



INTERNATIONAL LABOUR OFFICE

**ILO WORKING GROUP ON HAZARD
COMMUNICATION**

DRAFT STEP 3 DOCUMENT

**PROPOSED HARMONISATION OF CHEMICAL
HAZARD COMMUNICATION IN THE GLOBALLY
HARMONISED SYSTEM**

Contents

Introduction

Part A – General Principles

Objectives and Scope	paras
Life-cycle	para
Building Block Approach	paras
Hazard and Risk	para
Terminology and working definitions	paras
Target Audiences	paras
Comprehensibility	paras
Standardisation	paras
Updating information	paras
Confidential Business Information	paras
Training	paras

Part B – Labelling Procedures

Introduction	para
Allocation of Label Elements	paras
Precautionary statements	paras
Reproduction of the hazard symbol	paras
Use of colour	
- Hazard pictograms	
- Precautionary pictograms	
- Elsewhere on the label	
Product and supplier identification	
Presentation of label elements on the label	
Special labelling arrangements	
- workplace labelling	
- special labelling classes	
- tactile warnings	

Part C – (Material) Safety Data Sheets - Options

Introduction	paras	
Role of the (M)SDS in the harmonised system		paras
When the (M)SDS is required	paras	
(M)SDS format	paras	
(M)SDS content	paras	
Access to (M)SDS	para	

Introduction

1. At its 76th Session in June 1989, the General Conference of the International Labour Organization, adopted a Resolution presented by the Government of India during the first discussion concerning the ILO convention on safety in the use of chemicals at work. This Resolution concerning harmonisation of systems of classification and labelling for the use of hazardous chemicals at work, invite the Governing Body of the ILO to request the Director-General to assess the size of the task of harmonizing national and regional criteria and classification systems established for the use of chemicals at work and to prepare a report on the results of this assessment. Following the adoption by the ILO of a Chemicals Convention in 1990, the Office prepared the requested report and initiated a project to harmonise existing systems for the classification and labelling of chemicals.

2. This goal was further endorsed by the 1992 UN Conference on Environment and Development (UNCED) and included as one of the six areas for action identified in Chapter 19 of Agenda 21 on environmentally sound management of toxic chemicals. UNCED recommended that "a globally harmonised hazard classification and compatible labelling system, including material safety data sheets and easily understandable symbols, (which) should be available, if feasible, by the year 2000". This goal was later endorsed by both the Intergovernmental Forum on Chemical Safety (IFCS) and the Inter-Organization Programme for the Sound Management of Chemicals (IOMC) which co-ordinates the actions of WHO, ILO, UNEP, FAO, UNIDO, UNITAR and the OECD aimed at implementing Chapter 19.

3. In 1992 the ILO established a Co-ordinating Group to oversee the elaboration of a Globally Harmonized System for the Classification and Labelling of Chemicals (GHS) for the Harmonisation of Chemical Classification Systems CG/HCCS. This evolved to become an IOMC Co-ordinating Group although the ILO continues to provide the secretariat for this Group. Overall, the technical work of harmonisation is carried out through three Focal Points, namely the OECD for health and environmental hazards, the UN Committee of Experts on Transport of Dangerous Goods for physical hazards, and the ILO for Hazard Communication. The Governing Body of the ILO established a tripartite Working Group for the Harmonisation of Chemical Hazard Communication (WG/HCCS) in March 1998 and this has met on a roughly biannual basis since.

4. This Document is the third and final stage of the ILO Working Group's consideration of harmonisation of chemical hazard communication. In November 2001 the Governing Body of the ILO will meet to consider the outcome of the work. The document presents the basis for the new system and highlights the final issues to be resolved by the Working Group at its meeting in May 2001. Thereafter the system developed here will pass to the management of a new committee of experts within the United Nations Committee of Experts for the Transport of Dangerous Goods and Globally Harmonised System of Classification and Labelling of Chemicals.

5. The Step 3 proposal is the culmination of many years of work spent by individuals from the project's conception, the detailed review and discussion of existing systems, and the examination of numerous options for bringing these together into a single harmonised global system. Many individuals have devoted considerable time and energy to the project during this time and the ILO wishes to

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express its heartfelt thanks for this commitment. This new system will provide a strong foundation for the countries to use in developing comprehensive chemical control strategies and will make a considerable contribution to raising standards of worker protection throughout the world.

6. The production of this document was overseen by a Drafting Group established by the ILO Working Group and comprised the following individuals - Australia (Stephen Holland), Canada (Kim Headrick), Finland (Anna-Liisa Sundquist), Germany (Gregor Oberreuter), UK (Andrew Fasey), USA (Jennifer Silk), two IOE representatives (Michele Sullivan and Ulrich Haas) and a Labour representative (Mike Wright). They were supported in their endeavours by Iona Pratt (Ireland and Chairperson of the Working Group), Isaac Obadia (ILO) and Julie Wyeth (ILO working on secondment from the UK Health and Safety Executive).

Part A – General Principles

Objectives and Scope

7. The Working Group's objective has been the development of a harmonised labelling system, including material safety data sheets and easily understandable symbols for the classification criteria developed by the other focal points within the IOMC Co-ordinating Group for the Harmonisation of Chemical Classification Systems CG/HCCS. The proposed harmonised arrangements are described in this document with Part B describing the harmonised labelling system, and Part C the system for (Material) safety data sheets.

8. There are a number of important points regarding principles, scope and the application of the system, which are described in this introductory Part A. These are designed to provide some guidance to the rationale for the approaches taken by the Working Group in formulating the Step 3 proposals. These were steered largely by the Working Group Terms of Reference, which in summary were designed to take account of:

- the need to ensure the health and safety of target audiences and the environment;
- the need to facilitate international trade and protect confidential business information;
- the need for a system that is simple, effective, easy to apply and takes account of the needs in developing countries;
- the need for compatibility with existing international instruments;
- the use of the harmonised hazard classification criteria;
- the comprehensibility, accuracy and completeness of information;
- the needs of target audiences;
- some consideration of risk in communication to certain target audiences;
- the role of education and training;
- recognition of the need for guidance.

9. In addition the principles contained in the IOMC CG/HCCS Terms of Reference and the document 'Description and Further Clarification of the Anticipated Application of the GHS (also referred to as 'The Scope Document') also applied to the work on harmonisation of hazard communication.

