cadmium which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.regulatory-info-j.com>

DISCLAIMER OF WARRANTIES: J.R. Simplot Company warrants that the composition of this product conforms to the description and is reasonably fit for the purpose as stated on the label only when used in accordance with label directions under normal conditions of use. This warranty is expressly in lieu of all other warranties and representations expressed, implied, or statutory, including warranties of merchantability and fitness for a particular use. Timing, rate and method of application, weather and crop conditions, and mixtures not specifically recommended on this label or an accompanying written recommendation, are beyond the control of the seller. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given hereon. Buyer further agrees that, in the event of damages resulting from, but not limited to, weather or soil conditions, presence of other materials, or failure to follow label directions, responsibility will be assumed by the buyer or user; and to accept a replacement of the product or a refund of the purchase price of the product, at buyer's option, as full discharge of seller's liability. No one is authorized to make any other warranty, guarantee or directions concerning this product, and no such warranties, guarantees or directions shall be valid or binding upon seller. Simplot is a registered trademark of J.R. Simplot Company.

NET WEIGHT: _____ POUNDS / _____ KILOGRAMS

J. R. SIMPLOT COMPANY
P.O. Box 70013 • Boise, ID 83707
(208) 336-2110

Guaranteed By
J.R. SIMPLOT COMPANY
P.O. Box 198 • Lathrop, CA 95330
(209) 858-2511

ITEM# 16400_GH8_RB-14-17 IN CASE OF AN EMERGENCY CALL CHEMTREC 1-800-424-8300

If you are viewing the below label in black and white, please visit www.MosaicCo.com to view a full color version of this GHS product label.

114753

0121

Identifier: Potassium Chloride + Boron, MOP + Boron



Warning

Hazard Statement(s)

H361: Suspected of damaging fertility or the unborn child

Precautionary Statement(s):

P201: Obtain special instructions before use. See section 7 Handling and Storage.

P280: Wear protective gloves/protective clothing/eye protection/face protection. See Section 8 for suggested Personal Protective Equipment.

IF exposed or concerned: Get medical advice/attention.

The Mosaic Company

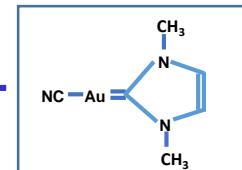
101 East Kennedy Blvd, Ste 2500
Tampa, FL 33602
(800) 918-8270 or (813) 775-4200
8 AM to 5 PM Eastern Standard Time USA



GHS SAFETY DATA SHEETS

SDS Purpose:

- A SDS is a **summary document** that provides information about a chemical, especially:
 - its potential hazards (hazard classification)
 - its properties (physical, chemical, etc.)
 - its safe use procedures (safety precautions)
- The SDS describes the **measures and equipment** that enables the safe work with the specific chemical.
- The GHS Safety Data Sheet also "looks and feels" much like the old Material Safety Data Sheet.



GHS SAFETY DATA SHEETS

Employer must make available to employees.

Uniform format - 16 Sections.

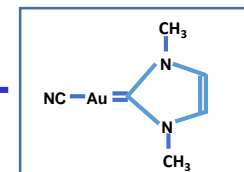
SDS

Supplier must prepare and make available.

Kept updated - in case of change.

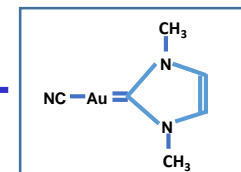
The SDS has many different audiences: occupational hygienists and safety professionals, employers, supervisors, nurses, doctors, emergency responders, and workers.

Quality of the SDS goes hand in hand with company image.

