

## **Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals**

**Sub-Committee of Experts on the Globally Harmonized  
System of Classification and Labelling of Chemicals**

2 December 2022

### **Forty-third session**

Geneva, 7-9 December 2022

Item 4 (a) of the provisional agenda

### **Implementation:**

**Possible development of a list of chemicals in accordance  
with the Globally Harmonized System**

## **Preliminary analysis of global chemical classification list survey for UN bodies and UN specialized agencies**

### **Transmitted by the experts from Canada and the United States of America and on behalf of the informal correspondence group**

1. The global list informal correspondence group (ICG) conducted the “United Nations GHS Global Classification List Survey”, administered by the Co-chairs of the ICG, the United States of America and Canada, with the assistance of the U.S.’s consultant, in October/November 2021 (INF.13 to the forty-first session).
2. This informal document presents the UN bodies’ and UN specialized agencies’ preliminary analysis of the survey results in the Annex to this document.
3. An update was made to the UN bodies’ and UN specialized agencies’ raw survey results (INF.20/Add.2 to the forty-second session) to identify that additional information was received from the World Health Organization for the International Chemical Safety Cards, pertaining to a Guiding principle (c) question (cell N6). The information was received, and the results updated accordingly, in November 2021; therefore, there are no changes to the results. The updated spreadsheet with the raw survey results is enclosed as an addendum to this informal document and circulated as INF.28/Add.1 (Excel file).
4. A brief background on the survey can be found in the annex to this document while a detailed background on the survey can be found in informal document INF.30 (forty-third session).

## Annex

### **Preliminary analysis of global chemical classification list survey for UN bodies and UN specialized agencies**

The global list informal correspondence group conducted a GHS Global Classification List Survey of international classification lists that follow the GHS in October/November 2021. The purpose of the survey was to understand how the lists were developed, how they are implemented, and how they compare to the “guiding principles.” The guiding principles are six principles developed by the Sub-Committee related to the possible development of a global list of chemicals classified in accordance with the GHS. See ST/SG/AC.10/C.4/48, Annex III, p. 18 for the guiding principles.

Sixteen responsible authorities, including competent authorities (10), UN bodies and UN specialized agencies (3), and non-governmental organizations (3), responded to the survey. The information provided here is an overview and analysis of the responses received by UN bodies and UN specialized agencies related to their chemical lists.

The UN bodies and UN specialized agencies that responded to the survey are:

- Secretariat of the ECOSOC Sub-Committee of Experts on the Transport of Dangerous Goods (TDG Sub-Committee)
- World Health Organization (WHO) on behalf of International Labour Organization (ILO)/WHO - International Chemical Safety Cards (ICSC)
- WHO - Recommended Classification of Pesticides by Hazard and guidelines to classification, 2019 edition (Pesticides)

A number of general and/or background questions were asked, as well as questions related to each of the six guiding principles (Guiding Principles (a) – (f)). The UN bodies’ and UN specialized agencies’ responses to these questions, as well as any additional narrative responses, are provided below. Table cells that have been grayed out indicate the question was not applicable while an entry of N/A indicates that no response was received. The respondents’ contact information and other private information have been omitted. Answers are reflective of the list at the time the survey was completed.

**General background questions***What is the GHS implementation status? (Select all that apply)*

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
GHS is legally implemented in one or more possible sectors (that is, the GHS has been adopted through a legally binding instrument, such as a law, decree, regulation, mandatory standard, etc. and the instrument is in force.)			
GHS is implemented on a voluntary basis in one or more possible sectors (that is, the GHS has been incorporated into a non-mandatory instrument, such as voluntary standards, recommendations, guidance, etc. and/or is voluntary.)			
GHS implementation is in transition* to legal implementation (*this excludes transition to a more recent version of the GHS)			
Other (please provide brief explanation below)			
Not implemented			
Not applicable (organization)			
Not applicable (other, please provide brief explanation below)			

*If necessary, please provide a brief explanation of your response in the space below.*

**TDG Sub-Committee** – The TDG Sub-Committee develops recommendations addressing transport of dangerous goods by all modes. These recommendations (also known as the “Model Regulations” or the “orange book”) are non-legally binding per se but are implemented worldwide through legally binding instruments addressing transport of dangerous goods by air, maritime and land transport (e.g.: IMO IMDG Code, ICAO Technical Instructions, ADR, ADN, RID...). The Model Regulations implement the GHS criteria for transport of dangerous goods.

The Model Regulations are also implemented at national and regional level in countries that have based their national legislation on its provisions or through regional agreements (e.g. Mercosur).

GHS physical hazards were developed on the basis of the provisions of the Model Regulations for transport and therefore it can be considered that GHS implementation for the transport of dangerous goods sector is achieved through implementation of the provisions in the Model Regulations.

An overview of the GHS implementation status for transport of dangerous goods is available at:

<https://unece.org/transport/dangerous-goods/international-level?accordion=0>

*If the GHS has been implemented, what sectors has the GHS been implemented for? If the GHS implementation is in transition, what sectors will the GHS be implemented for?*

TDG Sub-Committee	WHO - ICSC	WHO - Pesticides
Emergency Response	Consumer Emergency Response Environment Pesticides	
Storage	Production Storage	
Transport	Transport	
Other	Workplace	

*'Other' Responses:*

**TDG Sub-Committee** – The Model Regulations address transport of dangerous goods. However, the classification used for transport purposes is also often used to define storage and segregation conditions and emergency response actions to be taken during transport in case of an accident or incident involving them. These actions are defined on the basis of the hazard characteristics of the dangerous goods involved.

*If the GHS has been implemented, which version of the GHS is currently implemented? If the GHS implementation is in transition\*, which version of the GHS is planned to be implemented?*

TDG Sub-Committee	WHO - ICSC	WHO - Pesticides
GHS 1 <sup>st</sup> edition	GHS 1 <sup>st</sup> edition	
GHS Rev. 1		
GHS Rev. 2		
GHS Rev. 3		
GHS Rev. 4		
GHS Rev. 5		
GHS Rev. 6		
GHS Rev. 7		
GHS Rev. 8	GHS Rev.8	
GHS Rev. 9		

*\*this excludes transition to a more recent version of the GHS*

*Please provide a brief explanation if more than one version was selected*

<b>TDG Sub-Committee</b>	The Model Regulations and the GHS are updated simultaneously following the same 2-year cycle or work. For instance, GHS Rev.9 is aligned with Rev.22 of the Model Regulations, GHS rev.8 is aligned with the provisions of Rev.21 and so on.
<b>WHO - ICSC</b>	The latest GHS version published at the time that a chemical was classified as used for that particular chemical, starting from the 1st edition through to Rev.8 (no classifications since 2019). Existing classifications are not re-assessed when a new version becomes available
<b>WHO - Pesticides</b>	

*Does this country or organization have a classification list?*

<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes	Yes	Yes

*Does this list align with the GHS or the jurisdiction's implementation (past or present) of the GHS?*

<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes	Yes	Yes

*What authority or organization is responsible for this list (for example, administration of this list, making this list available)?*

<b>TDG Sub-Committee</b>	The TDG Sub-Committee is responsible for administering, updating, further developing the list and making it available for worldwide implementation and use
<b>WHO - ICSC</b>	World Health Organization and International Labour Organization
<b>WHO - Pesticides</b>	World Health Organization