Life-cycle

10. The overarching principles that define how the GHS applies to products containing hazardous chemicals and therefore how labelling arrangements should apply were taken from the IOMC Scope document:

"The work on harmonisation of hazard classification and labelling focuses on a harmonised system for all chemicals, and mixtures of chemicals. The application of the components of the system may vary by type of product or stage of the life cycle. Once a chemical is classified, the likelihood of adverse effects may be considered in deciding what informational or other steps should be taken for a given product or use setting. Pharmaceuticals, food additives and pesticide residues in food will not be covered (by the work on harmonisation) in terms of labelling at the point of intentional intake. However, these types of chemicals would be covered where workers may be exposed, and in transport if potential exposure warrants. The CG/HCCS recognises that further discussion will be required to address specific application issues for some product use categories which may require the use of specialised expertise."

Hazard and risk

11. There have been a number of discussions within the GHS on the terms hazard and risk. The following explanation of hazard and risk was used during the

Working Group discussions of hazard-based and risk-based labelling and was taken from the IOMC Scope document:

“ The degree of a chemical's capacity to harm depends on its intrinsic properties i.e. its capacity to interfere with normal biological processes, and its capacity to burn, explode, corrode etc. The concept of risk or the likelihood of harm occurring, and subsequent communication of that information, is introduced when exposure is considered in conjunction with the data regarding potential hazards. The basic approach to risk assessment therefore is the simple formula:

$$\text{Hazard} \times \text{Exposure} = \text{Risk}$$

Thus if you can minimise either hazard or exposure, you minimise the risk or likelihood of harm. Successful hazard communication alerts the user to the presence of a hazard and the need to minimise exposures and the resulting risks.”

12. There are some consumer labelling systems which provide information on the label based on the likelihood of injury (risk-based labelling) and the IOMC Coordinating Group agreed that the option of having risk communication on consumer product labels should be addressed in the GHS. The Working Group has discussed this issue at length, and there is a broad range of opinions regarding the approach. At this point, an ad-hoc working party is considering the principles of application of risk considerations to determine the label warnings on consumer product labels for countries using such an approach.

Application of the harmonised hazard communication system

13. The harmonised system for hazard communication includes the appropriate labelling tools to convey information about each of the hazard classes and levels in the GHS. These are described in Part B. The use of different symbols, signal words or hazard statements to those which have been assigned would be contrary to harmonisation. There has however been considerable discussion about how the GHS should be applied in different use settings to provide some flexibility to take account of the needs of the different target-audiences. The Working Group considered the application of the following General Principle described in the IOMC CG/HCCS Terms of Reference:

"harmonization means establishing a common and coherent basis for chemical hazard classification and communication, from which the appropriate elements relevant to means of transport, consumer, worker and environment protection can be selected." (The Building Block Principle)

14. The Working Group recognised that there will be circumstances where the demands and rationale of systems may warrant some flexibility in whether to incorporate certain hazard classes and levels for certain target audiences. For example, the scope of the UN RTDG encompasses only the most severe hazard levels of the acute toxicity hazard class. This system would not label substances or mixtures falling within the scope of the less severe hazard levels (i.e. those falling within the oral range > 300mg/kg). However, should the scope of that system be amended to incorporate substances and mixtures falling in these less severe hazard levels, they should be labelled with the appropriate GHS labelling tools. The use of different cut-offs to determine which products are labelled in a hazard level, would be contrary to harmonisation.

15. It is recognised that the UN RTDG provides label information primarily in a graphic form because of the needs of its target audiences. There the UN RTDG may

choose not to include signal words and hazard statements as part of the information provided on the label.

Terminology

16. During Working Group discussions, different terminology was used at times to describe the same or similar things. For example, health and environmental hazards were referred to as toxicological “endpoints” or danger classes. A similar problem arose for descriptions of the level of hazard, the variants of which included hazard class, hazard level and hazard category. A description of common terms and working definitions which is specific to certain issues in this document is as follows.

“Hazard Class”. This is the term used in the document to describe the nature of the physical, health or environmental hazard i.e. carcinogen, flammable solid, oral acute toxicity.

“Hazard Level”. This is the term used in the document to describe the level of hazard i.e. oral acute toxicity has five hazard levels, flammable liquids has four hazard levels and carcinogens three levels.

“Product identifier”. A product identifier means the name or number used for a hazardous product on a label or in the (M)SDS.

“Symbol”. A symbol means a graphical element intended to succinctly convey information.

“Pictogram”. A pictogram means a composition that includes a symbol plus other graphic elements, such as a border, background pattern or colour that is intended to convey specific information.

“Label”. A label means an appropriate group of written, printed or graphic information elements concerning a hazardous product, selected as relevant to the target sector(s), that is affixed to, printed on, or attached to the immediate container of a hazardous product, or to outside packaging of the hazardous product and is clearly delineated as GHS information.

“Label Element”. A label element means one type of information that has been harmonized for use in a label.

“Supplemental Label Element”. A supplemental label element means any additional non-harmonized type of information supplied on the container of a hazardous product that is not required or specified for the GHS label. In some cases this information may be required by other competent authorities or it may be additional information provided at the discretion of the manufacturer/distributor.

“Precautionary statement”. A 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 hazardous product, or improper storage or handling of a hazardous product.

“Signal word”. A 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.

“Hazard Statement”. A hazard statement means a phrase allocated to the hazard classification criteria that describes the hazards of a hazardous product, including, where appropriate, the degree of hazard.

Target audiences

17. The Working Group spent considerable time identifying and considering the needs of the target audiences that will be the primary end-users of the harmonised hazard communication scheme. Particular attention has been given to a discussion of the environment and manner in which these target audiences will receive and use the information conveyed about hazardous chemicals. Factors discussed include the potential use of products, availability of information other than the label and the availability of training.

18. The Working Group recognised that it is difficult to completely separate the needs of different target audiences. For example, both workers and emergency responders use labels in storage facilities, and consumer products such as paints and solvents are used in workplaces. That said there are certain characteristics which are a feature of the different target audiences. The following paragraphs in this section consider the target audiences and the type of information they need.

