

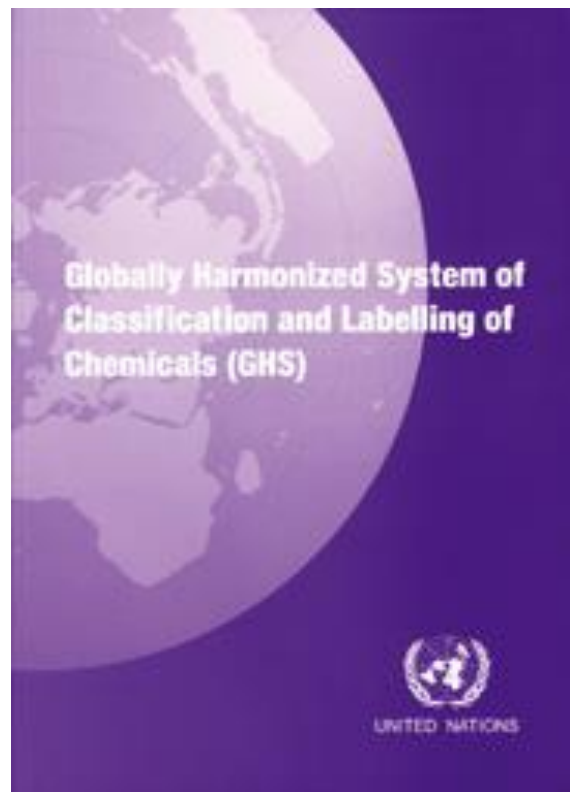
PEST CONTROL



PRODUCTS BOARD

MANUAL FOR THE  
IMPLEMENTATION OF GLOBALLY  
HARMONIZED SYSTEM OF  
CLASSIFICATION & LABELING OF  
PEST CONTROL PRODUCTS IN  
KENYA

*Version 1.0*



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## Definitions

**Active ingredient** means the part of the product that provides the pesticidal action.

**Building block approach** is a concept where hazard classes and categories described in the GHS are used by competent authorities to decide which hazard classes apply in their jurisdiction, while implementing the GHS in classification and labelling of pest control products keeping in mind the goal of full harmonization as well as international conventions.

**Co-formulant** means a non-active ingredient component of a formulated product.

**Colour band** means a band printed at the bottom part of the label of a colour indicating the acute hazard of the pesticide product.

**Container** means any object used to hold a pesticide product.

**Formulation** means the combination of various ingredients designed to render the product useful and effective for the purpose claimed and for the envisaged mode of application.

**Hazard** means the inherent property of a substance, agent or situation having the potential to cause undesirable consequences (e.g. properties that can cause adverse effects or damage to health, the environment or property).

**Hazard statement** means a statement assigned to a hazard class and category that describes the nature of the hazards of a pesticide, including, where appropriate, the degree of hazard.

**Label** and **labelling** means the written, printed or graphic matter on, or attached to, the pesticide or the immediate container thereof and also to the outside container or wrapper of the retail package of the pesticide.

**Leaflet** means a part of the product label that is supplied in the form of a detachable or separate leaflet(s), booklet(s) or similar, rather than attached permanently to the container.

**Manufacturer** means a corporation or other entity in the public or private sector (including an individual) engaged in the business or function (whether directly or through an agent or entity controlled by or under contract with it) of manufacturing a pesticide active ingredient or preparing its formulation or product.

**Packaging** means the container together with the protective wrapping used to carry pesticide products via wholesale or retail distribution to users.

**Pesticide** means any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest, or regulating plant growth.

**Pesticide industry** means all those organizations and individuals engaged in manufacturing, formulating or marketing pesticides and pesticide products.

**Pesticide legislation** means any laws or regulations introduced to regulate the manufacture, marketing, distribution, labelling, packaging, use and disposal of pesticides in their qualitative, quantitative, health and environmental aspects.

**Pictogram** means a graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or colour that is intended to convey specific information.

**Precautionary statement** means a phrase (and or/pictogram) that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a pesticide, or improper storage or handling of a pesticide.

**Product** (or **pesticide product**) means the formulated product (pesticide active ingredient(s) and co-formulants), in the form in which it is packaged and sold.

**Risk** is the probability and severity of an adverse health or environmental effect occurring as a function of a hazard and the likelihood and the extent of exposure to a pesticide.

**Signal word** means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.

**Symbol** means graphical element intended to succinctly convey information.

**Toxicity** means a physiological or biological property which determines the capacity of a chemical to do harm or produce injury to a living organism by other than mechanical means.

## Chapter 1: INTRODUCTION

In sub-Saharan Africa, pests and diseases pose a major challenge to the achievement of sustainable agricultural productivity. Therefore, effective pest and disease management is critical to the sector productivity and environmental sustainability. The use of chemicals to enhance and improve life is a widespread practice worldwide. Pesticides play a vital role in pest and disease management in crops, animals and public health. Through prudent use, Pest control products can enhance agricultural and livestock productivity. However, PCPs are potentially hazardous to human, animals and the environment.

While the regulations on pesticides are similar in many respects, there are differences in classification of pesticides, hazards symbols and signal words on labels or SDS for the same chemical in different countries. Hazard communication is normally through labels and safety data sheets. Provision of information gives those using chemicals the identities and hazards of these chemicals, and allows the appropriate protective measures to be implemented in the local use settings. Decisions on when or how to communicate hazards on a label or SDS vary around the world. Given the complexity of developing and maintaining a comprehensive system for classifying and labelling chemicals, many countries have no system at all.

In Kenya, Labelling regulations are provided for in Pest Control Products (Labeling, Packaging and Advertising) Regulations Legal Notice No. 89/1984, and the Pest Control Products (Labeling, Advertising and Packaging) (Amendment) Regulations, L. N. 127/2006. These require that all packages of pesticides display a standard label on the packaging material. Such labels are essentially summaries of the technical dossiers and must be approved by PCPB. The Classification of PCPs is currently based on the WHO 2004 guidelines. The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) is a method developed by the United Nations for communicating chemical hazards. Under this system, chemical containers must all display a specific label. The labelling helps facilitate the safe shipping and use of hazardous substances. Before GHS, inconsistencies in labeling made exporting and importing of chemicals a challenge.

The GHS includes the following elements:

- harmonized criteria for classifying substances and mixtures according to their health, environmental and physical hazards; and
- harmonized hazard communication elements, including requirements for labelling and safety data sheets.

It is anticipated that, when implemented, the GHS will:

- enhance the protection of human health and the environment by providing an internationally comprehensible system for hazard communication;
- provide a recognized framework for those countries without an existing system;
- reduce the need for testing and evaluation of chemicals; and
- facilitate international trade in chemicals whose hazards have been properly assessed and identified on an international basis.

The goal of the GHS is to identify the intrinsic hazards found in substances and mixtures and to convey hazard information about these hazards. GHS includes classification criteria and labelling elements for a wide variety of endpoints based solely on intrinsic Hazard. Hazard statements, symbols and signal words have been standardized and harmonized and now form an integrated hazard communication system. The GHS will allow the hazard communication elements of the existing systems to converge. The GHS is voluntary and allows competent national authorities to implement components that are compatible with existing classification and labelling systems. The “Building Block approach” allows authorities freedom to select the building blocks that they consider appropriate for their target audiences. PCPB in collaboration with relevant stakeholders have identified the various elements of the GHS based on our local needs.

GHS Classification is based on hazards, not risk. Hazard class designates the nature of the physical, health or environmental hazard, e.g., flammable solid, carcinogen, oral acute toxicity. Hazard classes are segmented into categories depending on severity, e.g. five categories for oral acute toxicity and four categories for flammable liquids.

Hazard classification is done in 3 steps:

- a) Identification of the relevant hazard data;
  - b) Subsequent review of the data to ascertain the hazards associated with the substance or mixture; and
  - c) A decision on whether the substance or mixture will be classified as hazardous and the degree of hazard, where appropriate, by comparison of the end points with agreed hazard classification criteria
- GHS names 3 main hazards groups
- \* Physical hazards: e.g. fire, explosion
  - \* Health hazards: e.g. inhalation, dermal, oral)
  - \* Environmental hazards :( water, soil, air)

Each group is divided into more specific classes, and each class into more specific categories.

GHS has 28 hazard classes distributed as follows:

- \*16 hazard classes under “Physical Hazards”
- \*10 hazard classes under “Health Hazards”
- \*2 hazard classes under “Environmental Hazards.

Details can be found in the GHS Purple Book revision 6 of 2015.

This GHS manual describes the classification criteria and the hazard communication elements by type of hazards based on Kenyan needs in the regulation of pest control products. The document aims at providing guidance to the PCPB, agrochemical industry and other stakeholders while classifying pest control products and preparing pesticide labels in Kenya in conformity with GHS. The guideline identifies the hazard classes necessary for classification of PCPs under Kenyan situation. The manual is divided into 5 chapters. [Chapter 1 focusses on Introduction](#), [Chapter 2 on Physical Hazards](#), [Chapter 3 provides guidelines on Health Hazard](#), [Chapter 4 covers Environmental Hazards](#), while [Chapter 5 Precautionary Pesticide Pictograms](#). The Manual includes three (3) Annexes: [Annex I Codification of Hazards](#), [Annex II Safety Data Sheets](#) and [Annex III Sample Pesticide Label for Kenya](#).

## Chapter 2. PHYSICAL HAZARDS

### 2.0 Classification of Physical hazards

It is recommended that the classification of physical hazards of a pesticide product follows the GHS. That is, classification criteria and label elements (hazard symbol, signal word and hazard statement) are those defined in the GHS. However, not all physical hazards described in the GHS are relevant to pesticides, because substances would not be authorized as a pesticide if they would pose such hazards (e.g. explosive substances or self-reactive substances).