*Who has performed the classifications (for example, technical experts internal to the authority or organization responsible for this list, a third-party contracted company)?*

<b>TDG Sub-Committee</b>	<b>Other:</b>  Proposals for amendment to the list may be submitted for consideration by the Sub-Committee by any delegation entitled to participate in its work (governments, NGOs representing industry, international governmental organizations, UN agencies, etc.). Submitters may have developed these proposals based on advice from technical experts available in-house or based on new available publicly available data or scientific expertise provided by experts external to their governments, organizations etc.
<b>WHO - ICSC</b>	Technical experts <b>external</b> to the authority or organization responsible for this list
<b>WHO - Pesticides</b>	Technical experts <b>external</b> to the authority or organization responsible for this list

*Please provide the name of the authority, organization, or company responsible for this list.*

*[This question was intended to be presented with the option:*

*"Technical experts external to the authority or organization responsible for this list" as "Please provide name of the authority, organization or company" to capture the external experts who performed the classifications]*

<b>TDG Sub-Committee</b>	
<b>WHO - ICSC</b>	The situation is the same with the International Chemical Safety Cards [as for the "WHO Recommended Classification of Pesticides by Hazard and guidelines to classification, 2019 edition"] except that the experts are invited to undertake the work on behalf of the World Health Organization and the International Labour Organization jointly.  Many different institutions and experts may be involved over time, it is not possible (or appropriate) to provide names. In all cases, it is WHO and ILO who are responsible for the work.
<b>WHO - Pesticides</b>	The experts who performed the classifications are experts from external institutions who were requested to undertake the work by WHO, according to WHO rules. WHO works by inviting external experts to undertake work on its behalf. The experts work in a personal capacity for WHO as independent experts, not as representatives of their institution. The experts have to undergo a Declaration of Interests process according to WHO rules and carry out the work in accordance with WHO policies and procedures where they exist. Experts may be paid to do the work, their institution may be contracted or the institution may allow their experts to provide the service as an in-kind contribution to WHO. Regardless of the contract situation, the work is undertaken for WHO and it is WHO which owns the work and makes the final decision on publication.  Many different institutions and experts may be involved over time, it is not possible (or appropriate) to provide names. In all cases, it is WHO who is responsible for the work.

*Provide a brief summary of the classification process, as relevant.*

<b>TDG Sub-Committee</b>	<p>Delegations entitled to participate in the work of the Sub-Committee may submit proposals for amendment of the Dangerous Goods List at any time. The proposals are considered by the Sub-Committee during the session and when adopted and endorsed by the Committee at the end of the 2-year cycle of work, the resulting amendments are incorporated in the next revised edition of the Model Regulations for worldwide implementation.</p> <p>Requests for new entries or amendment of existing hazard classification require provision of the information contained in the data sheet included in the Model Regulations (see Figure 1 of the Recommendations). Common updates to the list include: new entries; deletion or consolidation of existing entries; changes in the proper shipping name (i.e. the designation of the substance or mixture), changes in packing or transport provisions, applicable special provisions etc.</p>
<b>WHO - ICSC</b>	<p>Information about GHS classification (pictogram, hazard statements) is added to International Chemical Safety Cards when new cards are created, or when existing cards are updated (since 2006). WHO and ILO invite groups of external experts from institutions in 15-20 countries to assess publicly available data on substances and propose essential health and safety information (information about hazards and preventive measures) to be presented on the cards - including the GHS information. The experts may or may not work for national governments, but act as independent experts for WHO/ILO and do not represent their own institution. The expertise covered by the expert group includes toxicology, occupational medicine, chemical properties and chemical emergency response. Cards are assessed in batches at expert meetings of approximately 25 experts (usually annually) with 30-40 substances classified per meeting. Reference is made to the latest published GHS version when applying GHS information.</p>
<b>WHO - Pesticides</b>	<p>The World Health Organization evaluates the health effects of pesticides using invited independent experts. The acute toxicity results from those evaluations are used to apply GHS classification for oral toxicity and published in the WHO Recommended Classification of Pesticides by Hazard. Only the LD50 value and the acute oral toxicity category are presented in the list.</p>

*What is the purpose of this list?*

<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Harmonize classification		
Assist stakeholders with classification	Assist stakeholders with classifications	Assist stakeholders with classifications
Verify compliance		
Restrict substances		
Other	Other	

*'Other' responses:*

<b>TDG Sub-Committee</b>	<p>Ensure safe transport of dangerous goods.</p> <p>The classification in the Dangerous Goods List is used as the basis to define the transport conditions for a given substance, mixture or group of substances, e.g.: types and characteristics of authorized means of containment), their marking, labelling and placarding, segregation provisions etc. Marking, labelling and placarding is also used to define the emergency response measures to be taken into account in case of an accident (e.g.: emergency responders are trained to understand TDG labels and placards on vehicles transporting dangerous goods).</p> <p>The classification in the list is also used to define whether a substance deserves to be considered as high-consequence dangerous goods for security reasons (high-consequence dangerous goods are defined as those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or mass socio-economic disruption).</p>
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	<p>Dangerous goods offered for transport must be assigned a UN number in accordance with the provisions of the Model Regulations and packaged, marked, labeled accordingly. The shipments shall also be accompanied by a transport document with the information prescribed in Part 5 of the Model Regulations and packaged/transported in means of containment as defined for each good listed. All these provisions are used by competent authorities to verify compliance and serve as well to assist stakeholders in selecting the appropriate UN number (and related applicable transport provisions) for the goods to ensure their safe transport, based on their hazard characteristics.</p> <p>The Model Regulations also contains provisions restricting transport of some dangerous goods subject to compliance with specific provisions.</p>
<b>WHO - ICSC</b>	Provide essential health and safety information to users of chemicals in an information product which is publicly available via the internet and in multiple languages.
<b>WHO - Pesticides</b>	

*Is this list publicly available or restricted?*

<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Publicly available	Publicly available	Publicly available

*Is access to this list free of charge?*

<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes	Yes	Yes

*What is the web link for this list (if available)?*

<b>TDG Sub-Committee</b>	<a href="https://unece.org/transport/dangerous-goods/un-model-regulations-rev-22">https://unece.org/transport/dangerous-goods/un-model-regulations-rev-22</a> (see Volume I, Dangerous Goods list in chapter 3.2)
<b>WHO - ICSC</b>	<a href="https://www.ilo.org/dyn/icsc/showcard.home">https://www.ilo.org/dyn/icsc/showcard.home</a>
<b>WHO - Pesticides</b>	<a href="https://www.who.int/publications/i/item/9789240005662">https://www.who.int/publications/i/item/9789240005662</a>

*Language options for lists*

	<i>Is the list available in English?</i>	<i>Is the list available in another language?</i>	<i>Please list other language(s)</i>
<b>TDG Sub-Committee</b>	Yes	Yes	Arabic, Chinese, French, Russian, Spanish
<b>WHO - ICSC</b>	Yes	Yes	English, Spanish, Persian, French, Finnish, Hebrew, Hungarian, Italian, Chinese, Korean, Polish, Russian, Japanese
<b>WHO - Pesticides</b>	Yes	Yes	French, Spanish