Workplace

19. Employers and workers need to know the hazards specific to the chemicals used and or handled in the workplace, as well as information about the specific protective measures required to avoid the adverse effects that might be caused by those hazards. In the case of storage of chemicals, potential hazards are minimised by the containment (packaging) of the chemical, but in the case of an accident, workers and emergency responders need to know what mitigation measures are appropriate. Here they may require information which can be read at a distance. The label, however, is not the sole source of this information, which is also available through the (M)SDS and workplace risk management system. The latter should also provide for training in hazard assessment and prevention. The nature of training provided and the accuracy, comprehensibility and completeness of the information provided on the (M)SDS can vary. However, compared to consumers for example, workers can develop a more in depth understanding of symbols and other types of information.

Consumers

20. The label in most cases is likely to be the sole source of information available to the consumer. The label, therefore, will need to be sufficiently detailed and relevant to the use of the product. Labelling based on the likelihood of injury (i.e. risk communication) is considered to be an effective approach in this respect by some consumer labelling systems. Others take account of the ‘right to know’ principle in providing information to consumers which is solely based on the products hazards. Consumer education is more difficult and less efficient than it is for other audiences. Providing sufficient information to consumers in the simplest and most easily understandable terms presents a considerable challenge. The issue of comprehensibility is of major importance for this target audience.

Emergency Responders

21. Emergency responders need information on a range of levels. To facilitate immediate responses, they need accurate, detailed and sufficiently clear information

This applies in the event of an accident during transportation, in storage facilities or at workplaces. Fire-fighters and those first at the scene of an accident for example, need information that can be distinguished and interpreted at a distance. Such personnel are highly trained in the use of graphical and coded information. However, emergency responders also require more detailed information about hazards and response techniques, which they obtain from a range of sources. The information needs of medical personnel responsible for treating the victims of an accident or emergency may differ from those of fire-fighters.

Transport

22. The UN RTDG caters for a wide range of target audiences although transport workers and emergency responders are the principal ones. Others include employers, those who offer or accept dangerous goods for transport or load or unload packages of dangerous goods into or from transport vehicles, or freight containers. All need information concerning general safe practices that are appropriate for all transport situations. For example, a driver will have to know what has to be done in case of an accident irrespective of the substance transported: (e.g. report the accident to authorities, keeping the shipping documents in a given place, etc.) Drivers may only require limited information concerning specific hazards, unless they also load and unload packages or fill tanks etc. Workers who might come into direct contact with dangerous goods, for example on board ships, require more detailed information

Comprehensibility

23. Comprehensibility of the information provided has been one of the most important issues addressed in the development of the hazard communication system. The aim of the harmonised system is to present the information in a manner that the intended audience can easily understand. The Working Group has identified some guiding principles to assist this process:

- Information should be conveyed in more than one way.
- The comprehensibility of the components of the system should take account of existing studies and literature as well as any evidence gained from testing.
- The phrases used to indicate degree (severity) of hazard should be consistent across different hazard types.

24. The latter point was subject to some debate concerning the comparison of severity between long-term effects such as carcinogenicity and physical hazards such as flammability. Whilst it might not be possible to directly compare physical hazards to health hazards, it may be possible to provide target audiences with a means of putting the degree of hazard into context and therefore convey the same degree of concern about the hazard. This is of particular importance for labels used within workplaces.

Comprehensibility testing methodology

25. A preliminary review of the literature undertaken by the University of Maryland indicated that common principles related to comprehensibility could be applied to the development of the harmonised hazard communication scheme. The University of Cape Town developed these into a comprehensive testing methodology to assess

the comprehensibility of the hazard communication system. In addition to testing individual label components, this methodology considers the comprehensibility of label components in combination. This was considered particularly important to assess the comprehensibility of warning messages for consumers where there is less reliance on training to aid understandability. The testing methodology also includes a means of assessing (M)SDS comprehensibility.

Translation

26. Options for the use of textual information present an additional challenge for comprehensibility. Clearly words and phrases need to retain their comprehensibility when translated, whilst conveying the same meaning as the terminology used in other languages. The IPCS Chemical Safety Card Programme has gained experience of this in translating standard phrases in a wide variety of languages. The EU also has experience of translating terms to ensure the same message is conveyed in multiple languages e.g. hazard, risk etc. Similar experience has been gained in North America where the North American Emergency Response Guidebook, which uses key phrases, has been translated into three languages and is currently being translated into Russian and Chinese.

Standardisation

27. To fulfil the goal of having as many countries as possible adopt the system, the Working Group has based much of the system on standardised approaches to make it easier for companies to comply with, and for countries to implement the system. Whilst standardisation poses problems in terms of loss of flexibility, the indications are that repetition can bring significant benefits, particularly when the information is based on sound principles of comprehensibility. The Working Group identified that standardisation could be applied to certain label elements - symbols, signal words, statements of hazard, precautionary statements – and to label format and colour and to (M)SDS format. It employed a clear mechanism for the identification and development of options for the standardised elements.

Basic Approach

28. The approach to standardisation consisted of a number of steps as follows:

- Identification of appropriate existing databanks of standardised sources of information, in particular mandatory phrases prescribed by Governments, EU standard phrases, and recommendations for the use of certain phrases in national standards, industry voluntary standards/phrases and any internationally recognised sources such as the IPCS Chemical Safety Cards.
- Identification of options following consideration of information from existing sources.
- Application of comprehensibility principles for conveying the information to target audiences.
- Consideration of whether options can be easily translated and retain comprehensibility.
- Testing of options on target audiences.
- Assignment of standardised item to hazard class and/or hazard level.

Use of non-standardised information about a GHS hazard

29. The status of non-standardised information in the GHS has been considered. Standardisation of symbols and signal words means that no symbol or signal word

can be used to convey the hazard, other than those used in the GHS. The choice of an alternative symbol or signal word would clearly result in incorrect information on the label. Standardisation of text is less straightforward and some flexibility is required to allow for the inclusion of more specific information about a hazard. In order to accommodate this, but to ensure that the use of non-standardised information does not lead to wide variations in information provided on labels, supplementary information can be added to the label, with the following provisos:

- the supplementary information provides further detail and does not contradict or cast doubt on the validity of the standardised hazard statement and/or precautionary information;
- it does not lower the standards of protection;
- it provides information about hazards not yet incorporated into the GHS.

Updating Information

30. All systems should specify a means of responding to new information and updating labels and (M)SDS information accordingly. Examples of how this could be achieved will be provided in guidance.