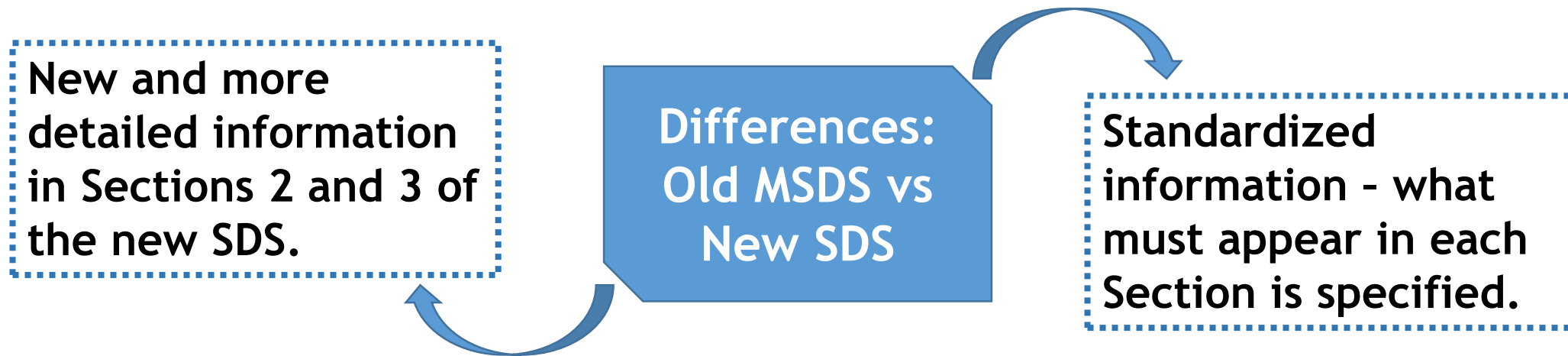


GHS SAFETY DATA SHEETS

- The first **eight sections** of the GHS Safety Data Sheet cover areas including:
 - The identity of the substance or mixture and the supplier
 - Its hazards
 - First aid measures
 - Handling and storage
 - Exposure controls and personal protection
- The last **eight sections** of the GHS Safety Data Sheet cover areas including:
 - Physical and chemical properties
 - Stability and reactivity
 - Disposal and transport information
 - Toxicological information
 - Ecological information

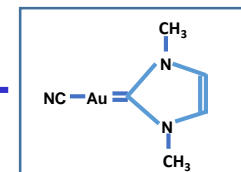


GHS SAFETY DATA SHEETS




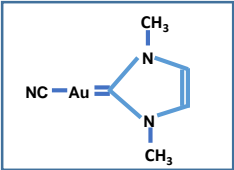
Section 2: Hazard Identification -

- Hazard classification (class, category or subcategory) of substance or mixture.
- GHS Pictograms.
- GHS Signal Word.
- GHS Hazard Statements & Precautionary Statements.
- Other hazards not classified.



GHS SAFETY DATA SHEETS

SECTION 2		HAZARD IDENTIFICATION	
GHS Classification:		Acute Toxicity Oral Category 5 Skin Irritant Category 2 Eye Irritant Category 2B STOT SE Category 3	Hazard Statement H303 Hazard Statement H315 Hazard Statement H320 Hazard Statement H335
		Signal Word: WARNING Hazard Statement(s) H303: May be harmful if swallowed H315: Causes skin irritation H320: Causes eye irritation H335: May cause respiratory irritation	
Label Elements:			
Prevention:		P264: Wash hands thoroughly after handling. P280: Wear protective gloves P261: Avoid breathing dust P271: Use only outdoors or in a well-ventilated area.	
Response:	P302+ P352	IF ON SKIN: Wash with plenty of water.	
	P321	Specific Treatment, see supplemental first aid information.	
	P332+ P313	If skin irritation occurs: Get medical advice/attention.	
	P362+ P364	Take off contaminated clothing and wash it before reused.	

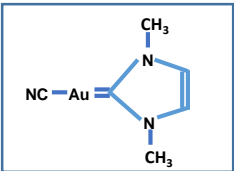


GHS SAFETY DATA SHEETS

	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+ P313	If eye irritation persists: Get medical advice/attention.
	P304+ P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P312	Call a POISON CENTER.
Storage:	Not applicable	Not applicable
Disposal:	P501	Disposal of content/containers to be in accordance with local/regional/national regulations.

Section 3: Composition/Information on Ingredients -

- Include in a table all the classified ingredients that cause/contribute toward the product’s GHS classification.
- Specific information has to be disclosed - see example.



GHS SAFETY DATA SHEETS

SECTION 3	COMPOSITION INFORMATION ON INGREDIENTS			
Formula:	$(\text{NH}_4)\text{H}_2\text{PO}_4 + (\text{NH}_4)_2\text{SO}_4 + \text{S}$			
Composition:	Monobasic Ammonium Phosphate Ammonium Sulfate Sulfur	CAS 7722-76-1 CAS 7783-20-2 CAS 7704-34-9	75-78% 12-15% 4-6%	Acute Toxicity Oral Category 5 Skin Irritant Category 2 Eye Irritant Category 2B STOT SE 3 (Lungs, Inhalation)

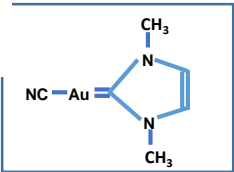
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance
Not applicable

3.2. Mixture (Exact percentages of ingredients are being withheld as a trade secret)

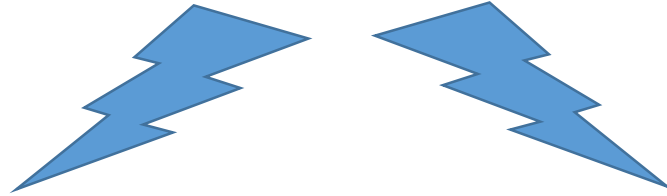
Name	Product identifier	%	Classification (GHS-US)
Urea	(CAS No) 57-13-6	0.0 - 100	Skin Irrit. 2, H315 Eye Irrit. 2B, H320
Diammonium Phosphate	(CAS No) 7783-28-0	0.0 - 100	Skin Irrit. 2, H315 Eye Irrit. 2B, H320 STOT SE 3, H335 Aquatic Acute 3, H402
Potassium Chloride	(CAS No) 7447-40-7	0.0 - 100	Aquatic Acute 3, H402
Limestone	(CAS No) 1317-65-3	0.0 - 95	Not classified

Full text of H-phrases: see section 16



GHS SAFETY DATA SHEETS

The SDS will be product specific.