**Are external classification lists considered in the process of classification?**

	<i>External classification lists</i>	<i>Classification list(s) considered</i>	<i>Are there other relevant chemical classification lists to be noted for this country/jurisdiction or organization?</i>
<b>TDG Sub-Committee</b>	Yes	One of the aims of the classification list is harmonization for the purposes of multimodal transport of dangerous goods. Thus, existing classifications and data are usually taken into account when evaluating new entries or amendments to existing ones. These data and classifications may be those made available by other bodies (e.g.: GESAMP, EU, lists and data available at national level, etc.). Submitters usually give this information as part of the rationale justifying the classification request on a case-by-case basis.	The lists applicable to road and inland waterways transport under the provisions of ADR and ADN, developed on the basis of the Dangerous Goods List in the Model Regulations, are also publicly available: ○ADR: <a href="https://unece.org/transportdangerous-goods/adr-2021-files">hNps://unece.org/transportdangerous-goods/adr-2021-files</a> (see Volume I, Table A in chapter 3.2) ○ADN: <a href="https://unece.org/transport/documents/2021/01/adn-2021-enfr">hNps://unece.org/transport/documents/2021/01/adn-2021-enfr</a> (see Volume II, table A in chapter 3.2)  These international agreements are under UNECE's responsibility. For rail transport, the regulations (RID) are under the responsibility of the Intergovernmental Organisation for International Carriage by Rail (OTIF). RID regulations ( <a href="https://otif.org/en/?page_id=1105">https://otif.org/en/?page_id=1105</a> ) are also based on the Model Regulations and aligned with ADR.
<b>WHO - ICSC</b>	No		WHO Recommended Classification of Pesticides by Hazard
<b>WHO - Pesticides</b>	No		International Chemical Safety Cards

**Additional Information (if applicable)**

**WHO – ICSC** - Yes, an update was received for a general question. The response has been updated accordingly.

**WHO – Pesticides** - Yes, an update was received for a general question. The response has been updated accordingly.

**Guiding principle (a): The process for developing and maintaining a global list must be clear, transparent and follow the principles of the GHS. Opportunities should be provided for stakeholders to provide input as well as mechanisms for expert review, conflict resolution and updating the list when new significant data or information become available**

**Question 1 - In the process leading to changes to this list (for example, adding or removing chemicals, changing classification information for a substance), is there an opportunity for stakeholders to provide input?**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y	Y	N

**Question 2 - If yes, please indicate the stakeholders involved with a brief explanation of their role. For example, are the relevant stakeholders consulted on changes to this list? Do changes to this list require approval from stakeholders (for example, in a council or committee)?**

<b>TDG Sub-Committee</b>	Proposals for changes are submitted to the Sub-Committee. All those participating in its work can comment on the proposal. Usually, delegations representing governments, NGOs etc. participating in the work of the Sub-Committee consult with their constituencies prior to the session on the proposals submitted for discussion and contribute to the discussions representing the views or their constituencies.
<b>WHO - ICSC</b>	External stakeholders have the opportunity to provide input, but the opportunity is very limited and rarely used.



	Manufacturers are not consulted about classifications or changes. Manufacturers may contact WHO and request amendments to published cards - these requests will be considered by the independent experts who then make recommendations to WHO and ILO. It is very rare for manufacturers to make contact in this way. Changes to classification do not require approval from stakeholders - publication is the responsibility of WHO and ILO only.
<b>WHO - Pesticides</b>	

**Question 3 - Is there an opportunity for public consultation?**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y	N	

**Question 4 - Do the classifications have a mechanism for expert review?**

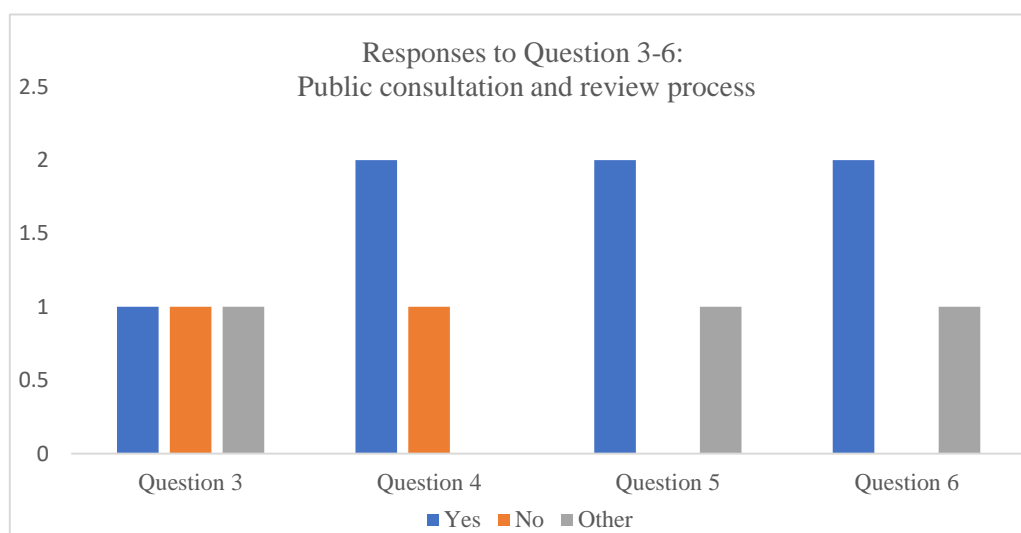
	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y	Y	N

**Question 5 - If yes, are the classifications subject to an internal peer review? (for example, within the competent authority or organization responsible for administering this list)**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y	Y	

**Question 6 - If yes, are the classifications subject to an external peer review? (for example, outside the competent authority or organization responsible for administering this list)**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y	Y	



**Question 7 - Does this list have a mechanism for conflict resolution?**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y	N	N

Question 8 – *If yes, is this mechanism considered to be part of the process of establishing classifications on this list?*

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes or No	Y		

Question 9 – *'Other' Responses*

Question not applicable

Question 10 – *If yes, please provide a brief summary of this mechanism*

<b>TDG Sub-Committee</b>	The Model Regulations are non-legally binding and as such there is no provision for “conflict resolution” in the sense it can be understood in the case of other legally binding instruments such as some international agreements.  However, there is a possibility to discuss different opinions during the TDG sessions, when a proposal for classification is submitted for consideration. All participants can express their views (either to support or to disagree with the proposed classification). The Sub-Committee will consider all views and then assess whether the information provided is sufficient to take a decision or whether additional information needs to be provided.
<b>WHO - ICSC</b>	
<b>WHO - Pesticides</b>	

Question 11 – *Is there a mechanism for updating the classifications when new significant data or information become available?*

*New and significant information is any information that changes the classification of the substance or mixture and leads to a resulting change in the information provided on the label or any information concerning the chemical and appropriate control measures that may affect the SDS (GHS paragraph 1.4.7.2.1).*

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes, No	Y	Y	Y

Question 12 – *If yes, is this mechanism real time updating (for example, if significant new data that would result in a classification change are identified, is the mechanism for revising the classification initiated, as opposed to waiting for the next cyclical update)?*

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes, No, Other	Other	N	N

Question 13 – *'Other' Responses*

<b>TDG Sub-Committee</b>	Updates on classification are initiated only on the basis of proposals submitted to the TDG Sub-Committee. Once these proposals have been adopted by the TDG Sub-Committee and endorsed by the Committee at the end of the 2-year cycle of work, the new classifications are reflected in a new revised edition of the UN Model Regulations. In other words, new classifications will only be available for worldwide implementation and use every two years.
<b>WHO - ICSC</b>	
<b>WHO - Pesticides</b>	

Question 14 – *If yes, is this mechanism cyclical in nature (for example, every two years, if relevant)?*

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes, No, Other	Y	Other	Other

## Question 15 – 'Other' Responses

<b>TDG Sub-Committee</b>	
<b>WHO - ICSC</b>	All ICSCs should be periodically reviewed, but the timing is uncertain and the time scale is very long (years to decades), rather than a fixed timing. This is principally due to resources.
<b>WHO - Pesticides</b>	The timing for periodic updates is not fixed and depends on availability of resources. Between four years and ten years is typical in the recent period.