Confidential Business Information

31. All systems adopting the GHS should make provisions 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. In particular, competent authorities have the responsibility to establish appropriate mechanisms, in accord with national law and practice, for the protection of CBI, including:

- a definition of 'confidential business information' as it applies to information that would otherwise appear on labels and safety data sheets;
- procedures for the disclosure of confidential business information, where necessary to protect the health and safety of workers or consumers, or the environment, with the appropriate measures to prevent further disclosure; and
- procedures for resolving disputes that may arise.

32. Provisions for the protection of CBI should be consistent with the following principles:

- a) CBI claims should be limited to the names of chemicals, and their concentration in mixtures. All other information should be disclosed on the label and chemical safety data sheet, as required.
- b) Confidential business information should include only that information which is generally unknown to competitors, is not readily discoverable through chemical analysis, reverse engineering, or other legal means, and whose disclosure to a competitor would be liable to cause harm to the employer or supplier's business.
- c) Carcinogens, mutagens, reproductive toxins and respiratory sensitisers should not qualify for protection as confidential business information.
- d) Where CBI has been withheld, the label or chemical safety data sheet should so indicate.
- e) CBI should be disclosed to the competent authority upon request. The competent authority should protect the confidentiality of the information in accord with applicable law and practice.

- f) Where a medical professional determines that a medical emergency exists due to exposure to a hazardous chemical or chemical mixture, mechanisms should be in place to ensure disclosure by the supplier or employer of the specific confidential information necessary for treatment, as soon as practicable. The medical professional should maintain the confidentiality of the information.
- g) For non-emergency situations, mechanisms should be in place for the disclosure, upon request, by the supplier or employer, of confidential information to a safety or health professional providing medical or other safety or health services to exposed workers or consumers, and to workers or workers' representatives, who agree to use the information only for the purpose of consumer or worker protection, and to otherwise maintain its confidentiality.
- h) Workers and their representatives, consumers, and the public should have the right to challenge CBI claims that potentially affect their health or safety, or the protection of the environment. Challenges should be adjudicated through an impartial mechanism in accord with national law and practice. The competent authority may choose to facilitate the rapid resolution of disputes through the pre-registration of CBI claims.
- i) In case of disputes, or in the pre-registration of CBI claims, the supplier or employer should be required to support the assertion that withheld information qualifies for CBI protection.

Training

33. Training is an integral part of hazard communication and systems should specify the requirement for target audiences required to interpret graphical information, colour, coded-information and the appropriate response to chemical hazards, to receive training which is appropriate for and commensurate with the nature of their work or exposure. These are principally workers, emergency responders and those involved in the preparation of labels, (M)SDS and hazard communication strategy for the risk management systems, although others involved in the transport and supply of hazardous chemicals also require training to varying degrees.

34. Systems should also consider strategies for educating consumers in interpreting label information on products that they use.

Part B – Labelling Procedures

Introduction

35. The following sections describe the procedures for preparing labels in the GHS. It comprises the following sections:

- i. Allocation of label elements to communicate the harmonised classification information.
- ii. Precautionary information
- iii. Reproduction of the hazard symbol.
- iv. Use of colour for pictograms and elsewhere on the label.
- v. Product and supplier identification.
- vi. Arrangements for presenting the label elements on the label.
- vi. Special labelling arrangements

i. Allocation of Label Elements

36. The following tables detail the label elements that have been allocated to each of the hazard levels within each hazard class of the GHS (these are the harmonised classification criteria). The hazard levels for substances are the same as those for mixtures. The labelling requirements for some mixtures depend on the concentration of the substance in the mixture and where this applies, the relevant cut-off values are included in the table. There are special arrangements which apply to the use of certain hazard levels and mixture concentrations in the GHS to take account of the information needs of different target audiences. These are described in section v.

Flammable Liquid

Hazard Level 1	Initial boiling point $< 35^{\circ}\text{C}$ and flash point $< 23^{\circ}\text{C}$
Symbol	Flame
Signal Word	Danger
Hazard Statement	Extremely flammable liquid and vapour.

Hazard Level 2	Flash point $< 23^{\circ}\text{C}$ and initial boiling point $> 35^{\circ}\text{C}$
Symbol	Flame
Signal Word	Danger
Hazard Statement	Highly flammable liquid and vapour.

Hazard Level 3	Flash point $> 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$
Symbol	Flame
Signal Word	Caution or Warning
Hazard Statement	Flammable liquid and vapour.

Hazard Level 4	Flash point $> 60^{\circ}\text{C}$ and $\leq 93^{\circ}\text{C}$
Symbol	No symbol is used for this hazard level.
Signal Word	Caution or Warning
Hazard Statement	Combustible liquid.

Flammable Solid

Hazard Level 1	<p>Screening test: testing time 2 min (20 min for metal powders)</p> <p>Burning rate test: Substances other than metal powders – wetted zone does not stop fire and burning time < 45s or burning rate > 2.2 mm/s</p> <p>Metal powders: burning time \leq 5 min</p>
Symbol	Flame
Signal Word	Danger
Hazard Statement	Highly flammable solid.

Hazard Level 2	<p>Burning rate test: Substances other than metal powders – wetted zone stops the fire for at least 4 min and burning rate < 45s</p> <p>Metal powders – burning time > 5 min and \leq 10 min</p>
Symbol	Flame
Signal Word	Caution or Warning
Hazard Statement	Flammable solid.

Flammable Gas

Hazard Level 1	<p>Gases and mixtures, which at 20° C and a standard pressure of 101.3kPA,</p> <p>a) Are ignitable when in a mixture of 13% or less by volume in air, or</p> <p>Have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.</p>
Symbol	Flame
Signal Word	Danger
Hazard Statement	Highly flammable gas

Hazard Level 2	<p>Gases or gas mixtures, other than those of high danger, which at 20° C and a standard pressure of 101.3kPA, have a flammable range in mixture in air.</p>
Symbol	There is no symbol used for this hazard level
Signal Word	Caution or warning
Hazard Statement	Flammable gas

Pyrophoric liquid

Hazard Level 1 (There is only one hazard level)	The liquid ignites in the first part of the test, or if it ignites or chars the filter paper (UN Test N.3).	
Symbol	Flame	
Signal Word	Danger	
Hazard Statement	Catches fire if exposed to air	

Pyrophoric solid

Hazard Level 1 (There is only one hazard level)	The sample ignites in one of the tests (UN Test N.2).	
Symbol	Flame	
Signal Word	Danger	
Hazard Statement	Catches fire if exposed to air	