Reference should be made to the GHS Purple Book for the criteria for classification as well as for label elements recommended for the various hazard categories. In case a pesticide product poses more than one physical hazard, all relevant symbols, signal words and hazard statements should be shown on the label.

Table 1. Physical hazard as defined in the GHS and the likely relevance for pesticide labelling

| GHS chapter | Hazard   | Likely to be indicated on a pesticide label? | Remarks   |
|-------------|--|--|---|
| 2.1         | Explosives   | No   | Such substances are normally not used as pesticides   |
| 2.2         | Flammable gases  | Yes  | e.g. ethylene gas   |
| 2.3         | Flammable aerosols   | Yes  | e.g. certain aerosol sprays   |
| 2.4         | Oxidizing gases  | No   | Such substances are normally not used as pesticides   |
| 2.5         | Gases under pressure   | Yes  | e.g. methyl bromide, carbon dioxide, aerosol sprays   |
| 2.6         | Flammable liquids  | Yes  |   |
| 2.7         | Flammable solids   | Yes  | Not common, but there are a few examples where this applies to pesticides   |
| 2.8         | Self-reactive substances and mixtures                                      | No   | Such substances are normally not used as pesticides   |
| 2.9         | Pyrophoric liquids   | No   | Such substances are normally not used as pesticides   |
| 2.10        | Pyrophoric solids  | No   | Such substances are normally not used as pesticides   |
| 2.11        | Self-heating substances and mixtures                                       | Yes  | Not common, but there are a few examples where this applies to pesticides   |
| 2.12        | Substances and mixtures which, in contact with water, emit flammable gases | Yes  | e.g. aluminium phosphide, magnesium phosphide<br>Certain of these substances may also emit flammable gases after contact with moist air |
| 2.13        | Oxidizing liquids  | Yes  | e.g. sodium chlorate, sodium hypochlorite<br>[Note: such products previously tended to be labelled as "corrosive"]                      |
| 2.14        | Oxidizing solids   | Yes  |   |
| 2.15        | Organic peroxides  | Yes  | e.g. hydrogen peroxide, peracetic acid [Note: such products previously tended to be labelled as "corrosive"]                            |
| 2.16        | Corrosive to metals  | Yes  |   |


Source: FAO/WHO Guidelines on Good Labelling Practices for Pesticides (2015).



## 2.1 Flammable gas

A *flammable gas* is a gas having a flammable range with air at 20 °C and a standard pressure of 101.3 kPa.



**Table 2. Classification criteria for flammable gases**

|                  | Category 1  | Category 2  |
|------------------|---|---|
| Criteria         | a) Gases, which at 20 °C and a standard pressure of 101.3 kPa:<br>b) are ignitable when in a mixture of 13% or less by volume in<br>c) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit | Gases, other than those of Category 1, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air. |
| Symbol           |    | No symbol   |
| Signal word      | Danger  | Warning   |
| Hazard Statement | Extremely flammable gas   | Flammable gas   |

## 2.2 Aerosol

*Aerosols*, (i.e. *aerosol dispensers*), are any non-refillable receptacles made of metal, glass or plastics and containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state.

**Table 3. Classification criteria for aerosols**

|                  | Category 1   | Category 2  | Category 3  |
|------------------|--|---|---|
| Criteria         | Contains $\geq 85\%$ flammable components and the chemical heat of combustion is $\geq 30$ kJ/g; or<br>a) For spray aerosols, in the ignition distance test, ignition occurs at a distance $\geq 75$ cm (29.5 in), or<br>b) For foam aerosols, in the aerosol foam flammability test<br>(i) The flame height is $\geq 20$ cm (7.87 in) and the flame duration $\geq 2$ s; or<br>(ii) The flame height is $\geq 4$ cm (1.57 in) and the flame duration $\geq 7$ s | Contains $> 1\%$ flammable components, or the heat of combustion is $\geq 20$ kJ/g; and<br>a) For spray aerosols, in the ignition distance test, ignition occurs at a distance $\geq 15$ cm (5.9 in), or in the enclosed space ignition test, the<br>(i) Time equivalent is $\leq 300$ s/m <sup>3</sup> ; or (ii) Deflagration density is $\leq 300$ g/m <sup>3</sup><br>b) For foam aerosols, in the aerosol foam flammability test, the flame height is $\geq 4$ cm and the flame duration is $\geq 2$ s and it does not meet the criteria for Category 1 | Substances or mixtures that does not fall to category 1 and 2 |
| Symbol           |   |   | No symbol   |
| Signal word      | Danger   | Warning   | Warning   |
| Hazard statement | Extremely flammable aerosol<br>Pressurized container: May burst if heated  | Flammable aerosol<br>Pressurized container: May burst if heated   | Pressurized container<br>May burst if heated                  |





Aerosols are classified in one of the three categories of this hazard class, depending on their flammable properties and their heat of combustion. They should be considered for classification in Category 1 or 2 if they contain more than 1% components (by mass) which are classified as flammable according to the GHS criteria, i.e.: flammable gases, liquids or solids; or if their heat of combustion is at least 20 kJ/g.

### 2.3 Gases under pressure

*Gases under pressure* are gases which are contained in a receptacle at a pressure of 200 kPa (gauge) or more at 20 °C, or which are liquefied or liquefied and refrigerated. They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.

Gases under pressure are classified, according to their physical state when packaged, in one of four groups in table 4. The critical temperature is the temperature above which a pure gas cannot be liquefied, regardless of the degree of compression.

**Table 4: Classification criteria for gases under pressure**




|                  | Compressed gas  | Liquefied gas   | Refrigerated liquefied gas   | Dissolved gas  |
|------------------|---|---|--|--|
| Criteria         | A gas which when packaged under pressure is entirely gaseous at -50 °C; including all gases with a critical temperature - 50 °C | A gas which when packaged under pressure is partially liquid at temperatures above -50 °C. A distinction is made between:<br>(a) High pressure liquefied gas: a gas with a critical temperature between -50°C and +65°C;<br>And<br>(b) Low pressure liquefied gas: a gas with a critical temperature above +65°C. | A gas which when packaged is made partially liquid because of its low temperature.   | A gas which when packaged under pressure is dissolved in a liquid phase solvent      |
| Symbol           |   |   |  |  |
| Signal word      | Warning   | Warning   | Warning  | Warning  |
| Hazard statement | Contains gas under pressure; may explode if heated  | Contains gas under pressure; may explode if heated  | Contains refrigerated gas; May cause cryogenic burns or injury                       | Contains gas under pressure; may explode if heated                                   |

*NOTE: Aerosols should not be classified as gases under pressure.*

## 2.4 Flammable liquids

A *flammable liquid* means a liquid having a flash point of not more than 93 °C. A flammable liquid is classified in one of the four categories for this class according to the following table 5:

**Table 5: Classification criteria for flammable liquids**

|                  | Category 1  | Category 2  | Category 3  | Category 4                                   |
|------------------|---|---|---|--|
| Criteria         | Flash point < 23 °C and initial boiling point 35°C                                | Flash point < 23°C and initial boiling point > 35°C                               | 73°F(23°C) ≤ Flash point ≤ 140°F (60.5°C)   | 140°F(60.5°C) < Flash point ≤ 199.4°F (93°C) |
| Symbol           |  |  |  | No symbol                                    |
| Signal word      | Danger  | Danger  | Warning   | Warning                                      |
| Hazard Statement | Extremely flammable liquid and vapour   | Highly flammable liquid and vapour  | Flammable liquid and vapour   | Combustible liquid                           |

*NOTE 1: Liquids with a flash point of more than 35 °C and not more than 60 °C may be regarded as non-flammable liquids for some regulatory purposes (e.g. transport) if negative results have been obtained in the sustained combustibility test L.2 of Part III, section 32 of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.*



*NOTE 2: Aerosols should not be classified as flammable liquids*

## 2.5 Flammable solids

A *flammable solid* is a solid which is readily combustible, or may cause or contribute to fire through friction.

*Readily combustible solids* are powdered, granular, or pasty substances which are dangerous if they can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly.

**Table 6: Classification for Flammable Solids**

|                  | Category 1  | Category 2  |
|------------------|---|---|
| Criteria         | Burning rate test: Substances or mixtures other than metal powders:<br>(a) wetted zone does not stop fire; and<br>(b) burning time < 45 s or burning rate > 2.2 mm/s. Metal powders: burning time 5 min | Burning rate test: Substances or mixtures other than metal powders:<br>(a) wetted zone stops the fire for at least 4 min; and<br>(b) burning time < 45 s or burning rate > 2.2 mm/s<br>Metal powders: burning time > 5 min and 10 min |
| Symbol           |    |    |
| Signal word      | Danger  | Warning   |
| Hazard statement | Flammable solid   | Flammable solid   |




*NOTE 1: For classification tests on solid substances or mixtures, the tests should be performed on the substance or mixture as presented. If for example, for the purposes of supply or transport, the same chemical is to be presented in a physical form different from that which was tested and which is considered likely to materially alter its performance in a classification test, the substance must also be tested in the new form.*

*NOTE 2: Aerosols should not be classified as flammable solids*

## 2.6 Substances and Mixtures which, in Contact with Water, Emit Flammable Gases

*Substances or mixtures which, in contact with water, emit flammable gases* are solid or liquid substances or mixtures which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

**Table 7: Classification Criteria for substances and mixtures which, in contact with water emit flammable gases**


|                  | Category 1  | Category 2  | Category 3   |
|------------------|---|---|--|
| Criteria         | Any substance or mixture which reacts vigorously with water at ambient temperatures and demonstrates generally a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is equal to or greater than 10 litres per kilogram of substance over any one minute | Any substance or mixture which reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 20 litres per kilogram of substance per hour, and which does not meet the criteria for Category 1 | Any substance or mixture which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is greater than 1 litre per kilogram of substance per hour, and which does not meet the criteria for Categories 1 and 2 |
| Symbol           |    |   |   |
| Signal word      | Danger  | Danger  | Warning  |
| Hazard statement | In contact with water releases flammable gases which may ignite spontaneously   | In contact with water releases flammable gases  | In contact with water releases flammable gases   |

## 2.7 Corrosive to Metals

A *substance or a mixture which is corrosive to metals* is a substance or a mixture which by chemical action will materially damage, or even destroy, metals.