Question 16 – *If yes, please state the time period for the application of this mechanism:*

**TDG Sub-Committee** – Every two years (see response to previous questions)

Question 17 – *If yes, is it possible for stakeholders to initiate updates to this list?*

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes, No, Other	Y	Other	No

## Question 18 – 'Other' Responses

<b>TDG Sub-Committee</b>	
<b>WHO - ICSC</b>	A stakeholder (usually a manufacturer) can request a change to information on a card for a substance. That request will be considered, but the decision to initiate an update and whether or not to make changes is with WHO and ILO, following recommendations from independent experts.
<b>WHO - Pesticides</b>	

Question 19 – *Additional Information (if applicable):*

**TDG Sub-Committee** –

Is there an opportunity for public consultation?

Yes (somehow)

The opportunity for public consultation is not provided directly by the TDG Sub-Committee as it could be understood from the perspective of public consultation hearings or proceedings taking place at national level. However, Governments, NGOs, etc participating in the work of the Sub-Committee represent the views of their constituencies and usually conduct consultations on the proposals as part of their preparatory work for the Sub-Committee sessions.

Are the classifications subject to an internal peer review? (for example, within the competent authority or organization responsible for administering this list)

Yes (somehow)

The concept of “internal peer review” in the case of the Dangerous Goods List is a bit tricky to interpret. We replied “yes” on the understanding that the “competent authority” here is to be understood as the TDG Sub-Committee. Based on this assumption, our interpretation is that given that the Sub-Committee is the body assessing the proposals addressing classification for transport purposes it can be considered that they are submitted to “internal peer review” within the Sub-Committee.

However, I understand that the question may have been formulated thinking of peer reviews conducted under different conditions (e.g. an expert panel of scientists dealing only with data reviews etc) as it may be the case in other organisations.

Are the classifications subject to an external peer review? (for example, outside the competent authority or organization responsible for administering this list)

Yes (somehow)

Again, this was a tricky question from the Dangerous Goods list point of view.

The proposals are submitted by Governments, NGOs etc to the Sub-Committee. The TDG Sub-Committee does not have any mandatory requirement requesting that all proposals need to be subject to “external peer review”. However, nothing prevents a government, NGO or other o TDG Sub-Committee participant to request advice or

perform an external peer review before submitting a proposal for consideration by the Sub-Committee. These proposals may be based on knowledge available within the government agency (NGOs, etc) involved, or on external sources (national or international specialized body; scientific panel, etc).

Moreover, it is understood that the TDG Sub-Committee being a body composed of experts designated by governments, these experts are in a position to assess the proposals submitted for their consideration and take an informed decision. Whether they need to rely on advice provided by experts “external” to their organisation, government, agency, NGO etc, is not something that is considered mandatory during the decision-making process within the Sub-Committee.

**Guiding principle (b): All GHS hazard categories and classes must be included in the global list of classified chemicals.**

Question 1 – For a country/jurisdiction, which implementation of the GHS are the classifications based on? For an organization, which version of the GHS are the classifications based on?

Other			
Rev. 9			
Rev. 8			
Rev. 7			
Rev. 6			
Rev. 5			
Rev. 4			
Rev. 3			
Rev. 2			
Rev. 1			
1 <sup>st</sup> edition			
Revision Number	TDG Sub-Committee	WHO - ICSC	WHO - Pesticides

Question 2 – For a country/jurisdiction, which implementation of the GHS are the classifications based on? For an organization, which version of the GHS are the classifications based on? 'Other' Responses

**TDG Sub-Committee** - Each revised edition of the Model Regulations issued following the adoption of the GHS is aligned with the correspondent edition of the GHS (see comment below)

**WHO – Pesticides** – N/A

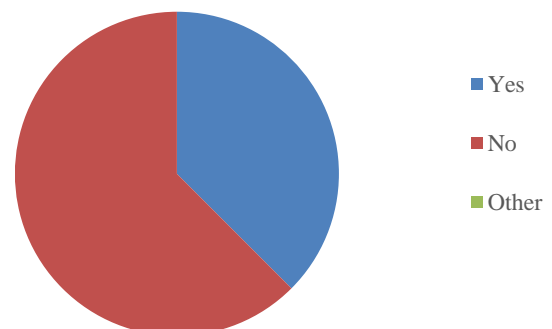
Question 3 – Please provide a brief explanation if more than one version was selected.

<b>TDG Sub-Committee</b>	The Model Regulations and the GHS are updated simultaneously following the same 2-year cycle of work. For instance, GHS Rev.8 is aligned with the provisions of Rev.21 of the Model Regulations. GHS Rev.9 is aligned with Rev.22 of the Model Regulations.
<b>WHO - ICSC</b>	The latest published version at the time of assessment is used (since 2006).
<b>WHO - Pesticides</b>	Acute toxicity hazard categories are essentially unchanged since the GHS 1st edition.

Question 4 – Are all hazard classes and categories from the GHS version used included for the classifications?

	Yes	No	Other
<b>TDG Sub-Committee</b>		X	
<b>WHO - ICSC</b>	X		
<b>WHO - Pesticides</b>		X	

Inclusion of all classes/categories for classification



Question 5 – Other responses

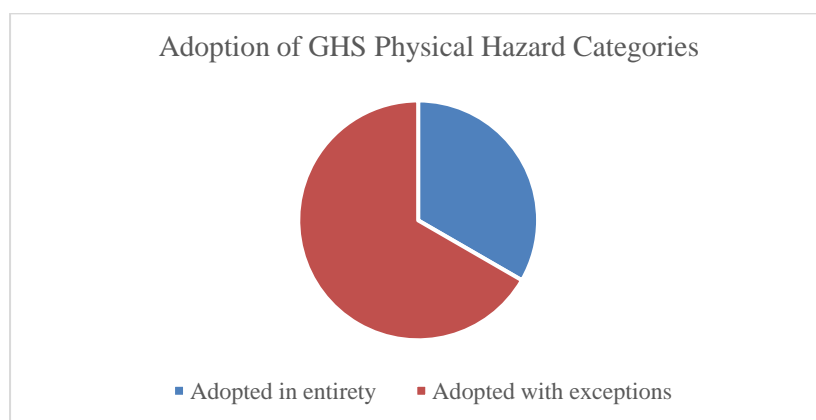
Question not applicable

Question 6 – For which hazard classes and categories from the GHS version used were classifications **not** performed?