Self-heating substances

Hazard Level 1	Positive results in a test using a 25mm sample cube at 140° C (UN Test N.4)	
Symbol	Flame	
Signal Word	Danger	
Hazard Statement	Self-heating; May catch fire	

Hazard Level 2	<p>A positive result is obtained in a test</p> <p>a) using a 100mm sample cube at 140° C and a negative result is obtained in a test using a 25mm cube sample at 140° C and the substance is to be packed in packages with a volume of more than 3m³</p> <p>b) using a 100mm sample cube at 140° C and a negative result is obtained in a test using a 25mm cube sample at 140° C, a positive result is obtained in a 100mm cube sample at 120° C <u>and</u> the substance is to be packed in packages with a volume of more than 450 litres</p> <p>using a 100mm sample cube at 140° C and a negative result is obtained in a test using a 25mm cube sample at 140° C <u>and</u> a positive result is obtained in a test using a 100mm cube sample at 100° C.</p>	
Symbol	Flame	
Signal Word	Caution or Warning	
Hazard Statement	Self-heating; May catch fire	

Self reactive substance

Hazard Level 1 (only 1 level)	Meets the criteria of the Manual of Tests and Criteria, Part II for tests A and B.	Meets the criteria of the Manual of Tests and Criteria, Part II for tests C – F.
Symbol	Flame and exploding bomb.	Flame
Signal Word	Danger	Caution or Warning
Hazard Statement	Heating may cause fire or explosion	Heating may cause fire.

Substances which, in contact with water, emit flammable gases

Hazard Level 1	Any substance which reacts vigorously with water at ambient temperatures and demonstrates generally a tendency for the gas produced to ignite spontaneously, or which reacts 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 (UN Test 5).
Symbol	Flame
Signal Word	Danger
Hazard Statement	Contact with water releases highly flammable or burning gases.

Hazard Level 2	Any substance 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 high danger (UN Test 5).
Symbol	Flame
Signal Word	Danger
Hazard Statement	Contact with water releases flammable hazards.

Hazard Level 3	Any substance which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 1 litre per kilogram of substance per hour, and which does not meet the criteria for high and medium danger (UN Test 5).
Symbol	Flame
Signal Word	Caution or Warning
Hazard Statement	Contact with water releases flammable gases.

Oxidising liquids

Hazard Level 1	Any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, spontaneously ignites; or the mean pressure rise time of a 1:1 mixture, by mass, of substance and cellulose is less than that of a 1:1 mixture, by mass, of 50% perchloric acid and cellulose (UN Test 0.2).
Symbol	Flame over circle
Signal Word	Danger
Hazard Statement	May cause fire or explosion; strong oxidiser.

Hazard Level 2	Any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 40% aqueous sodium chlorate solution and cellulose; and the criteria for high danger are not met (UN Test 0.2).
Symbol	Flame over circle
Signal Word	Danger
Hazard Statement	May intensify fire; oxidiser

Hazard Level 3	Any substance which in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose; and the criteria for high and medium danger are not met (UN Test 0.2).
Symbol	Flame over circle
Signal Word	Caution or Warning
Hazard Statement	May intensify fire; oxidiser

Oxidising solids

Hazard Level 1	Any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose (UN Test 0.1)
Symbol	Flame over circle
Signal Word	Danger
Hazard Statement	May cause fire or explosion; strong oxidiser.

Hazard Level 2	Any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 2:3 mixture, by mass, of potassium bromate and cellulose and the criteria for high danger are not met (UN Test 0.1)
Symbol	Flame over circle
Signal Word	Danger
Hazard Statement	May intensify fire; oxidiser

Hazard Level 3	Any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 3:7 mixture, by mass, of potassium bromate and cellulose and the criteria for high and medium danger are not met (UN Test 0.1)
Symbol	Flame over circle
Signal Word	Caution or Warning
Hazard Statement	May intensify fire; oxidiser

Oxidising gas

Hazard Level 1	Any gas which, generally by providing oxygen, may cause or contribute to the composition of other material more than air does (Test ISO 10 156: 1996).
Symbol	Flame over circle
Signal Word	Danger
Hazard Statement	May cause or intensify fire; oxidiser

Organic peroxides

Hazard Level 1	Any organic peroxide, except organic peroxides or organic peroxides formulations containing a) not more than 1.0% available oxygen from the organic peroxides when containing not more than 1.0% hydrogen peroxide b) (not more than 0.5% available oxygen from the organic peroxides when containing more than 1.0% but not more than 7.0% hydrogen peroxide.	
	Meeting the UN Manual of Tests II A and B	Meeting the UN Manual of Tests II C - F
Symbol	Flame over circle and exploding bomb	Flame over circle
Signal Word	Danger	Caution or Warning
Hazard Statement	Heating may cause fire or explosion	Heating may cause fire

Explosives

Hazard Level 1	Explosivity: according to UN Test series 2 (Section 12) <u>1/</u> Sensitiveness: according to UN Test series 3 (Section 13) <u>1/ 3/</u> Thermal stability: according to UN Test 3 (c) (Sub-section 13.6.1) <u>1/</u>
Symbol	Exploding bomb
Signal Word	Danger
Hazard Statement	Explosive

Corrosive to metal

Hazard Level 1	Corrosion rate on steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55° C. (For the purposes of testing steel, type P235 - ISO 9328 (II):1991 – or a similar type and for testing aluminium, non-clad types 7075-T6 or AZ5GU-T6 shall be used. An acceptable test is prescribed in ASTM G31 – 72 – (Re-approved 1990)).
Symbol	Dual corrosivity symbol
Signal Word	Caution or Warning
Hazard Statement	Corrosive to metals

Acute toxicity (oral)

Hazard Level 1	5 mg/kg
Symbol	Skull and Crossbones
Signal Word	Danger
Hazard Statement	May be fatal if swallowed.

Hazard Level 2	50 mg/kg
Symbol	Skull and crossbones
Signal Word	Danger
Hazard Statement	May be fatal if swallowed.

Hazard Level 3	300 mg/kg
Symbol	Skull and crossbones
Signal Word	Danger
Hazard Statement	Toxic if swallowed.

Hazard Level 4	2 000 mg/kg
Symbol	A symbol yet to be determined
Signal Word	Caution or Warning
Hazard Statement	Harmful if swallowed

Hazard Level 5	5 000 mg/kg
Symbol	There will be no symbol used for this hazard level.
Signal Word	The use of the signal word caution or warning is optional.
Hazard Statement	May be harmful if swallowed.