*NOTE: Where an initial test on either steel or aluminium indicates the substance or mixture being tested is corrosive the follow-up test on the other metal is not required.*

**Table 8: Classification Criteria for substances and mixtures corrosive to metals**

|                  | Category 1   |
|------------------|--|
| Criteria         | Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm per year at a test temperature of 55 °C when tested on both materials |
| Symbol           |   |
| Signal word      | Warning  |
| Hazard statement | May be corrosive to metals   |

## Chapter 3: GHS HEALTH HAZARDS

The GHS identifies ten (10) Health hazards. These range from acute to chronic toxicity. These are used as basis of classification and labeling of chemicals. These include:

1. Acute Toxicity
2. Skin Corrosion/Irritation
3. Serious Eye Damage/Eye Irritation
4. Respiratory or Skin Sensitization
5. Germ Cell Mutagenicity
6. Carcinogenicity
7. Reproductive Toxicology
8. Target Organ Systemic Toxicity – Single Exposure
9. Target Organ Systemic Toxicity – Repeated Exposure
10. Aspiration Toxicity

For labelling purposes, the pesticide formulation or end-user product will be classified based on the toxicological data. Classification of the technical grades will be based on the toxicological data of the technical active ingredient. Where there are co-formulants of toxicological importance the bridging principle and cut off limits/concentration as described in the GHS Purple Book Revision 6 (2015) will be used as a guide for classification.

### 3.1 Acute Oral, Dermal and Inhalation Toxicity

Acute toxicity refers to those adverse effects occurring following oral or dermal administration of single dose of a substance or multiple given within 24 hours or inhalation of 4 hours (GHS Purple Book Revision 6, 2015).

#### 3.1.1 Classification Criteria for Oral, Dermal and Inhalation Toxicity

Pesticides can be allocated to one of five hazard categories based on acute toxicity by the oral, dermal or inhalation routes according to the cut-off as shown in Table 9, 10 & 11). These are expressed as lethal dose LD<sub>50</sub> (dermal & oral) and lethal concentration (LC<sub>50</sub>) (inhalation).

**Table 9: Acute Oral Toxicity**





| Exposure route                          | Category 1  | Category 2  | Category 3   | Category 4  | Category 5                  |
|---|---|---|--|---|-----------------------------|
| Oral LD <sub>50</sub> (mg/kg body wght) | ≤ 5   | >5 ≤ 50   | >50 ≤ 300  | >300 ≤ 2000   | >2000 ≤ 5000                |
| Hazard symbol                           |  |  |  |  | <i>No symbol</i>            |
| Signal word                             | Danger  | Danger  | Danger   | Warning   | Warning                     |
| Hazard Statement                        | Fatal if swallowed  | Fatal if swallowed  | Toxic if swallowed   | Harmful if swallowed  | May be harmful if swallowed |
| Color code                              | PMS red 199 C   | PMS red 199 C   | PMS Yellow C   | PMS Blue 293 C  | PMS Blue 293C               |

Table 10: Acute Dermal Toxicity









| Exposure route                            | Category 1  | Category 2  | Category 3   | Category 4  | Category 5                          |
|---|---|---|--|---|-------------------------------------|
| Dermal LD <sub>50</sub> (mg/kg body wght) | ≤ 50  | >50 ≤ 200   | >200 ≤ 1000  | >1000 ≤ 2000  | >2000 ≤ 5000                        |
| Hazard symbol                             |  |  |  |  | No symbol                           |
| Signal word                               | Danger  | Danger  | Danger   | Warning   | Warning                             |
| Hazard Statement                          | Fatal in contact with skin  | Fatal in contact with skin  | Toxic in contact with skin   | Harmful in contact with skin  | May be harmful in contact with skin |
| Color code                                | PMS red 199 C   | PMS red 199 C   | PMS Yellow C   | PMS Blue 293C   | PMS Blue 293C                       |

Table 11: Acute inhalation Toxicity

| Exposure route          | Category 1  | Category 2  | Category 3   | Category 4  | Category 5  |
|-------------------------|---|---|--|---|---|
| Dermal LC <sub>50</sub> | gas: ≤ 100ppm<br>vapor ≤ 0.5mg/L<br>dust, mist ≤ 0.05mg/L                           | gas: >100 ≤ 500ppm<br>vapor >0.5 ≤ 2.0mg/l<br>dust, mist >0.05 ≤ 0.5mg/l            | gas: >500 ≤ 2500ppm<br>vapor >2.0 ≤ 10.0mg/l<br>dust, mist >0.5 ≤ 1.0mg/l            | gas: >2500 ≤ 20,000ppm<br>vapor >10.0 ≤ 20.0mg/l<br>dust, mist >1.0 ≤ 5.0mg/l         | LC <sub>50</sub> in the equivalent range of Oral LD <sub>50</sub> or Dermal LD <sub>50</sub> >2000 ≤ 5000 |
| Hazard symbol           |  |  |  |  | No symbol   |
| Signal word             | Danger  | Danger  | Danger   | Warning   | Warning   |
| Hazard Statement        | Fatal if inhaled  | Fatal if inhaled  | Toxic if inhaled   | Harmful if inhaled  | May be harmful if inhaled   |
| Color code              | PMS red 199 C   | PMS red 199 C   | PMS Yellow C   | PMS Blue 293C   | PMS Blue 293C   |

For the purposes of inhalation classification, the terms Dust, Mist or Vapour are defined below as per GHS Purple Book Revision 6, 2015. Dusts and mists have sizes <1-100µm.


**Dust:** solid particles of a substance or mixture suspended in a gas (usually air).

**Mist:** Liquid droplets of a substance or mixture suspended in a gas (usually air)

**Vapour:** the gaseous form of a substance or mixture released from its liquid or solid state

The values are based on 4hours test in laboratory animals. If data are available indicating that the mechanism of toxicity was corrosivity to the respiratory track (destruction of mucosa after single or limited exposure analogues to skin corrosion) of the end use product, then it should be labeled "corrosive to respiratory tract". The corrosivity evaluation should be based on expert judgement using such human and animal tests experience, existing data and pH values.

In case a pesticide product poses more than one GHS health hazard, the following precedence of relevant symbols, signal words and hazard statements to be shown on the label applies (FAO, 2015):

- \* If the skull-and-crossbones applies for one of the hazards, the exclamation mark for another hazard should not appear;
- \* If the corrosive symbol applies, the exclamation mark should not appear where it is used for skin or eye irritation;
- \* If the health hazard symbol appears for respiratory sensitization, the exclamation mark should not appear where it is used for skin sensitization or for skin or eye irritation.
- \* Where one hazard symbol applies to more than one hazard, the symbol will be used once on the label and the relevant hazard statement related to each hazard will be included. e.g. an Exclamation mark () due acute oral toxicity category 4, Skin irritation Category 2, will only appear once but the various hazard statement will be included i.e. Harmful if swallowed, Causes skin irritation

All assigned hazard statements should appear on the label. The only exception is:

- \* *Where a chemical is classified as skin Category 1, labelling for serious eye damage/eye irritation may be omitted as this information is already included in the hazard statement for skin Category 1 (Causes severe skin burns and eye damage)*

Furthermore, if hazard colour bands are shown on the label, and the pesticide product poses more than one GHS health hazard, only the **most hazardous colour band** is shown on the label.





### 3.2 Skin Corrosion/Irritation

*Skin corrosion:* Production of irreversible damage to the skin namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours (ulcers, bleeding, bloody scabs, discoloration due to blanching, complete areas of alopecia, scars).

*Skin irritation:* Production of reversible damage to the skin following the application of a test substance for up to 4 hours.