**Physical hazard classes/categories that were not adopted**

	Explosives	Flamm. gases	Aerosols	Chemicals Under Press	Oxidizing gases	Gases under pressure	Flammable liquids	Flammable solids	Self reactive	Pyrophoric liquids	Pyrophoric solids	Self-heating	Water/emit flamm gas	Oxidizing liquids	Oxidizing solids	Organic peroxides	Corrosive/metals	Desensitized explosives
<b>TDG Sub-Committee</b>	Unstable (1 <sup>st</sup> edition to Rev.8) Cat 1 (Rev.9 to pres)	Cat 2 (1 <sup>st</sup> edition to Rev.6) Cat 2 (Rev.7 to pres)					Cat 4											
<b>WHO - ICSC</b>																		
<b>WHO - Pesticides</b>	Unstable (1 <sup>st</sup> edition to Rev.8) Division 1.1 to 1.6 (1 <sup>st</sup> edition to Rev.8)	Cat 1 (1 <sup>st</sup> edition to Rev.6), 2 (1 <sup>st</sup> edition to Rev.6)	Cat 1, 2	N/A	Cat 1	Compressed gas Liquefied gas Refrigerated liquefied gas Dissolved gas	Cat 1, 2, 3, 4	Cat 1, 2	Type A, B, C, D, E, F, G	Cat 1	Cat 1	Cat 1, 2, 2, 3	Cat 1, 2, 3	Cat 1, 2, 3	Type A, B, C, D, E, F, G	Cat 1	N/A	

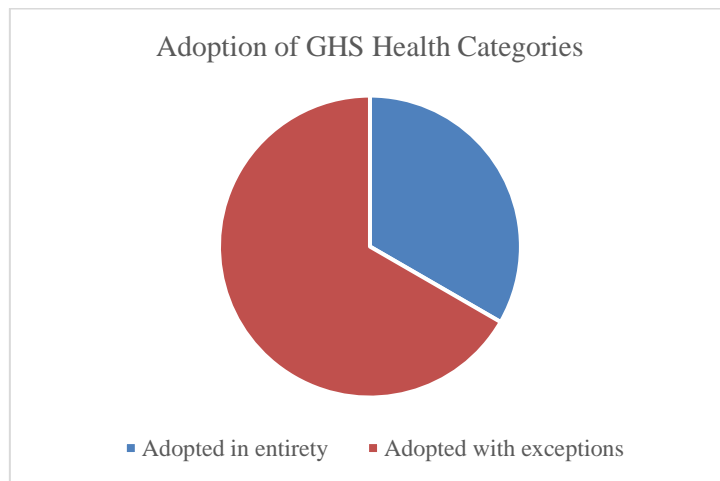
\* Unless otherwise specified all entries include 1<sup>st</sup> edition to present. N/A indicates not applicable based on the edition in Question 1.



**Health hazard classes/categories that were *not* adopted**

	Acute Toxicity			Skin corrosion/irritation	Serious eye damage/irritation	Sensitization		Germ cell	carcinogenicity	Reproductive toxicity	STOT		Aspiration
	oral	inhalation	dermal			skin	respiratory				SE	RE	
<b>TDG Sub-Committee</b>	Cat 4, 5	Cat 4, 5	Cat 4, 5	Cat 2, 3	Cat 1, Cat 2 (1 <sup>st</sup> ed to Rev.4), Cat 2A (1 <sup>st</sup> ed to Rev.4), Cat 2/2A (Rev. 5 to pres), Cat 2B	Cat 1, Cat 1A (Rev.3 to pres), Cat 1B (Rev. 3 to pres)	Cat 1, Cat 1A (Rev.3 to pres), Cat 1B (Rev. 3 to pres)	Cat 1, 1A, 1B, Cat 2	Cat 1, 1A, 1B, Cat 2	Cat 1, 1A, 1B, Cat 2, Effects on or via lactation	Cat 1, Cat 2, Cat 3 (Rev.1 to pres)	Cat 1, 2	Cat 1, 2
<b>WHO - ICSC</b>													
<b>WHO - Pesticides</b>		Cat 1, 2, 3, 4, 5		Cat 1, 1A, 1B, 1C, 2, 3	Cat 1, Cat 2 (1 <sup>st</sup> ed to Rev.4), Cat 2A (1 <sup>st</sup> ed to Rev. 4), Cat 2B	Cat 1	Cat 1	Cat 1, 1A, 1B, Cat 2	Cat 1, 1A, 1B, Cat 2	Cat 1, 1A, 1B, Cat 2, Effects on or via lactation	Cat 1, Cat 2,	Cat 1, 2	N/A

\* Unless otherwise specified all entries include 1<sup>st</sup> edition to present. N/A indicates not applicable based on the edition in Question 1.



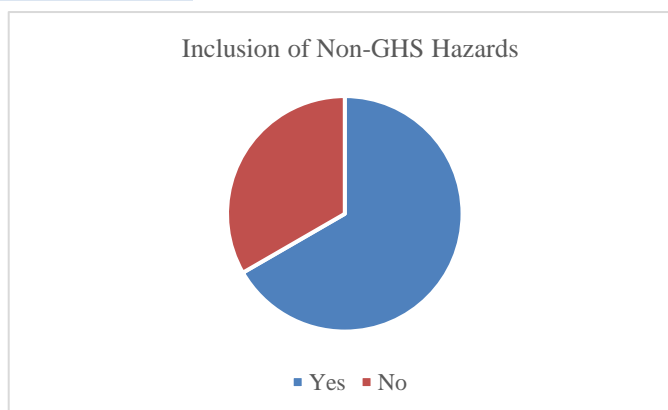
**Environmental hazard classes/categories that were *not* adopted**

	<b>Hazardous to the aquatic environment</b>	<b>Hazardous to the ozone layer</b>
<b>TDG Sub-Committee</b>	Category Acute 2 (1st edition to present) Category Acute 3 (1st edition to present) Category Chronic 3 (1st edition to present) Category Chronic 4 (1st edition to present)	Category 1 (GHS Rev. 3 to present)
<b>WHO - ICSC</b>		
<b>WHO - Pesticides</b>	Category Acute 1 (1st edition to present) Category Acute 2 (1st edition to present) Category Acute 3 (1st edition to present) Category Chronic 1 (1st edition to present) Category Chronic 2 (1st edition to present) Category Chronic 3 (1st edition to present) Category Chronic 4 (1st edition to present)	N/A

N/A indicates not applicable based on the edition in Question 1.