Acute toxicity (dermal)

Hazard Level 1	50 mg/kg
Symbol	Skull and Crossbones
Signal Word	Danger
Hazard Statement	May be fatal in contact with skin.

Hazard Level 2	200 mg/kg
Symbol	Skull and crossbones
Signal Word	Danger
Hazard Statement	May be fatal in contact with skin.

Hazard Level 3	1 000 mg/kg
Symbol	Skull and crossbones
Signal Word	Danger
Hazard Statement	Toxic in contact with skin.

Hazard Level 4	2 000 mg/kg
Symbol	A symbol yet to be determined
Signal Word	Caution or Warning
Hazard Statement	Harmful in contact with skin.

Hazard Level 5	5 000 mg/kg
Symbol	There will be no symbol used for this hazard level.
Signal Word	The use of the signal word caution or warning is optional.
Hazard Statement	May be harmful in contact with skin..

Acute toxicity (inhalation)

Hazard Level 1	100 ppm 0.5 mg/L 0.05 mg/L/4 hrs
Symbol	Skull and Crossbones
Signal Word	Danger
Hazard Statement	May be fatal if inhaled.

Hazard Level 2	500 ppm 2.0 mg/L 0.5 mg/L/4 hrs
Symbol	Skull and crossbones
Signal Word	Danger
Hazard Statement	May be fatal if inhaled.

Hazard Level 3	2 500 ppm 10 mg/L 1.0 mg/L/4 hrs
Symbol	Skull and crossbones
Signal Word	Danger
Hazard Statement	Toxic if inhaled

Hazard Level 4	5 000 ppm 20 mg/L 5 mg/L/4 hrs
Symbol	A symbol yet to be determined
Signal Word	Caution or Warning
Hazard Statement	Harmful if inhaled

Hazard Level 5	
Symbol	There will be no symbol used for this hazard level
Signal Word	The use of caution or warning is optional
Hazard Statement	May be harmful if inhaled.

Dermal irritation/corrosion

Hazard Level 1	Destruction of dermal tissue; visible necrosis in at least one animal Sub level 1A: Exposure < 3 minutes, Observation < 1 hour Sub level 1B: Exposure < 1 hour, Observation < 1 hour Sub level 1C: Exposure < 1 hour, Observation < 1 hour
Symbol	Dual corrosion symbol
Signal Word	Danger
Hazard Statement	Causes skin burns and severe eye damage

Hazard Level 2	Reversible adverse effects in dermal tissue Mean Draize score of 2 in 3 animals: 2.3 ≤ erythema/eschar/ edema < 4.0, or persistent inflammation
Symbol	No symbol or new low level symbol
Signal Word	Caution or Warning
Hazard Statement	Causes skin irritation

Hazard Level 3	Reversible adverse effects in dermal tissue Mean Draize score of 2 in 3 animals: 1.5 ≤ erythema/ eschar/edema < 2.3
Symbol	There will be no symbol used for this hazard level
Signal Word	Caution or Warning
Hazard Statement	May cause skin irritation.

Eye irritation/corrosion

Hazard Level 1	Irreversible damage to cornea, iris, conjunctiva 21 days after exposure in at least 1 animal Mean Draize score in 2 of 3 animals; Corneal opacity ≥ 3, iritis > 1.5
Symbol	Corrosive or new high level symbol
Signal Word	Danger
Hazard Statement	Causes severe eye damage

Hazard Level 2A	Reversible adverse effects on cornea, iris, conjunctiva Mean Draize score in 2 of 3 animals: Corneal opacity: ≥ 1, iritis: > 1, redness: > 2, chemosis: > 2 Reversible in 21 days
Symbol	No symbol or new low level symbol
Signal Word	Caution or Warning
Hazard Statement	Causes severe eye irritation

Hazard Level 2B	Reversible adverse effects on cornea, iris, conjunctiva Mean Draize score in 2 of 3 animals: Corneal opacity: ≥ 1 , iritis: > 1 , redness: > 2 , chemosis: > 2 Reversible in 7 days
Symbol	There will be no symbol used for this hazard level
Signal Word	Caution or Warning
Hazard Statement	Causes eye irritation

Respiratory Sensitisation

Hazard Level 1 (only one hazard level)	Evidence of specific respiratory hypersensitivity. Positive results from animal test.
	The cut-off value (concentration) triggering classification of the mixture as a respiratory sensitizer is $\geq 1.0\%$ w/w for solids and liquids and $\geq 0.2\%$ v/v for gas.
Symbol	EM or new high level symbol
Signal Word	Danger
Hazard Statement	May cause an allergic reaction or asthma if inhaled

Dermal sensitisation

Hazard Level 1 (only one hazard level)	Evidence in humans of sensitisation by skin contact, or Positive result from animal test.
	The cut-off value (concentration) triggering classification of the mixture as a respiratory sensitizer is $\geq 1.0\%$ w/w for solids and liquids and $\geq 1.0\%$ v/v for gas.
Symbol	No symbol or new low level symbol
Signal Word	Caution or Warning
Hazard Statement	May cause skin allergy

Germ cell mutagenicity

Hazard Level 1	Known to produce heritable mutations in human germ cells. Sub level 1A: Positive evidence from epidemiological evidence. Sub level 1B: Positive results in: In vivo heritable germ cell tests in mammals; Human germ cell tests; In vivo somatic mutagenicity tests, combined with some evidence of germ cell mutagenicity.
	The cut-off value (concentration) triggering classification of the mixture is $\geq 0.1\%$
Symbol	EM or new high level symbol
Signal Word	Danger
Hazard Statement	Causes inherited genetic defects (state route of exposure if known)

Hazard Level 2	<p>May induce heritable mutations in human germ cells.</p> <p>Positive evidence from tests in mammals and somatic cell tests.</p> <p>In vivo somatic genotoxicity supported by in vitro mutagenicity.</p>
	The cut-off value (concentration) triggering classification of the mixture is $\geq 1.0\%$
Symbol	A symbol yet to be determined
Signal Word	Caution or Warning
Hazard Statement	May cause inherited genetic defects

Carcinogenicity

Hazard Level 1	<p>Known or presumed human carcinogen</p> <p>Sub level 1A: Known human carcinogen based on human evidence Sub level 1B: Presumed human carcinogen based on demonstrated animal carcinogenicity</p>
	The cut-off value (concentration) triggering classification of the mixture is $\geq 0.1\%$
Symbol	EM or new high level symbol
Signal Word	Danger
Hazard Statement	Causes cancer (state route of exposure if possible)