The classification criteria for skin corrosion/irritation are represented in Table 12 below:

Table 12: Classification criteria for Skin corrosion/irritation

|                  | <b>Category 1:</b><br>Destruction of skin tissue, namely, visible necrosis through the epidermis and into the dermis, in at least one tested animal after exposure $\leq 4$ h |   |  | <b>Category 2</b><br><b>Irritation</b>  | <b>Category 3 Mild</b><br><b>irritation</b>  |
|------------------|---|---|--|---|--|
|                  | <b>Subcategory 1</b><br><b>A</b>  | <b>Subcategory 1</b><br><b>B</b>  | <b>Subcategory</b><br><b>1</b><br><b>C</b>   |   |  |
| Criteria         | Corrosive responses in at least one animal following exposure $\leq 3$ min during an observation period $< 1$ h   | Corrosive responses in at least one animal following exposure $> 3$ min and $\leq 1$ h and observations $\leq 4$ days | Corrosive responses in at least one animal after exposures $> 1$ h and $\leq 4$ h and observations $\leq 4$ days | Mean score of $\geq 2.3$ and $\leq 4.0$ for erythema/eschar or for oedema in at least 2 of 3 tested animals from grading at 24, 48 and 72 hours after patch removal or, if reactions are delayed, from grades on 3 consecutive days after the onset of skin reactions; or<br>(2) Inflammation that persists to the end of the observation period normally 14 days in at least 2 animals, particularly taking into account alopecia (limited area), hyperkeratosis, hyperplasia, and scaling; or<br>(3) In some cases where there is pronounced variability of response among animals, with very definite positive effects related to chemical exposure in a single animal but less than the criteria above. | Mean score of $\geq 2.5$ and $< 2.3$ for erythema/eschar or for oedema from grading in at least 2 of 3 tested animals from grades at 24, 48 and 72 hours or, if reactions are delayed, from grades on 3 consecutive days after the onset of skin reactions (when not included in the irritant category above). |
| Symbol           |    |                                    |                               |   | (No symbol)  |
| Signal word      | Danger  | Danger  | Danger   | Warning   | Warning  |
| Hazard statement | Causes severe skin burns and eye damage   | Causes severe skin burns and eye damage   | Causes severe skin burns and eye damage  | Causes skin irritation  | Causes mild skin irritation  |



### 3.3 Serious Eye Damage /Eye Irritation

*Serious eye damage* is the production of tissue damage in the eye or serious physical decay of vision, following application of a test substance to the anterior surface of the eye, which is not fully reversible for 21 days of application.

*Eye irritation* is the production of changes in the eye following the application of test substance to the anterior surface of the eye, which are fully reversible within 21 days of application.



#### 3.3.1 Classification criteria for substances

Substances are allocated to one of the categories within this hazard class, Category 1 (serious eye damage) or Category 2 (eye irritation), as follows:

- a. Category 1 (serious eye damage/irreversible effects on the eye): substances that have the potential to seriously damage the eyes.
- b. Category 2 (eye irritation/reversible effects on the eye): substances that have the potential to induce reversible eye irritation.

For those substances where there is pronounced variability among animal responses, this information may be taken into account in determining the classification.

Table 13: Classification criteria for Serious eye damage/Irreversible effects on the eye category

|                  | Category 1 <sup>(Note 1)</sup>   | Category 2 <sup>(Note 2)</sup>  |   |
|------------------|--|---|---|
|                  |  | Category 2A   | Category 2 B  |
| Criteria         | A substance that produces:<br>(a) in at least one animal effects on the cornea, iris or conjunctiva that are not expected to reverse or have not fully reversed within an observation period of normally 21 days;<br>and/or<br>(b) in at least 2 of 3 tested animals, a positive response of:<br>(i) corneal opacity $\geq 3$ ; and/or<br>(ii) iritis $> 1.5$ ;<br>calculated as the mean scores following grading at 24, 48 and 72 hours after instillation of the test material. | Substances that produce in at least 2 of 3 tested animals a positive response of:<br>(a) corneal opacity $\geq 1$ ; and/or<br>(b) iritis $\geq 1$ ; and/or<br>(c) conjunctival redness $\geq 2$ ;<br>and/or<br>(d) conjunctival oedema (chemosis) $\geq 2$<br>calculated as the mean scores following grading at 24, 48 and 72 hours after instillation of the test material, and which fully reverses within an observation period of normally 21 days | Within Category 2A an eye irritant is considered mildly irritating to eyes (Category 2B) when the effects listed above are fully reversible within 7 days of observation. |
| Hazard Symbol    |    |    | No Symbol   |
| Signal word      | Danger   | Warning   | Warning   |
| Hazard statement | Causes serious eye damage  | Causes serious eye damage   | Causes eye irritation   |

Grading criteria are understood as described in OECD Test Guideline 405.

*Note 1:* pH extremes like 2 and 11.5, may indicate serious eye damage, especially when associated with significant acid/alkaline reserve (buffering capacity). Generally, such substances are expected to produce significant effects on the eyes. In the absence of any other information, a substance is considered to cause serious eye damage (Category 1) if it has a pH  $\leq 2$  or  $\geq 11.5$ . However, if consideration of acid/alkaline reserve suggests the substance may not cause serious eye damage despite the low or high pH value, this needs to be confirmed by other data, preferably by data from an appropriate validated *in vitro* test.

*Note 2:* Substances that have the potential to induce reversible eye irritation should be classified in Category 2 where further categorization into Category 2A and Category 2B is not required by PCPB or where data are not sufficient for further categorization. When a chemical is classified as Category 2, without further categorization, the classification criteria are the same as those for Category 2A. For substances inducing eye irritant effects reversing within an observation time of normally 21 days, Category 2A applies. For substances inducing eye irritant effects reversing within an observation time of 7 days, Category 2B applies.

### 3.3.2 Guidance to classification for eye hazard based on based on existing data from studies with 4 or more animals

Classification criteria for the skin and eye hazard classes are detailed in the GHS in terms of a 3-animal test. It has been identified that some older test methods may have used up to 6 animals. However, the GHS criteria do not specify how to classify based on existing data from tests with more than 3 animals. Guidance on how to classify based on existing data from studies with 4 or more animals is given in the following paragraphs.

Classification criteria based on a 3-animal test are detailed in Part 3 (Health Hazards) of GHS Purple Book Rev. 6. Evaluation of a 4, 5 or 6 animal study should follow the criteria in the following paragraphs, depending on the number of animals tested. Scoring should be done at 24, 48 and 72 hours after instillation of the test material.

In the case of a study with 6 animals the following principles apply:

- (a) The substance or mixture is classified as serious eye damage Category 1 if:
  - A. at least in one animal effects on the cornea, iris or conjunctiva are not expected to reverse or have not fully reversed within an observation period of normally 21 days; and/or
  - B. at least 4 out of 6 animals show a mean score per animal of  $\geq 3$  for corneal opacity and/or  $> 1.5$  for iritis.
- (b) The substance or mixture is classified as eye irritation Category 2/2A if at least 4 out of 6 animals show a mean score per animal of:
  1.  $\geq 2$  for corneal opacity; and/or
  2.  $\geq 2$  for iritis; and/or
  3.  $\geq 2$  for conjunctival redness; and/or
  4.  $\geq 2$  for conjunctival oedema (chemosis), and which fully reverses within an observation period of normally 21 days.
  5. The substance or mixture is classified as irritating to eyes (Category 2B) if the effects listed in sub-paragraph (b) above are fully reversible within 7 days of observation.

In the case of a study with 5 animals the following principles apply:

- (a) The substance or mixture is classified as serious eye damage Category 1 if:
  - (i) at least in one animal effects on the cornea, iris or conjunctiva are not expected to reverse or have not fully reversed within an observation period of normally 21 days; and/or
  - (ii) at least 3 out of 5 animals show a mean score per animal of  $\geq 3$  for corneal opacity and/or  $> 1.5$  for iritis.
- (b) The substance or mixture is classified as eye irritation Category 2/2A if at least 3 out of 5 animals show a mean score per animal of:
  - (i)  $\geq 2$  for corneal opacity; and/or
  - (ii)  $\geq 2$  for iritis; and/or
  - (iii)  $\geq 2$  for conjunctival redness; and/or
  - (iv)  $\geq 2$  for conjunctival oedema (chemosis), and which fully reverses within an observation period of normally 21 days.
- (c) The substance or mixture is classified as irritating to eyes (Category 2B) if the effects listed in sub-paragraph (b) above are fully reversible within 7 days of observation.

In the case of a study with 4 animals the following principles apply:

- (a) The substance or mixture is classified as serious eye damage Category 1 if:
  - (i) at least in one animal effects on the cornea, iris or conjunctiva are not expected to reverse or have not fully reversed within an observation period of normally 21 days; and/or
  - (ii) at least 3 out of 4 animals show a mean score per animal of  $\geq 3$  for corneal opacity and/or  $> 1.5$  for iritis.
- (b) Classification as eye irritation Category 2/2A if at least 3 out of 4 animals show a mean score per animal of:
  - a.  $\geq 2$  for corneal opacity; and/or
  - b.  $\geq 2$  for iritis; and/or
  - c.  $\geq 2$  for conjunctival redness; and/or
  - d.  $\geq 2$  for conjunctival oedema (chemosis), and which fully reverses within an observation period of normally 21 days.


The substance or mixture is classified as irritating to eyes (Category 2B) if the effects listed in sub-paragraph (b) above are fully reversible within 7 days of observation.

### 3.4 Skin Sensitization

*Skin sensitizer* is a pesticide that will lead to an allergenic response following skin contact.

**Skin sensitizers:** Shall be classified in accordance with table below. Effects seen in either humans or animals will normally justify classification in a weight of evidence approach to skin sensitizers.

**Table 14: Hazard Category for Skin sensitizers:**

| Category |   | Hazard symbol   | Signal word | Hazard Statement                    |
|----------|---|---|-------------|-------------------------------------|
| 1        | <p><b>Skin Sensitizer:</b><br/>if there is:</p> <ol style="list-style-type: none"> <li>1. evidence in human that substance can lead to sensitization by skin contact</li> <li>2. are positive results from appropriate animal test</li> </ol> |  | Warning     | May cause an allergic skin reaction |

### 3.5 Germ Cell Mutagenicity, Carcinogenicity, Reproductive Toxicity & Specific Target Organ Systemic Toxicity-Repeated Exposure

Pesticides which have high chronic toxicity are unlikely to be authorized for use in Kenya. The chronic health hazard is generally provided for the active ingredient and the data provided can be used for classification. The criteria for classification of mixtures and bridging principles in the GHS Purple Book Revision 6 (2015) shall be used, if a need arises.