**Question 7 – Does this list include hazards not addressed in the GHS?**

	Yes (Y)/No (N)
<b>TDG Sub-Committee</b>	Y
<b>WHO - ICSC</b>	Y
<b>WHO - Pesticides</b>	N

**Question 8 – If yes, please provide a brief description of the hazards.**

<b>TDG Sub-Committee</b>	<p>Infectious substances (Those known or reasonable expected to contain pathogens. Pathogens are defined as microorganisms (including bacteria, viruses, parasites, fungi) and other agents such as prions, which can cause disease in human or animals.)</p> <p>Radioactive material (any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed specified values)</p> <p>The list also addresses polymerizing substances which are liable to undergo a strongly exothermic reaction and specific substances, mixtures and articles that during transport present a danger not covered by other hazard classes. The latter are classified under Class 9 for transport and include, among others: Substances which, on inhalation as fine dust, may endanger health; Substances evolving flammable vapour; Substances and articles which, in the event of fire, may form dioxins; Substances transported or offered for transport at elevated temperatures; Genetically modified micro-organisms (GMMOs) and genetically modified organisms (GMOs); a list of articles (including for example, lithium batteries, capacitors, lifesaving appliances, internal combustion engines and machinery...) as well as a list of specific substances (e.g.: benzaldehyde, dibromofluoromethane, dry ice, acetaldehyde ammonia...)</p> <p>that may present hazards that are not otherwise covered by the transport hazard classes</p>
<b>WHO - ICSC</b>	Safe storage, spillage disposal, occupational exposure limits
<b>WHO - Pesticides</b>	



Question 9 - Please provide a reference for the applied classification criteria (for example, the regulation or relevant version of the GHS, as applicable).

<b>TDG Sub-Committee</b>	Rev.22 of the model Regulations is aligned with GHS Rev.9. For previous editions refer to comments made under previous questions. <a href="https://unece.org/transport/dangerous-goods/un-model-regulations-rev-22">https://unece.org/transport/dangerous-goods/un-model-regulations-rev-22</a>
<b>WHO - ICSC</b>	The most recently published GHS version at the time of assessment is used, so all versions from 2006 up to version 8 have potentially been used. <a href="https://unece.org/info/Transport/Dangerous-Goods/pub/2588">https://unece.org/info/Transport/Dangerous-Goods/pub/2588</a>
<b>WHO - Pesticides</b>	<a href="https://www.who.int/publications/i/item/9789240005662">https://www.who.int/publications/i/item/9789240005662</a>

Question 10 - Additional Information (if applicable)

**TDG Sub-Committee –**

For the GHS hazard classes addressed by the Model Regulations

Chemically unstable chemicals

In general, transport of any substance (this term includes mixtures in the context of the Model Regulations) or article which, as presented for transport, is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of transport, is forbidden (reference: Chapter 1.1, paragraph 1.1.2). In other words, chemically unstable substances/mixtures is forbidden unless the corrective measures (e.g. stabilization) have been taken to prevent such dangerous reactions during transport.

Unstable explosives

Transport of unstable explosives is forbidden unless their explosive properties have been neutralized. Where a substance is assigned to Class 1 but is diluted to be excluded from Class 1 by test series 6, this diluted substance (hereafter referred to as desensitized explosive) shall be listed in the Dangerous Goods List of Chapter 3.2 with an indication of the highest concentration which excluded it from Class 1 (see 2.3.1.4 and 2.4.2.4.1) and if applicable, the concentration below which it is no longer deemed subject to these Regulations. Depending on the substance used to desensitize them, desensitized explosives are classified for transport purposes as flammable liquids (in class 3) or as flammable solids (Class 4, division 4.1).

New solid desensitized explosives subject to transport regulations shall be listed in Division 4.1 and new liquid desensitized explosives shall be listed in Class 3. When the desensitized explosive meets the criteria or definition for another class or division, the corresponding subsidiary hazard(s) shall be assigned to it for transport purposes.

Other chemically unstable chemicals

In addition to the general statement, the above is specifically addressed for some hazard classes

- Class 2 (Gases) Chapter 2.2 paragraph 2.2.4 and special provision 386
- Class 3 (flammable liquids) see, chapter 2.3, paragraph 2.3.5 and special provision 386
- Class 6, division 6.1 (toxic substances), see chapter 2.6, paragraph 2.6.2.5 and special provision 386
- Class 8 (corrosive) see chapter 2.8.5 and paragraph 2.8.5 and special provision 386.

Aerosols

Transport of aerosols with contents meeting the criteria for packing group I for toxicity (i.e. acute toxicity) or corrosivity is forbidden (see special provision 63, sub-paragraph (f))

Hazardous to the aquatic environment (Chronic 3 and 4)

These categories are addressed for carriage in very large quantities (sea-going chemical tankers or inland navigation tank-vessels), but not taken into account for other transport modes, therefore the answer “Not applicable” shall be understood as not applicable for all transport modes.

**Guiding principle (c): Only substances, as defined by the GHS, will be included in the global list of classified chemicals.**

Question 1 - Does this list include: (Select all that apply) Substances (as defined by the GHS)? Mixtures (as defined by the GHS)? Other chemical compounds outside the scope of the GHS definition of substance and mixture?

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Substance (as defined by GHS)			
Mixture (as defined by GHS)			
Other chemical compounds outside the scope of the GHS definition of substance and mixture			

Question 2 - Other Chemical Compounds outside the scope of the GHS definition of substance and mixture (please provide definitions, as applicable)

**TDG Sub-Committee** - The list contains about 2373 entries addressing hazardous substances, mixtures and articles.

However, this number does not correspond to the number of chemicals on the list because in addition to individual entries (e.g.: acetone), there are generic entries covering well-defined group of substances/mixtures/articles (e.g.: adhesives, perfumery products), groups of substances or articles of a particular chemical or technical nature (e.g. alcohols, nitrates) or groups of substances/mixtures/articles meeting the criteria of one of more hazard classes (e.g: “flammable, solid, organic”).

The Model Regulations address also articles.

The list also addresses polymerizing substances which are liable to undergo a strongly exothermic reaction and specific substances, mixtures and articles that during transport present a danger not covered by other hazard classes. The latter are classified under Class 9 for transport and include, among others: Substances which, on inhalation as fine dust, may endanger health; Substances evolving flammable vapour; Substances and articles which, in the event of fire, may form dioxins; Substances transported or offered for transport at elevated temperatures; Genetically modified micro-organisms (GMMOs) and genetically modified organisms (GMOs); a list of articles (including for example, lithium batteries, capacitors, lifesaving appliances, internal combustion engines and machinery...) as well as a list of specific substances (e.g.: benzaldehyde, dibromoflouromethane, dry ice, acetaldehyde ammonia...)

**WHO – ICSC** - Independent experts decide on what form of substance should be classified, depending what is commonly used in workplaces. This may be either substances, or mixtures of substances and solvents or other formulations as appropriate to the situation typically found in workplaces and considered to be most useful. No single definition can be provided.

**WHO – Pesticides** - Pesticide active substances, in the form evaluated by WHO.

Question 3 - Does this list include only prioritised chemicals?

	Yes	No
<b>TDG Sub-Committee</b>		
<b>WHO - ICSC</b>		
<b>WHO - Pesticides</b>		

Question 4 - If yes, is it limited to specific hazards?

**TDG Sub-Committee** – Yes, **WHO - ICSC** – No, **WHO - Pesticides** - No

Question 5 - If yes, please list and describe the hazards:

**TDG Sub-Committee** – See previous comment on hazards addressed by the Model Regulations

Question 6 - If yes, is it limited to high-volume chemicals?