Hazard Level 2	<p>Suspected carcinogen Limited evidence of human or animal carcinogenicity</p>
	<p>There are two cut-off values (concentration) for labelling purposes:</p> <p>i. $\geq 0.1\%$ ii. $\geq 1.0\%$</p>
Symbol	A symbol to be determined
Signal Word	Caution or Warning
Hazard Statement	May cause cancer (state route of exposure if possible)

Reproductive toxicity

Hazard Level 1	<p>Known or presumed human reproductive or developmental toxicant</p> <p>Sub level 1A: Known Sub level 1B: Presumed</p>
	<p>There are two cut-off values (concentration limits) for labelling purposes:</p> <p>i. $\geq 0.1\%$ ii. $\geq 0.3\%$</p>
Symbol	EM or new high level symbol
Signal Word	Danger
Hazard Statement	Damages fertility or the unborn child

Hazard Level 2	Suspected human reproductive toxicant
	There are two cut-off values (concentration limits) for labelling purposes: i. $\geq 0.1\%$ ii. $\geq .3.0\%$
Symbol	A symbol yet to be determined
Signal Word	Caution or warning
Hazard Statement	May damage fertility or the unborn child.

Additional level	Effects on or via lactation
Symbol	
Signal Word	
Hazard Statement	May cause harm to breast-fed children.

Target Organ Systemic Toxicity (Acute)

Hazard Level 1	
	For mixtures there are two cut-off values (concentration limits) for labelling purposes: i. $\geq 1.0\%$ ii. $\geq 10\%$
Symbol	EM or new high level symbol
Signal Word	Danger
Hazard Statement	Causes damage to (state all organs affected) if (state route of exposure)

Hazard Level 2	
	For mixtures there are two cut-off values (concentration limits) for labelling purposes: i. $\geq 1.0\%$ ii. $\geq 10\%$
Symbol	A symbol yet to be determined
Signal Word	Caution or Warning
Hazard Statement	May cause damage to (state all organs affected) if (state route of exposure)

Target Organ Systemic Toxicity (Repeated Exposure)

Hazard Level 1	
For mixtures there are two cut-off values (concentration limits) for labelling purposes: i. $\geq 1.0\%$ ii. $\geq 10\%$	
Symbol	EM or new high level symbol
Signal Word	Danger
Hazard Statement	Prolonged or repeated exposure by (state route) causes (state all organs affected) damage.

Hazard Level 2	
For mixtures there are two cut-off values (concentration limits) for labelling purposes: i. $\geq 1.0\%$ ii. $\geq 10\%$	
Symbol	A symbol yet to be determined
Signal Word	Caution or Warning
Hazard Statement	Prolonged or repeated exposure by (state route) may cause (state all organs affected) damage.

Aquatic toxicity – acute

Hazard Level 1	Acute toxicity $\leq 1.00\text{mg/L}$
Symbol	Fish and tree
Signal Word	There will be no signal word used for this hazard level.
Hazard Statement	Dangerous to the environment or Dangerous to the aquatic environment or Dangerous to fish and aquatic organisms

Hazard Level 2	Acute toxicity > 1.00 but $< 10.0\text{mg/L}$
Symbol	There will be no symbol used for this hazard level
Signal Word	There will be no signal word used for this hazard level
Hazard Statement	Dangerous to the environment or Dangerous to the aquatic environment or Dangerous to fish and aquatic organisms

Hazard level 3	Acute toxicity > 10.0 but ≤ 100mg/L
Symbol	There will be no symbol used for this hazard level
Signal Word	There will be no signal word used for this hazard level
Hazard Statement	Dangerous to the environment or Dangerous to the aquatic environment or Dangerous to fish and aquatic organisms

Aquatic toxicity – chronic

Hazard Level 1	Acute toxicity ≤ 1.00mg/L and lack of rapid degradability and log Kow ≥ 4 unless BCF < 500
Symbol	Fish and Tree
Signal Word	There will be no signal word used for this hazard level
Hazard Statement	Very dangerous to the environment with long lasting effects or Very dangerous to the aquatic environment with long lasting effects or Very dangerous to fish and aquatic organisms with long lasting effects

Hazard Level 2	Acute toxicity > 1.00 but < 10.0mg/L and lack of rapid degradability and log Kow > 4 unless BCF < 500 and unless chronic toxicity > 1mg/L
Symbol	Fish and Tree
Signal Word	There will be no signal word used for this hazard level
Hazard Statement	Dangerous to the environment with long lasting effects or Dangerous to the aquatic environment with long lasting effects or Dangerous to fish and aquatic organisms with long lasting effects

Hazard level 3	Acute toxicity > 10.0 but < 100mg/L and lack of rapid degradability and log Kow > 4 unless BCF < 500 and unless chronic toxicity > 1mg/L
Symbol	There will be no symbol used for this hazard level
Signal Word	There will be no signal word used for this hazard level
Hazard Statement	Harmful to the environment with long lasting effects or Harmful to the aquatic environment with long lasting effects or Harmful to fish and aquatic organisms with long lasting effects

Hazard Level 4	Acute toxicity > 100mg/L and lack of rapid degradability and log Kow > 4 unless BCF < 500 and unless chronic toxicity > 1mg/L
Symbol	There will be no symbol used for this hazard level
Signal Word	There will be no signal word used for this hazard level
Hazard Statement	May be harmful to the environment with long lasting effects or May be harmful to the aquatic environment with long lasting effects or May be harmful to fish and aquatic organisms with long lasting effects

ii. Precautionary statements and pictograms

37. The GHS label should include appropriate precautionary information. A list of precautionary statements and how they can be used is provided in Annex B1 by way of guidance. If precautionary pictograms are used these will need to comply with the requirements of ISO () from which they are derived

iii. Reproduction of the symbol

Working on integrating this – there is a separate document containing the examples but for now the boxes are blank.

38. The following symbols are the standard symbols which should be used in the GHS.

Flame	Flame over circle	Exploding bomb	Corrosion

Skull and crossbones	Exclamation Mark	Fish and tree

iv. Use of colour in pictograms and elsewhere on the label.