### 3.6 Specific Organ Toxicity-Following Single Exposure

This relates to substances and mixtures that produce specific, non-lethal target organ toxicity arising from a single exposure. All significant health effects that can impair function whether reversible or irreversible, immediate or delayed that are not specifically addressed in other health hazard categories are included.

Classification depends upon availability of reliable evidence that a single exposure to the substance or mixture has produced consistent and identifiable toxic effect in humans, or, in experimental animals, toxicologically significant changes which have affected the function or morphology of a tissue/organ, or has produced serious changes to the biochemistry or haematology of the organism, and these changes are relevant for human health. Human data are the primary source of evidence for this hazard class. However, all data including human incidents, epidemiology, and studies conducted in experimental animals, is used to substantiate specific target organ toxic effects that merit classification.

Assessment should take into consideration also generalized changes of a less severe nature involving several organs. Exposure may occur by any route relevant to humans, principally oral, dermal or inhalation.

**Table 15: Hazard categories for specific target organ toxicity following single exposure**

|                  |  | Guidance value ranges for:  |   |   |
|------------------|--|---|---|---|
|                  | Route of exposure/Units                  | Category 1  | Category 2  | Category 3  |
| Criteria         |  | Substances that have produced significant toxicity in humans, or that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to produce significant toxicity in humans following single exposure. | Substances that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to be harmful to human health following single exposure. | Transient target organ effects.   |
| Guidance Values  | Oral (rat) mg/kg body weight             | $C \leq 300$  | $2000 \geq C > 300$   | Guidance values do not apply  |
|                  | Dermal (rat or rabbit) mg/kg body weight | $C \leq 1000$   | $2000 \geq C > 1000$  |   |
|                  | Inhalation (rat) gas ppmV/4h             | $C \leq 500$  | $20000 \geq C > 2500$   |   |
|                  | Inhalation (rat) vapour mg/l/4h          | $C \leq 10$   | $20 \geq C > 10$  |   |
|                  | Inhalation (rat) dust/mist/fume mg/l/4h  | $C \leq 1.0$  | $5.0 \geq C > 1.0$  |   |
| Symbol           |  |    |    |  |
| Signal word      |  | Danger  | Warning   | Warning   |
| Hazard statement |  | Causes damage to organs (or state all organs affected if known) (state route of exposure if conclusively proven that no other routes of exposure cause the hazard)  | May cause damage to organs (or state all organs affected if known) (state route of exposure if conclusively proven that no other routes of exposure cause the hazard)         | May cause respiratory irritation;<br>or<br>May cause drowsiness or dizziness          |

**Note 1:** The specific target organ/system that has been primarily affected by the classified substance may be identified, or the substance may be identified as a general toxicant. Determine the primary target organ/system of toxicity and classify for that purpose, e.g. hepatotoxicants, neurotoxicants. Data should be carefully examined, in order not to include secondary effects (e.g. a hepatotoxicant can produce secondary effects in the nervous or gastro-intestinal systems). Examples of the relevant toxic effects are given under article 3.8.2.1.7.3 in the GHS manual, while those effects that may not support classification under Category 1 and 2 can be found in article 3.8.2.1.8 of the manual.

**Note 2:** Guidance values and ranges mentioned in this table are intended to assist with classification decision, and are

not strict demarcation values.

### 3.7 Aspiration Hazard



The purpose is to provide a means of classifying substances or mixtures that may pose an aspiration toxicity hazard to humans.

*Aspiration* means the entry of a liquid or solid chemical directly through the oral or nasal cavity, or indirectly from vomiting, into the trachea or lower respiratory tract. Aspiration toxicity includes severe effects such as chemical pneumonia, varying degree of pulmonary injury or death following aspiration. Aspiration of a substance or mixture can occur as it is vomited. This may have consequence on labeling especially where induction of vomiting is included on the label.

Some hydrocarbons (petroleum distillates) and certain chlorinated hydrocarbons have been shown to pose aspiration hazard in humans. The classification criteria refer to kinematic viscosity. The following provides:

$$\text{Dynamic viscosity (mPa}\cdot\text{s)} = \text{Kinematic viscosity (mm}^2\text{/s)} \times \text{Density g/cm}^3$$

Table 16: Classification of Aspiration hazards

|                  | Category 1   | Category 2  |
|------------------|--|---|
|                  | <ul style="list-style-type: none"> <li>Based on reliable &amp; good quality human evidence</li> <li>It is a hydrocarbon and has a kinematic viscosity <math>\leq 20.5</math> mm<sup>2</sup>/s at 40° C.</li> </ul> | On basis of existing animal studies and expert judgement that takes into account surface tension, water solubility, boiling point and volatility, substances other those classified in Cat 1 which have kinematic viscosity $\leq 4$ mm <sup>2</sup> /s at 40°C |
| Hazard symbol    |   |    |
| Signal word      | Danger   | Warning   |
| Hazard Statement | May be fatal if swallowed and enters airways   | May be harmful if swallowed and enters airways  |

## Chapter 4: ENVIRONMENTAL HAZARDS

At present, only hazards to the aquatic environment and hazards to the ozone layer are classified by the GHS. No other environmental hazards are covered (Table). *For labelling purposes, the pesticide formulation or end-user product should in principle be classified, not the active ingredient. Reference should be made to the GHS Purple Book Revision 6 (2015).*

**Table 17: Environmental hazards and their likely relevance for pesticide labelling**

| GHS chapter | Hazard  | Likely to be indicated on a pesticide label? | Remarks                              |
|-------------|---|--|--------------------------------------|
| 4.1         | Hazardous to the aquatic environment  | Yes  |                                      |
| 4.2         | Hazardous to the ozone layer  | No   | With the exception of methyl bromide |
| --          | Other environmental hazards (e.g.: for wildlife, livestock, pollinators, natural enemies of pests, soil organisms, groundwater, etc.) | --   | Not covered by the GHS               |

Source: FAO, 2015


**Note:** For hazards not covered by GHS such as effects on pollinators, continued framework on the assessment on the effect and statement such as '*Not to be used when bees are actively foraging*' should be used.

### 4.1 Acute aquatic toxicity

*Acute aquatic toxicity* means the intrinsic property of a substance to be injurious to an organism in a short-term aquatic exposure to that substance. *Short-term (acute) hazard*, for classification purposes, means the hazard of a chemical caused by its acute toxicity to an organism during short-term aquatic exposure to that chemical. Products will be classified according to acute aquatic toxicity only, since chronic and bio-cumulative toxicity are addressed and evaluated specially during regulatory due process and appropriate mitigation measures put in place.

Acute aquatic toxicity would normally be determined using a fish 96 hour LC<sub>50</sub> (OECD Test Guideline 203 or equivalent), a crustacea species 48 hour EC<sub>50</sub> (OECD Test Guideline 202 or equivalent) and/or an algal species 72 or 96 hour EC<sub>50</sub> (OECD Test Guideline 201 or equivalent). These species are considered as surrogate for all aquatic organisms and data on other species such as Lemna may also be considered if the test methodology is suitable.

**Table 18: Classification criteria for Acute Environmental Hazards**

|                  | Category 1   | Category 2  | Category 3  |
|------------------|--|---|---|
| Criteria         | 96 hr LC <sub>50</sub> (for fish) ≤1 mg/l and/or<br>48 hr EC <sub>50</sub> (for crustacea) ≤1 mg/l and/or<br>72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants) ≤1 mg/l (Note 2) | 96 hr LC <sub>50</sub> (for fish) >1 but 10 mg/l and/or<br>48 hr EC <sub>50</sub> (for crustacea) >1 but 10 mg/l and/or<br>72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants) >1 but 10 mg/l (Note 2) | 96 hr LC <sub>50</sub> (for fish) >10 but ≤100mg/l and/or<br>48 hr EC <sub>50</sub> (for crustacea) >10 but ≤100mg/l and/or<br>72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants) >10 but ≤100mg/l (Note 2) |
| Symbol           |   | No symbol   | No symbol   |
| Signal word      | Warning  | No signal word  | No signal word  |
| Hazard statement | Very toxic to aquatic life   | Toxic to aquatic life   | Harmful to aquatic life   |

*NOTE 1: The organisms fish, crustacea and algae are tested as surrogate species covering a range of trophic levels and taxa, and the test methods are highly standardized. Data on other organisms may also be considered, however, provided they represent equivalent species and test endpoints.*

*NOTE 2: Where the algal toxicity  $ErC_{50}$  [=  $EC_{50}$  (growth rate)] falls more than 100 times below the next most sensitive species and results in a classification based solely on this effect, consideration should be given to whether this toxicity is representative of the toxicity to aquatic plants. Where it can be shown that this is not the case, professional judgment should be used in deciding if classification should be applied. Classification should be based on the  $ErC_{50}$ . In circumstances where the basis of the  $EC_{50}$  is not specified and no  $ErC_{50}$  is recorded, classification should be based on the lowest  $EC_{50}$  available.*

In addition to the hazard communication elements discussed above, environmental risk assessment of the use of the pesticide product may result in specific precautionary statements and pictograms to be included on the label. This will apply to the hazards covered by the GHS but also to a much wider range of environmental risks, such as possible adverse effects on birds, wildlife, livestock, bees, natural enemies of pests, soil organisms and processes, groundwater, etc.

#### 4.2 Classification criteria for mixtures

The approach for classification of aquatic environmental hazards is tiered, and is dependent upon the type of information available for the mixture itself and for its ingredients. Elements of the tiered approach include classification based on tested mixtures, classification based on bridging principles, the use of an “additivity formula”.