**TDG Sub-Committee** – Yes, **WHO - ICSC** – No, **WHO - Pesticides** - No

Question 7 - If yes, what other criteria are applied?

**TDG Sub-Committee** – The dangerous goods list addresses the most commonly transported chemicals and articles that may pose a danger during transport. From that point of view it can be considered that these are “prioritized” chemicals that are needed worldwide and thus, produced and distributed in significant quantities.

However, this understanding of “prioritized” and “high volume” may not match the definition of these concepts within the framework of other regulations (e.g.: high-concern chemicals and those produced in quantities above a given threshold).

**WHO - ICSC** – Prioritized for chemicals which the independent experts consider to be commonly used, usually in workplaces, and for which an International Chemical Safety Card would be considered useful

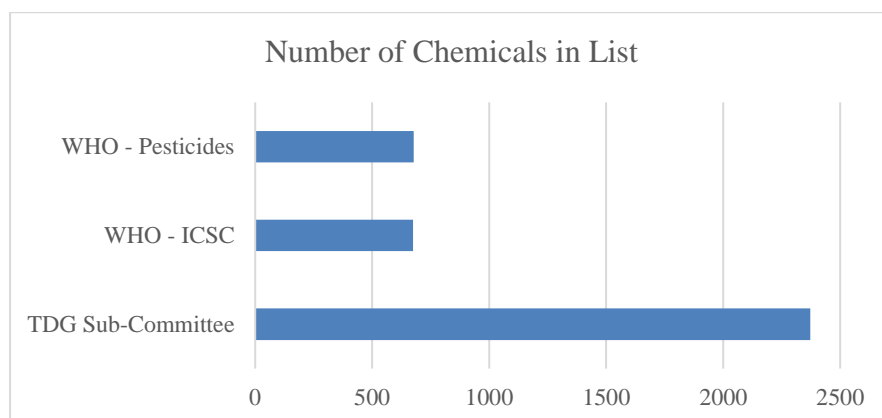
**WHO - Pesticides** - Pesticides are listed when a WHO evaluation is available.

Question 8 - What is the total number of chemicals on this list?

<b>TDG Sub-Committee</b>	~2373 entries*
<b>WHO - ICSC</b>	674+
<b>WHO - Pesticides</b>	678

\*About 2373 entries (note that the number of chemicals covered is higher than that figure)

+ There are a total of 1,700 chemicals classified, but only 674 according to GHS



Question 9 – Optional: How many substances (as defined by the GHS)?

No responses

Question 10 – *Optional: How many mixtures (as defined by the GHS)?*

No responses

Question 11 – *Optional: How many compounds excluded from the GHS definition of substances and mixtures?*

No responses

Question 12 - *Additional Information (if applicable):*

**TDG Sub-Committee –**

What is the total number of chemicals on this list?

There are about 2373 entries in the dangerous goods list. However “entries” does not equal “number of chemicals” as there are generic and “not otherwise specified (n.o.s)” entries addressing chemicals families involving many individual chemicals. In other words, the list contains about 2373 entries but the number of chemicals covered is significantly higher than that number.

**WHO – ICSC** – A clarification was received pertaining to a guiding principle (c) question. The response has been updated accordingly.

***Guiding principle (d): All substances must be accurately identifiable and described for each entry (e.g. including Chemical Abstracts Service Registry Numbers (CAS numbers), the UN numbers assigned under transport of dangerous goods regulations where assigned/applicable, and relevant impurities).***

Question 1 – *How are the chemicals identified on the list?*

TDG Sub-Committee	WHO - ICSC	WHO - Pesticides
Common name	Common name	Common name
	Chemical Abstract Service (CAS) Registry Number	Chemical Abstract Service (CAS) Registry Number
International Union of Pure and Applied Chemistry (IUPAC) name		
UN number (under UN Recommendations on the Transport of Dangerous Goods Model Regulations)	UN number (under UN Recommendations on the Transport of Dangerous Goods Model Regulations)	UN number (under UN Recommendations on the Transport of Dangerous Goods Model Regulations)
	Regional Coding Scheme	
Other	Other	Other

**Question 2 – Other identifiers?**

<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
<p>Each entry in the list is assigned a UN number. In addition, each UN number corresponds to a “proper shipping name” (the name assigned to describe the substance) that can be made of the common name, the IUPAC name or a descriptive text describing its hazardous properties or characteristics.</p> <p>The list also contains generic and “not otherwise specified” (n.o.s.) entries, that correspond to groups of chemicals with a set of specific properties (e.g.: “adsorbed gas, toxic, oxidizing, n.o.s.”; organophosphorus compound, liquid, toxic, n.o.s.”...). The list of generic and n.o.s. entries in the dangerous goods list can be found in appendix A of the Model Regulations</p>	Synonyms in different languages	ISO names are listed where applicable.

**Question 3 - How are chemicals described for each entry on this list? For example, for chemicals on this list are relevant impurities named, if applicable?**

<b>TDG Sub-Committee</b>	Dangerous goods commonly carried are listed in the Dangerous Goods List in Chapter 3.2 of the Model Regulations. Where an article or substance is specifically listed by name, it shall be identified in transport by the proper shipping name in the Dangerous Goods List. Such substances may contain technical impurities (for example those deriving from the production process) or additives for stability or other purposes that do not affect their classification. However, a substance listed by name containing technical impurities or additives for stability or other purposes affecting its classification shall be considered a mixture or solution. For dangerous goods not specifically listed by name, “generic” or “not otherwise specified” entries are provided to identify the article or substance in transport. The substances listed by name in column (2) of the Dangerous Goods List of Chapter 3.2 shall be transported according to their classification in the list or under the conditions specified in 2.0.0.2 (chapter 2.0 of the Model Regulations). The name in column 2 of the Dangerous Goods list, displays in lower case all the applicable specifications relevant to the classification of the substance (e.g. “dry or wetted with less than [x] of plasticizing substance”)
<b>WHO - ICSC</b>	Name of substance or name describing form encountered in use e.g. [chemical name] (XX% solution in water), [chemical name] (mixed isomers), [chemical name] (anhydrous), [chemical name], dry, less than XX% nitrogen, etc. as appropriate. Impurities are occasionally mentioned in the information on the card if relevant, but not routinely.
<b>WHO - Pesticides</b>	Relevant impurities are not named in the list, but are considered in the WHO toxicological evaluation underlying the classification. WHO/FAO specifications of active substances and/or ISO names for pesticides are used where applicable.

**Question 4 - Additional Information (if applicable)**

None reported

**Guiding principle (e): The data sets forming the basis for the chemical classification must be referenced with the classification. The source of the information must also be electronically available, and publicly accessible. The data should be derived using test methods that are scientifically sound and validated according to international procedures.**

**Question 1 - Are documents from the decision-making process electronically available and publicly accessible?**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes			
No			
Partially			

**Question 2 - If partially, what are the limitations?**

<b>TDG Sub-Committee</b>	The data/rationale justifying the need for a new entry or the amendment to an existing one is submitted to the Sub-Committee in official/informal documents. These documents are publicly available since 1999. However, not all documents submitted for consideration since the establishment of the Committee of Experts in 1956 have been digitized. Copies of these documents are available and can be consulted but the secretariat does not have the resources so far to create a public database allowing to perform a quick search by substance. The documents can be consulted, and research is possible but is time consuming.
<b>WHO - ICSC</b>	
<b>WHO - Pesticides</b>	The WHO toxicological evaluations on which the classifications are based are publicly available, but are available separately from the Recommend Classification document.