Hazard pictograms

39. The pictograms shall be diamond in shape. For UN RTDG purposes, the pictogram colour should conform with the colours specified in the model regulations. When pictograms are not being used for UN RTDG purposes, no background colour should be used. However, the frame should be red and sufficiently wide to ensure the red border is clearly visible. When the label is not used on a container which is being exported, the competent authority may choose to give suppliers discretion to use a black border. This black border may be used where the label is intended for use nationally. However, if the product is intended for export to another country, a red border must be used. Where a container is being used both for the purposes of UN RTDG and supply for workplace or consumer use, duplication of a pictogram for the same hazard, i.e. one using the UN RTDG colours and one using the red border, should be avoided.

Use of colour elsewhere on the label

40. In addition to its use in pictograms, colour can be used on other areas of the label to implement special labelling requirements such as the use of the pesticide bands in the FAO Labelling Guide, or as a background to signal words and hazard statements as provided for by the competent authority.

v. Product and supplier identification.

Product identifier

41. A product identifier should be used on a GHS label and it should match the product identifier used on the (M)SDS. For UN RTDG purposes, the UN proper shipping name should be used on the container.

42. The label for a substance should include the chemical identity of the substance. In the case of mixtures:

Option A – not stating concentrations

ingredients presenting a health hazard within the meaning of the GHS and others which contribute substantially to the mixtures classification as hazardous.

Option B – stating concentrations

ingredients presenting a health hazard at concentrations greater than 1%, except in the case of carcinogens, germ cell mutagens, reproductive toxins and sensitisers which should be listed if present at levels greater than 0.1%. Other ingredients which contribute substantially to the mixtures classification as hazardous should also be listed. (Of course as an alternative we could state all ingredients present at concentrations above 1%, except...)

43. Where a substance or mixture is supplied exclusively for workplace use, the competent authority may choose to give suppliers discretion to include chemical identities on the (M)SDS, in lieu of including them on labels.

Supplier Identification

44. The name, address and telephone number of the manufacturer or supplier of the substance or mixture should be provided on the label.

v. Arrangements for presenting the label elements on the label.

Location of GHS information on the label

45. The GHS hazard pictograms, signal word and hazard statements should be located together on the label. The competent authority may choose to provide a specified layout for the presentation of these, or allow supplier discretion.

Supplemental information

46. The competent authority has the discretion to allow the use of supplemental information subject to the parameters outlined in Part A, paragraph XX. The competent authority may choose to specify where this information should appear on the label or allow supplier discretion. In either approach, the placement of supplemental information should not impede identification of GHS information.

vi. Special arrangements.

Workplace labelling

47. Products falling within the scope of the GHS will be labelled when they are supplied to a workplace. For containers in the workplace, the competent authority can choose to require the GHS label, or to allow an alternative means to give workers the same information in a different format suitable to the particular workplace situation. For example, for process containers, the process operating procedures

may include the information required to be on the label rather than labelling each process container.

Special labelling classes

48. The competent authority may choose to communicate hazard information through the use of the (M)SDS alone for mixtures falling within the scope of:

- i) carcinogens hazard level 2 at concentrations < 1.0% and > 0.1%
- ii) reproductive toxicants toxins, hazard level 1 and 2 at concentrations < 0.3% and > 0.1%
- iii) reproductive toxicants, hazard level 2 at concentrations < 3.0% and > 0.1%
- iv) target organ systemic toxicity hazard levels 1 and 2 at concentrations < >10% and >1.0%
- v) target organ systemic toxicity hazard level 2 at concentrations >10% and >1.0%

Tactile warnings

49. If tactile warnings are used, the technical specifications shall conform with EN ISO standard 11683 (1997 edition) relating to tactile warnings of danger.

Part C – (Material) Safety Data Sheets

Introduction

50. The following sections describe the procedures for preparing (Material) Safety Data Sheets (M)SDS in the GHS. It comprises the following sections:

- vii. Role of the (M)SDS in the harmonised system
- viii. When the (M)SDS is required.
- ix. (M)SDS format
- x. (M)SDS content

Role of the (M)SDS in the harmonised system

51. The (M)SDS should provide comprehensive information about a chemical substance or mixture for use in workplace chemical control regulatory frameworks. Both employers and workers use it as a source of information about hazards, including environmental hazards, and to obtain advice on safety precautions. The information acts as a reference source for the management of hazardous chemicals in the workplace. The (M)SDS is product related and, usually, is not able to provide specific information that is relevant for any given workplace where the product may finally be used, although where products have specialised end uses the (M)SDS information may be more workplace-specific. The information therefore enables the employer to develop an active programme of worker protection measures, including training, which is specific to the individual workplace and to consider any measures which may be necessary to protect the environment.

52. In addition, the (M)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 centres), those involved in the professional use of pesticides and consumers. However, these audiences receive additional information from a variety of other sources such as the UN RTDG document and package inserts for consumers and will continue to do so. The introduction of a harmonised labelling system therefore, is not intended to affect the primary use of the (M)SDS which is for workplace users.

When the (M)SDS is required

53. The (M)SDS should be produced for all substances and mixtures which are classified and for those mixtures where specific cut-off values have been introduced for (M)SDS purposes.

(M)SDS Format

54. The information in the (M)SDS should be presented using the following 16 ordered headings.

- 1. Identification.
- 2. Composition/information on ingredients.
- 3. Hazard(s) identification.
- 4. First-aid measures.
- 5. Fire-fighting measures.

6. Accidental release measures.
7. Handling and storage.
8. Exposure controls/personal protection.
9. Physical and chemical properties.
10. Stability and reactivity.
11. Toxicological information.
12. Ecological information.
13. Disposal considerations.
14. Transport information.
15. Regulatory information.
16. Other information.

(M)SDS Content

55 The following label information shall be reproduced on the (M)SDS under the headings indicated.

Option A – narrow interpretation

Identification.

- The product identifier used on the GHS label.

Composition/information on ingredients.

- All ingredients which are hazardous within the meaning of the GHS with their concentration.

Regulatory information.

- The GHS hazard classification
- GHS hazard statements and precautionary statements which have been used on the label.

Option B – broad interpretation

See Jennifer and Kims document suggesting a core set of information.

56. In addition the hazard symbols used on the label should be reproduced on the (M)SDS. These may be provided as a graphical reproduction of the symbols or the name of the symbol e.g. flame, skull and crossbones.

Access to (M)SDS

57. Workers and their representatives will have ready access to the (M)SDS as will the competent authority and emergency personnel.