Where the mixture itself has not been tested to determine its aquatic environmental hazard, but there are sufficient data on the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, this data will be used in accordance with the bridging principles detailed in 4.1.3.4 of GHS Purple Book Revision 6 (2015). This ensures that the classification process uses the available data to the greatest extent possible in characterizing the hazards of the mixture without the necessity for additional testing in animals



Aquatic toxicity test data available on the mixture as a whole

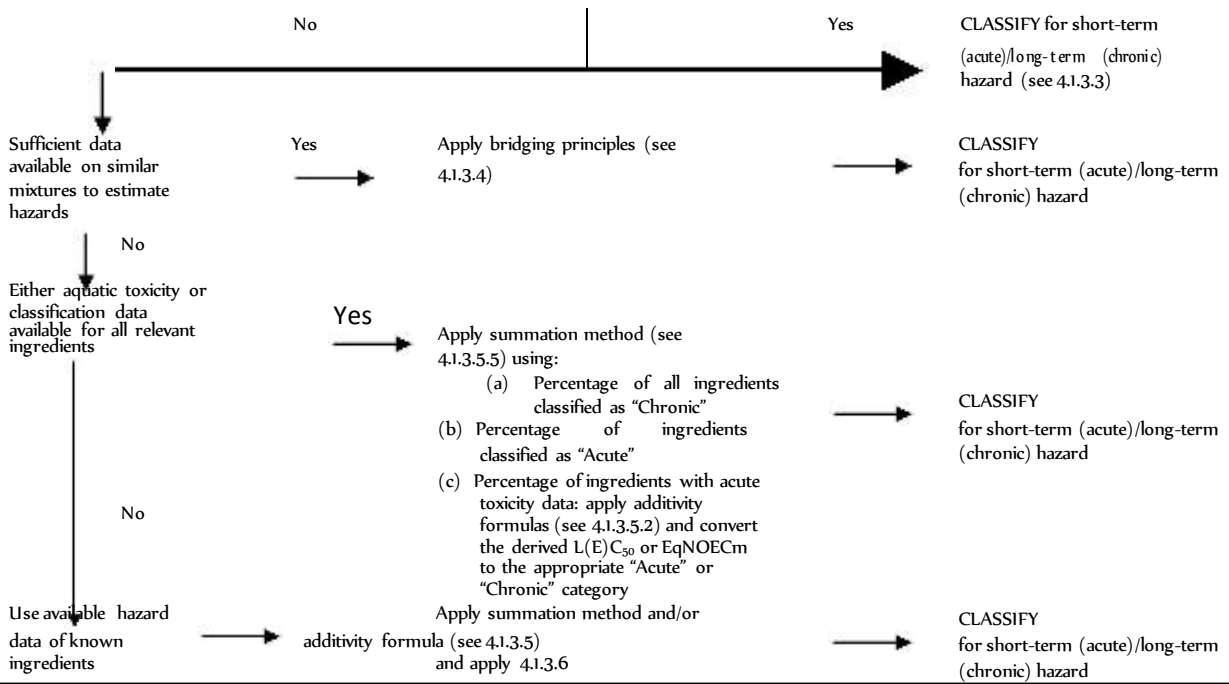


Figure 1: Tiered approach to Aquatic toxicity classification

For details see 4.1.3.5 of GHS Purple Book Revision 6 (2015)

## Chapter 5: GHS CODIFICATION

This section is adapted from Annex 3 of the GHS Purple Book Revision 6 (2015).

### 5.1 Codification of hazard statements

Hazard statements are assigned a unique alphanumerical code which consists of one letter and three numbers, as follows:

1. (a) the letter “H” (for “hazard statement”);
2. (b) a number designating the type of hazard to which the hazard statement is assigned according to the numbering of the different parts of the GHS, as follows:
  - “2” for physical hazards;
  - “3” for health hazards;
  - “4” for environmental hazards;
3. (c) two numbers corresponding to the sequential numbering of hazards arising from the intrinsic properties of the substance or mixture, such as explosivity (codes from 200 to 210), flammability (codes from 220 to 230), etc.

The relevant codes are represented in Annex 1.

### 5.2 Codification of Precautionary Statements

For the purposes of the GHS, there are five types of precautionary statements: general, prevention, response (in case of accidental spillage or exposure, emergency response and first-aid), storage and disposal. For guidance on the use of GHS precautionary statements, including advice on the selection of the appropriate statements for each GHS hazard class and category, see section 3 to this annex.

Precautionary statements are assigned a unique alphanumerical code which consists of one letter and three numbers as follows:

1. (a) a letter “P” (for “precautionary statement”)
2. (b) one number designating the type of precautionary statement as follows:
  - “1” for general precautionary statements;
  - “2” for prevention precautionary statements;
  - “3” for response precautionary statements;
  - “4” for storage precautionary statements;
  - “5” for disposal precautionary statements;
3. (c) two numbers (corresponding to the sequential numbering of precautionary statements)

For more information, reference to GHS Purple Book Revision 6 (2015) should be made.










### 5.3 Codification of Pictograms

Pictogram means a graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or colour that is intended to convey specific information. This section contains the recommended code assigned to each of the pictograms prescribed by the GHS for sectors other than transport. The pictogram code is intended to be used for references purposes. It is not part of the pictogram and should not appear on labels or in section 2 of the safety data sheet.

GHS pictograms for sectors other than transport are assigned a unique alphanumerical code as follows:

1. (a) the letters “GHS”; and
2. (b) a sequential number “01”, “02”, “03” etc. assigned in accordance with Table A3.4.1 below.

Table 19: Codification of Pictograms

| Code  | Hazard pictogram  | Symbol               |
|-------|---|----------------------|
| GHS01 |  | Exploding bomb       |
| GHS02 |  | Flame                |
| GHS03 |  | Flame over circle    |
| GHS04 |  | Gas cylinder         |
| GHS05 |  | Corrosion            |
| GHS06 |  | Skull and crossbones |
| GHS07 |  | Exclamation mark     |
| GHS08 |  | Health hazard        |
| GHS09 |  | Environment          |

## **Chapter 6: PRECAUTIONARY PESTICIDE PICTOGRAMS**

The FAO approved pictograms and any other advised by the Pest Control Products Board should be used to convey general and safety precautions. The pictogram will be inserted in WHO color code and should be in black and white. Their sizes should be appropriate. The minimum sizes of pictograms are 7mm x 7mm for all pack sizes.

The pictograms used on any individual pesticide label must relate to the specific safety advice associated with that product: the lower the hazards associated with the product, the fewer the pictograms which are needed. The pictogram selected must be appropriate to the safety precautions needed for the specific product formulation.

**REFERENCE**

- United Nations, 2015. The Globally harmonized system of classification and labelling of chemicals (GHS) Sixth revised edition. ST/SG/AC.10/30/Rev.6. United Nations Economic Commission for Europe, Geneva [Available at: [http://www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)]
- FAO/WHO 2015. International code of conduct on pesticide management. Guidelines on Good labelling practice for pesticides as revised in August 2015. Food and Agriculture Organization of the United Nations, Rome & World Health Organization, Geneva. [Available at: <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/en/>]
- CropLife International. 2012. The implementation of the Globally Harmonized System of Classification and Labelling of Chemicals and labelling of crop protection products. Position paper. CropLife International. Brussels. [Available at: <http://croplife.org/crop-protection/regulatory/product-management/globally-harmonized-system-of-hazard-classification-and-labeling/>]
- Government of Kenya Pest Control Products Cap 346
- Globally harmonized systems (GHS) for classification and of chemicals produced by OSHA.
- OECD, 2011 OECD Guidelines for the Testing of Chemicals Freshwater Alga and Cyanobacteria, Growth Inhibition Test 201
- OECD, 2004 OECD Guidelines for the Testing of Chemicals Daphnia sp. Acute Immobilization Test 202
- OECD, 2002 Guideline for the Testing of Chemicals Acute Eye Irritation/Corrosion 405.
- OECD, 1992 OECD Guidelines for the Testing of Chemicals Fish, Acute Toxicity Test 203
- World Health Organization (WHO). 2010. *The WHO recommended classification of pesticides by hazard and guidelines to classification 2009*. World Health Organization, Geneva [Available at: [http://www.who.int/ipcs/publications/pesticides\\_hazard/en/index.html](http://www.who.int/ipcs/publications/pesticides_hazard/en/index.html)]