**Question 3 - Is the dataset on which the classification is based referenced with the classification?**

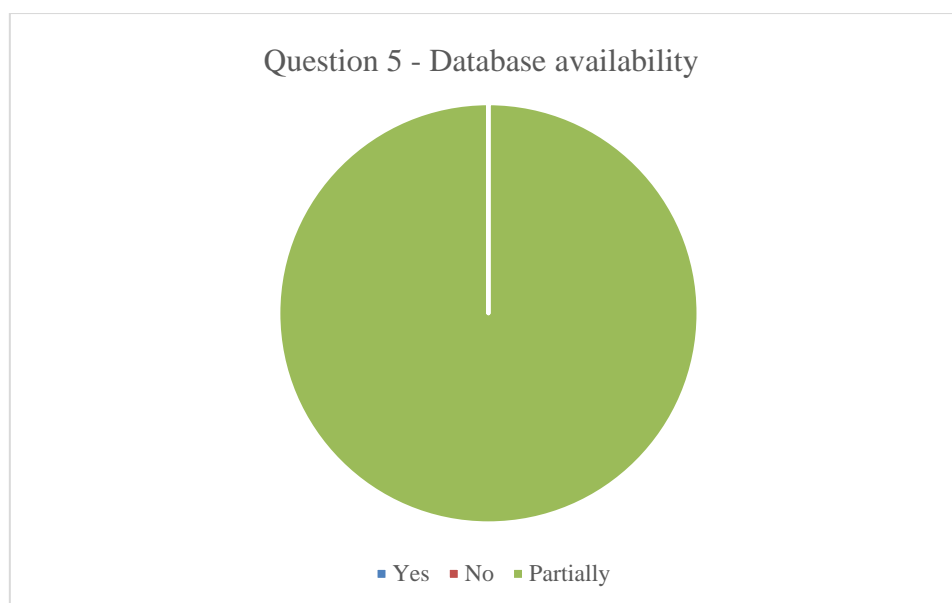
	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes			
No			
Partially			

**Question 4 - If partially, what are the limitations?**

<b>TDG Sub-Committee</b>	The dangerous goods list itself does not contain references to the data set leading to the classification. However, the data/rationale justifying the classification is submitted in official/informal documents for consideration by the Sub-Committee (see reply to the previous question) and may be found by tracing the decisions of the Sub-Committee.
<b>WHO - ICSC</b>	The dataset and references used are visible to the experts and WHO/ILO, but are not visible to the public on the published part of the cards.
<b>WHO - Pesticides</b>	

**Question 5 - Is the dataset on which the classification is based electronically available and publicly accessible? If partially, what are the limitations?**

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes			
No			
Partially	X	X	X



**Question 6 - *If partially, what are the limitations?***

<b>TDG Sub-Committee</b>	See replies to the previous two questions
<b>WHO - ICSC</b>	Only publicly available data are used for making decisions, but the dataset is not collated and is not available from WHO or ILO.
<b>WHO - Pesticides</b>	The WHO toxicological evaluations on which the classifications are based are published on the internet, but only in text form. The underlying data (study reports) are not available from WHO.

**Question 7 - *Are the data available in sufficient detail for an independent assessment to be conducted?***

	<b>TDG Sub-Committee</b>	<b>WHO - ICSC</b>	<b>WHO - Pesticides</b>
Yes			
No			
Partially			

**Question 8 - *How does the classification process take GHS paragraph 1.3.2.4.3 into consideration, with the understanding that the classification process can be complex and available data from testing or studies will be dependent on the generally accepted standards of good scientific practice at the time the test or study was conducted?***

<b>TDG Sub-Committee</b>	The criteria in the Model Regulations for hazardous to the aquatic environment and the health hazards covered for transport purposes (skin corrosivity, acute toxicity) are fully aligned with GHS criteria. The same applies when it comes to testing and use of test data for these hazard classes.
<b>WHO - ICSC</b>	WHO and ILO rely on the expert judgement of the independent experts.
<b>WHO - Pesticides</b>	WHO will rely on the expert judgement of the independent experts carrying out the underlying toxicological evaluation.

**Question 9 - *Additional Information (if applicable)***

**TDG Sub-Committee –**

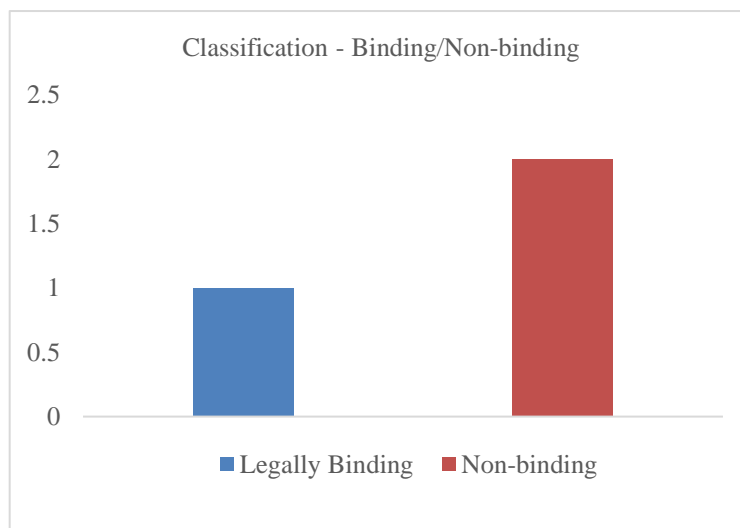
Are the data available in sufficient detail for an independent assessment to be conducted?

I found this question difficult to answer objectively (i.e. what's considered to be "sufficient" detail?).

**Guiding principle (f):** *The global list of chemical classifications will be non-binding. As with the GHS itself, countries will have the option to make the list binding if they adopt it through their legislative and/or regulatory process. Furthermore, the development of a global list is compatible with the GHS principle of self-classification.*

Question 1 - Are the classifications legally binding or non-binding?

<b>TDG Sub-Committee</b>	Legally binding
<b>WHO - ICSC</b>	Non-binding
<b>WHO - Pesticides</b>	Non-binding



Question 2 - Please provide the reference for the legislation

<b>TDG Sub-Committee</b>	The Model Regulations are not legally-binding per se. However, its provisions are made mandatory by international legal instruments addressing modal transport of dangerous goods (air, sea, road, rail, inland waterways) and by national and regional instruments implementing them. For implementation of GHS in transport refer to: <a href="https://unece.org/ghs-implementation-0">https://unece.org/ghs-implementation-0</a>
<b>WHO - ICSC</b>	
<b>WHO - Pesticides</b>	

Question 3 - Additional Information (if applicable)

**TDG Sub-Committee** –

Are the classifications legally binding or non-binding?

I replied yes to be allowed to insert a comment. The classification in the Model Regulations is not legally-binding per se, but it's made binding when applied through international legal instruments and national and regional laws and regulations addressing transport of dangerous goods (some of them implement the Model Regulations by reference)