SDS content must be aligned with the hazards of the product.

No more copy and paste when developing the SDS!

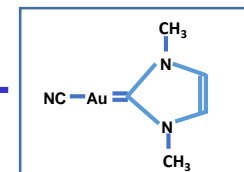
The SDS is a legal document and its content could be challenged in court should it not supply adequate information that informs the user of the product's hazards.



Credit:
<http://srpenvironmental.com/webinar-safety-data-sheets-hazard-communication/>

GHS SAFETY DATA SHEETS

- SDSs of agricultural products shall comply with the requirements of the Regulations for Hazardous Chemical Agents - 2021.
- 18 Months transition from non-GHS to GHS compliant SDSs have been granted - September 2022 deadline.
- In order to comply with the above, agricultural remedies will have to undergo a GHS classification - starting point!



USING THE SDS AND LABEL

The Label and SDS of products should be used in the company's internal management systems - **E & H & S & Q**. A few examples:

Starting point for task-based risk assessment.

Occupational health risk assessment.

Environmental risk assessment.

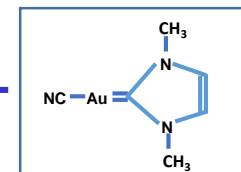
PPE identification - PPE Matrix.

Transport of Dangerous Goods.

Product Stewardship programmes.

Legal compliance program.

Training and instruction.



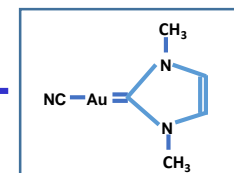
OTHER GHS IMPACTS

Commercial confidentiality:

1.4.8 *Confidential business information*

1.4.8.1 Systems adopting the GHS should consider what provisions may be appropriate for the protection of confidential business information. Such provisions should not compromise the health and safety of workers or consumers, or the protection of the environment. As with other parts of the GHS, the rules of the importing country should apply with respect to confidential business information claims for imported substances and mixtures.

Regulations for Hazardous Chemical Agents - Regulation 14D Disclosure of Ingredient Identity



OTHER GHS IMPACTS

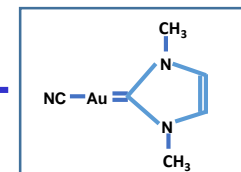
GHS implementation and compliance options:

Get started as soon as possible - time is running out!

DIY approach - can work for some companies but not all.

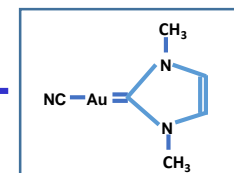
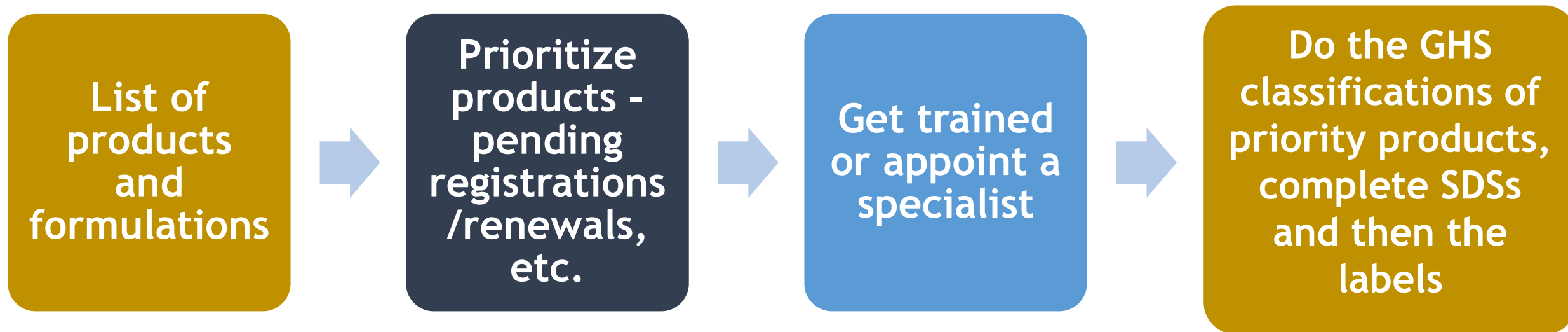
If you contract a specialist - ensure that they know the GHS well, have the appropriate experience, qualifications and an understanding of your products!

The Purple Book is a technical document, but is easy to read and understand.



OTHER GHS IMPACTS

GHS Implementation Plan:



CONCLUSION

THANK YOU

QUESTIONS?



Credit: https://www.chemsafetypro.com/Topics/GHS/UN_GHS_Purple_Book.html