## Annex 1: Hazard Statement for Physical, Health &amp; Environmental hazards

## Annex 1a: Hazard statement codes for Physical Hazards

Table 20: Hazard statement codes for Physical Hazards

| Code | Physical hazard statements (2)  | Hazard class (GHS chapter) (3)  | Hazard category (4)           |
|------|---|---|-------------------------------|
| H200 | Unstable explosive  | Explosives (chapter 2.1)  | Unstable explosive            |
| H201 | Explosive; mass explosion hazard  | Explosives (chapter 2.1)  | Division 1.1                  |
| H202 | Explosive; severe projection hazard   | Explosives (chapter 2.1)  | Division 1.2                  |
| H203 | Explosive; fire, blast or projection hazard   | Explosives (chapter 2.1)  | Division 1.3                  |
| H204 | Fire or projection hazard   | Explosives (chapter 2.1)  | Division 1.4                  |
| H205 | May mass explode in fire  | Explosives (chapter 2.1)  | Division 1.5                  |
| H206 | Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced | Desensitized explosives (chapter 2.17)  | 1                             |
| H207 | Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced        | Desensitized explosives (chapter 2.17)  | 2, 3                          |
| H208 | Fire hazard; increased risk of explosion if desensitizing agent is reduced                      | Desensitized explosives (chapter 2.17)  | 4                             |
|      |   |   |                               |
| H220 | Extremely flammable gas   | Flammable gases (chapter 2.2)   | 1                             |
| H221 | Flammable gas   | Flammable gases (chapter 2.2)   | 2                             |
| H222 | Extremely flammable aerosol   | Aerosols (chapter 2.3)  | 1                             |
| H223 | Flammable aerosol   | Aerosols (chapter 2.3)  | 2                             |
| H224 | Extremely flammable liquid and vapour   | Flammable liquids (chapter 2.6)   | 1                             |
| H225 | Highly flammable liquid and vapour  | Flammable liquids (chapter 2.6)   | 2                             |
| H226 | Flammable liquid and vapour   | Flammable liquids (chapter 2.6)   | 3                             |
| H227 | Combustible liquid  | Flammable liquids (chapter 2.6)   | 4                             |
| H228 | Flammable solid   | Flammable solids (chapter 2.7)  | 1, 2                          |
| H229 | Pressurized container: may burst if heated  | Aerosols (chapter 2.3)  | 1, 2, 3                       |
| H230 | May react explosively even in the absence of air  | Flammable gases (including chemically unstable gases) (chapter 2.2)                       | A (Chemically unstable gases) |
| H231 | May react explosively even in the absence of air at elevated pressure and/or temperature        | Flammable gases (including chemically unstable gases) (chapter 2.2)                       | B (Chemically unstable gases) |
|      |   |   |                               |
| H240 | Heating may cause an explosion  | Self-reactive substances and mixtures (chapter 2.8); and Organic peroxides (chapter 2.15) | Type A                        |
| H241 | Heating may cause a fire or explosion   | Self-reactive substances and mixtures (chapter 2.8); and Organic peroxides (chapter 2.15) | Type B                        |
| H242 | Heating may cause a fire  | Self-reactive substances and mixtures (chapter 2.8); and Organic peroxides (chapter 2.15) | Types C, D, E, F              |
|      |   |   |                               |
| H250 | Catches fire spontaneously if exposed to air  | Pyrophoric liquids (chapter 2.9);<br>Pyrophoric solids (chapter 2.10)                     | 1                             |
| H251 | Self-heating; may catch fire  | Self-heating substances and mixtures (chapter 2.11)                                       | 1                             |
| H252 | Self-heating in large quantities; may catch fire  | Self-heating substances and mixtures  | 2                             |

| Code | Physical hazard statements (2)  | Hazard class (GHS chapter) (3)  | Hazard category (4)                              |
|------|---|---|--|
|      |   | (chapter 2.11)  |  |
| H260 | In contact with water releases flammable gases which may ignite spontaneously | Substances and mixtures which, in contact with water, emit flammable gases (chapter 2.12) | 1  |
| H261 | In contact with water releases flammable gas                                  | Substances and mixtures which, in contact with water, emit flammable gases (chapter 2.12) | 2, 3   |
| H270 | May cause or intensify fire; oxidizer   | Oxidizing gases (chapter 2.4)   | 1  |
| H271 | May cause fire or explosion; strong oxidizer                                  | Oxidizing liquids (chapter 2.13);<br>Oxidizing solids (chapter 2.14)                      | 1  |
| H272 | May intensify fire; oxidizer  | Oxidizing liquids (chapter 2.13);<br>Oxidizing solids (chapter 2.14)                      | 2, 3   |
| H280 | Contains gas under pressure; may explode if heated                            | Gases under pressure (chapter 2.5)  | Compressed gas<br>Liquefied gas<br>Dissolved gas |
| H281 | Contains refrigerated gas; may cause cryogenic burns or injury                | Gases under pressure (chapter 2.5)  | Refrigerated<br>liquefied gas                    |
| H290 | May be corrosive to metals  | Corrosive to metals (chapter 2.16)  | 1  |

## Annex 1b: Hazard statement codes for Health Hazards

Table 21: Hazard statement codes for Health Hazards

| Code (1) | Health hazard statements (2)  | Hazard class (GHS chapter) (3)   | Hazard category (4) |
|----------|---|--|---------------------|
| H300     | Fatal if swallowed  | Acute toxicity, oral (chapter 3.1)   | 1, 2                |
| H301     | Toxic if swallowed  | Acute toxicity, oral (chapter 3.1)   | 3                   |
| H302     | Harmful if swallowed  | Acute toxicity, oral (chapter 3.1)   | 4                   |
| H303     | May be harmful if swallowed   | Acute toxicity, oral (chapter 3.1)   | 5                   |
| H304     | May be fatal if swallowed and enters airways  | Aspiration hazard (chapter 3.10)   | 1                   |
| H305     | May be harmful if swallowed and enters airways  | Aspiration hazard (chapter 3.10)   | 2                   |
| H310     | Fatal in contact with skin  | Acute toxicity, dermal (chapter 3.1)   | 1, 2                |
| H311     | Toxic in contact with skin  | Acute toxicity, dermal (chapter 3.1)   | 3                   |
| H312     | Harmful in contact with skin  | Acute toxicity, dermal (chapter 3.1)   | 4                   |
| H313     | May be harmful in contact with skin   | Acute toxicity, dermal (chapter 3.1)   | 5                   |
| H314     | Causes severe skin burns and eye damage   | Skin corrosion/irritation (chapter 3.2)  | 1A, 1B, 1C          |
| H315     | Causes skin irritation  | Skin corrosion/irritation (chapter 3.2)  | 2                   |
| H316     | Causes mild skin irritation   | Skin corrosion/irritation (chapter 3.2)  | 3                   |
| H317     | May cause an allergic skin reaction   | Sensitisation, skin (chapter 3.4)  | 1, 1A, 1B           |
| H318     | Causes serious eye damage   | Serious eye damage/eye irritation (chapter 3.3)  | 1                   |
| H319     | Causes serious eye irritation   | Serious eye damage/eye irritation (chapter 3.3)  | 2A                  |
| H320     | Causes eye irritation   | Serious eye damage/eye irritation (chapter 3.3)  | 2B                  |
| H330     | Fatal if inhaled  | Acute toxicity, inhalation (chapter 3.1)   | 1, 2                |
| H331     | Toxic if inhaled  | Acute toxicity, inhalation (chapter 3.1)   | 3                   |
| H332     | Harmful if inhaled  | Acute toxicity, inhalation (chapter 3.1)   | 4                   |
| H333     | May be harmful if inhaled   | Acute toxicity, inhalation (chapter 3.1)   | 5                   |
| H334     | May cause allergy or asthma symptoms or breathing difficulties if inhaled   | Sensitisation, respiratory (chapter 3.4)   | 1, 1A, 1B           |
| H335     | May cause respiratory irritation  | Specific target organ toxicity, single exposure; Respiratory tract irritation (chapter 3.8); | 3                   |
| H336     | May cause drowsiness or dizziness   | Specific target organ toxicity, single exposure; Narcotic effects(chapter 3.8)               | 3                   |
| H340     | May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)            | Germ cell mutagenicity (chapter 3.5)   | 1A, 1B              |
| H341     | Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | Germ cell mutagenicity (chapter 3.5)   | 2                   |
| H350     | May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)                     | Carcinogenicity (chapter 3.6)  | 1A, 1B              |
| H351     | Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)          | Carcinogenicity (chapter 3.6)  | 2                   |
| H360     | May damage fertility or the unborn child (state specific effect if known)(state route of exposure if  | Reproductive toxicity (chapter 3.7)  | 1A, 1B              |



| Code (1)           | Health hazard statements (2)  | Hazard class (GHS chapter) (3)  | Hazard category (4) |
|--------------------|---|---|---------------------|
|                    | it is conclusively proven that no other routes of exposure cause the hazard)  |   |                     |
| H361               | Suspected of damaging fertility or the unborn child (state specific effect if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)                      | Reproductive toxicity (chapter 3.7)   | 2                   |
| H362               | May cause harm to breast-fed children   | Reproductive toxicity, effects on or via lactation (chapter 3.7)  | Additional category |
| H370               | Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)   | Specific target organ toxicity, single exposure (chapter 3.8)   | 1                   |
| H371               | May cause damage to organs (or state all organs affected, if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)                                       | Specific target organ toxicity, single exposure (chapter 3.8)   | 2                   |
| H372               | Causes damage to organs ( state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)    | Specific target organ toxicity, repeated exposure (chapter 3.9)   | 1                   |
| H373               | May cause damage to organs ( state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | Specific target organ toxicity, repeated exposure (chapter 3.9)   | 2                   |
| H300 + H310        | Fatal if swallowed or in contact with skin  | Acute toxicity, oral (chapter 3.1) and acute toxicity dermal (chapter 3.1)  | 1, 2                |
| H300 + H330        | Fatal if swallowed or if inhaled  | Acute toxicity, oral (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                       | 1, 2                |
| H310 + H330        | Fatal in contact with skin or if inhaled  | Acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                     | 1, 2                |
| H300 + H310 + H330 | Fatal if swallowed, in contact with skin or if inhaled  | Acute toxicity, oral (chapter 3.1), acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1) | 1, 2                |
| H301 + H311        | Toxic if swallowed or in contact with skin  | Acute toxicity, oral (chapter 3.1) and acute toxicity dermal (chapter 3.1)  | 3                   |
| H301 + H331        | Toxic if swallowed or if inhaled  | Acute toxicity, oral (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                       | 3                   |
| H311 + H331        | Toxic in contact with skin or if inhaled  | Acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                     | 3                   |
| H301 + H311 + H331 | Toxic if swallowed, in contact with skin or if inhaled  | Acute toxicity, oral (chapter 3.1), acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1) | 3                   |
| H302 + H312        | Harmful if swallowed or in contact with skin  | Acute toxicity, oral (chapter 3.1) and acute toxicity dermal (chapter 3.1)  | 4                   |
| H302 + H332        | Harmful if swallowed or if inhaled  | Acute toxicity, oral (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                       | 4                   |
| H312 + H332        | Harmful in contact with skin or if inhaled  | Acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                     | 4                   |

| Code (1)                 | Health hazard statements (2)                                    | Hazard class (GHS chapter) (3)  | Hazard category (4) |
|--------------------------|---|---|---------------------|
| H302 +<br>H312 +<br>H332 | Harmful if swallowed, in contact with skin or if inhaled        | Acute toxicity, oral (chapter 3.1), acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1) | 4                   |
| H303 +<br>H313           | May be harmful if swallowed or in contact with skin             | Acute toxicity, oral (chapter 3.1) and acute toxicity dermal (chapter 3.1)  | 5                   |
| H303 +<br>H333           | May be harmful if swallowed or if inhaled                       | Acute toxicity, oral (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                       | 5                   |
| H313 +<br>H333           | May be harmful in contact with skin or if inhaled               | Acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1)                                     | 5                   |
| H303 +<br>H313 +<br>H333 | May be harmful if swallowed, in contact with skin or if inhaled | Acute toxicity, oral (chapter 3.1), acute toxicity, dermal (chapter 3.1) and acute toxicity, inhalation (chapter 3.1) | 5                   |
| H315 +<br>H320           | Causes skin and eye irritation                                  | Skin corrosion/irritation (chapter 3.2) and serious eye damage/eye irritation (chapter 3.3)                           | 2 (skin)/2B (eye)   |

## Annex 1c: Hazard statement codes for environmental hazards

Table 22: Hazard statement codes for environmental hazards

| Code (1) | Environmental hazard statements (2)   | Hazard class (GHS chapter) (3)                                       | Hazard category(4) |
|----------|---|--|--------------------|
| H400     | Very toxic to aquatic life  | Hazardous to the aquatic environment, acute hazard (chapter 4.1)     | 1                  |
| H401     | Toxic to aquatic life   | Hazardous to the aquatic environment, acute hazard (chapter 4.1)     | 2                  |
| H402     | Harmful to aquatic life   | Hazardous to the aquatic environment, acute hazard (chapter 4.1)     | 3                  |
| H410     | Very toxic to aquatic life with long lasting effects                                | Hazardous to the aquatic environment, long-term hazard (chapter 4.1) | 1                  |
| H411     | Toxic to aquatic life with long lasting effects                                     | Hazardous to the aquatic environment, long-term hazard (chapter 4.1) | 2                  |
| H412     | Harmful to aquatic life with long lasting effects                                   | Hazardous to the aquatic environment, long-term hazard (chapter 4.1) | 3                  |
| H413     | May cause long lasting harmful effects to aquatic life                              | Hazardous to the aquatic environment, long-term hazard (chapter 4.1) | 4                  |
| H420     | Harms public health and the environment by destroying ozone in the upper atmosphere | Hazardous to the ozone layer (chapter 4.2)                           | 1                  |

## Annex 2 Safety Data Sheet

Safety Data Sheet (SDS), formerly referred to as Material Safety Data Sheet (MSDS) is a source of information about physical, health and environmental hazards, as well as advice on safety precautions. In addition, the SDS provides an important source of information for other target audiences in the GHS. So certain elements of information may be used by those involved with the transport of dangerous goods, emergency responders (including poison centers), those involved in the professional use of pesticides and consumers.




The aim is to ensure that the SDS which accompanies the product is consistent with the approved label. All SDS contains 16 sections that appear in the following order:

|    | Section  | Information  |
|----|--|--|
| 1. | Identification of the substance or mixture and of the supplier | (a) GHS product identifier;<br>(b) Other means of identification;<br>(c) Recommended use of the chemical and restrictions on use;<br>(d) Supplier's details (including name, address, phone number etc.);<br>(e) Emergency phone number.   |
| 2. | Hazards identification   | (a) GHS classification of the substance/mixture and any national or regional information;<br>(b) GHS label elements, including precautionary statements. (Hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol e.g. "flame", "skull and crossbones");<br>(c) Other hazards which do not result in classification (e.g. "dust explosion hazard") or are not covered by the GHS.   |
| 3. | Composition/ information on ingredients                        | <b>Substance</b><br>(a) Chemical identity;<br>(b) Common name, synonyms, etc.;<br>(c) CAS number and other unique identifiers;<br>(d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.<br><b>Mixture</b><br>The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cut-off levels.<br>NOTE: For information on ingredients, the competent authority rules for CBI take priority over the rules for product identification |
| 4. | First-aid measures   | (a) Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion;<br>(b) Most important symptoms/effects, acute and delayed.<br>(c) Indication of immediate medical attention and special treatment needed, if necessary.  |
| 5. | Fire-fighting measures   | (a) Suitable (and unsuitable) extinguishing media.<br>(b) Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products).<br>(c) Special protective equipment and precautions for fire-fighters.  |
| 6. | Accidental release measures                                    | (a) Personal precautions, protective equipment and emergency procedures.<br>(b) Environmental precautions.<br>(c) Methods and materials for containment and cleaning up.   |
| 7. | Handling and storage   | (a) Precautions for safe handling.<br>(b) Conditions for safe storage, including any incompatibilities.  |
| 8. | Exposure controls/personal protection                          | (a) Control parameters e.g. occupational exposure limit values or biological limit values.<br>(b) Appropriate engineering controls.<br>(c) Individual protection measures, such as personal protective equipment.  |
| 9. | Physical and chemical properties                               | Physical state;<br>Colour;<br>Odour;<br>Melting point/freezing point;  |

|     | Section  | Information  |
|-----|--|--|
|     |  | Boiling point or initial boiling point and boiling range;<br>Flammability;<br>Lower and upper explosion limit/flammability limit;<br>Flash point;<br>Auto-ignition temperature;<br>Decomposition temperature;<br>Kinematic viscosity;  |
| 10. | Stability and reactivity   | (a) Reactivity<br>(b) Chemical stability;<br>(c) Possibility of hazardous reactions;<br>(d) Conditions to avoid (e.g. static discharge, shock or vibration);<br>(e) Incompatible materials;<br>(f) Hazardous decomposition products.   |
| 11. | Toxicological information  | Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:<br>(a) information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);<br>(b) Symptoms related to the physical, chemical and toxicological characteristics;<br>(c) Delayed and immediate effects and also chronic effects from short and long term exposure;<br>(d) Numerical measures of toxicity (such as acute toxicity estimates). |
| 12. | Ecological information   | (a) Ecotoxicity (aquatic and terrestrial, where available);<br>(b) Persistence and degradability;<br>(c) Bioaccumulative potential;<br>(d) Mobility in soil;<br>(e) Other adverse effects.   |
| 13. | Disposal considerations  | Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.  |
| 14. | Transport information  | (a) UN number;<br>(b) UN proper shipping name;<br>(c) Transport hazard class(es);<br>(d) Packing group, if applicable;<br>(e) Environmental hazards (e.g.: Marine pollutant (Yes/No));<br>(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);<br>(g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.   |
| 15. | Regulatory information   | Safety, health and environmental regulations specific for the product in question.   |
| 16. | Other information including information on preparation and revision of the SDS |  |

Appendix 4 of the GHS Purple Book Revision 6 (2015) gives additional information regard required level of details for each of the sections.

## Annex 3: Sample Pesticide Label for Kenya

|  |  |  |
|--|--|--|
| <b>TRADE NAME 60% WP</b>   |  |  |
| A brief description of the product.....<br>(Dawa ya .....)   |  |  |
| GUARANTEE (DHAMANA); Common name of ai 600g/kg   |  |  |
| COMMERCIAL AND AGRICULTURAL CLASS  |  |  |
| REGISTRATION No: PCPB (CR)0000   |  |  |
| <br>Danger/Hatari   | <br>Warning/Ilani | <br>Danger/Hatari |
| <p><b>READ THE LABEL BEFORE USING</b><br/>(SOMA KIBANDIKO KABLA YA KUTUMIA)</p> <p><b>KEEP LOCKED OUT OF REACH OF CHILDREN</b><br/>(WEKA MBALI NA WATOTO)</p> <p style="text-align: center;">Net content: 1Kg    Insert a photo of at least one pest in area of use</p> <p>Date of manufacture:</p> <p><b>Toll Free Number—in case of poisoning</b> <span style="float: right;">Expiry date</span></p> <p>Batch No. <span style="float: right;"></span></p> <p>Shelf life: Two years from the date of manufacture when stored in a cool dry place in unopened container.<br/>(Maisha rafuni: Miaka miwili baada ya kutengenezwa kama imewekwa kwenye chombo ambacho hakinjafunguliwa).</p> <p>Manufactured by PN chemicals <span style="float: right;">Distributed by Eli chemicals</span></p> |  |  |
| <b>Color Band (Red, Yellow, Blue)</b>  | <b>Precautionary Pictograms</b>  |  |

**DESCRIPTION**

Brief description

**DIRECTIONS FOR USE**

Dosage, timing, phi, spray volume etc

HAZARD STATEMENTS E.g Fatal if swallowed

PRECAUTIONARY STATEMENT e.g Do not eat or drink when handling the product

STORAGE

DISPOSAL

ENVIRONMENTAL HAZARDS

FIRST AID INSTRUCTIONS

TOXICOLOGICAL INFORMATION (English only)

NOTICE TO THE USER

SELLERS GUARANTEE

Note: All the above in English and Kiswahili