BASEL CONVENTION

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United Nations Environment Programme
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Geneva, 19 September 2022

Subject: Review of Annexes I and III: Invitation for comments by 17 October 2022 on [draft] recommended options for possible amendments to Annexes I and III to the Convention as well as on whether *de minimis* concentration values, concentration limit values and cut-off values should be established in Annex III to the Basel Convention

Dear Sir, dear Madam,

I refer to the work of the expert working group on the review of Annexes I, III and IV to the Basel Convention (EWG) and more specifically its progress on the review of Annexes I and III.

On behalf of the EWG, I am pleased to invite comments from Parties and observers on the EWG [draft] recommended options for possible amendments to Annexes I and III (status 15 September 2022) as well as on whether *de minimis* concentration values, concentration limit values and cut-off values should be established in Annex III.

You will find attached the recommended options your comments are invited on as well as, for your information, comments from EWG members and observers on whether *de minimis* concentration values, concentration limit values and cut-off concentration values should be established in Annex III.

The Secretariat (juliette.kohler@un.org) looks forward to receiving your submissions by Monday 17 October 2022.

Yours sincerely,

Rolph Payet
Executive Secretary

Compilation of comments from EWG members and observers

on whether *de minimis* concentration values, concentration limit values and cut-off concentration values

should be established in Annex III to the Basel Convention

(status 15 September 2022)

Members:

- Canada
- El Salvador
- European Union and its Member States
- Iran (Islamic Republic of)

Observers:

- United States of America
- Basel Action Network
- Hazardous Waste Europe

Canada

Canadian comments on the inclusion of threshold values in Annex III

May 16th, 2022

As a member of the Basel Convention's Expert Working Group (EWG) on the Review of the Annexes, Canada would like to offer the following comments with respect to Annex III, specifically on whether threshold values should be included.

Background and Context

As demonstrated in the "Thought Starter" document submitted by Canada (UNEP/CHW/RA_EWG.4/INF-18), Canada supports and welcomes a harmonized approach where both the *UN Model Regulations on the Transport of Dangerous Goods* (UN-TDG) and the UN-GHS could be used in Annex III. Canada would like to reiterate its support for the retention of UN-TDG references in Annex III.

The UN-TDG is meant to protect human health and the environment during transport of hazardous goods, and as such is directly relevant for the Basel Convention, specifically when referring to physical hazards (e.g., explosive, corrosive, flammable). However, health and environmental hazards resulting from the disposal of hazardous wastes are not covered by the UN-TDG. The UN-GHS, on the other hand, ensures the safe production, transport, handling, use and disposal of hazardous materials through classifying the hazards of chemical products (i.e., substances, materials, or mixtures) and standardizing communication tools (i.e., SDS, symbols, hazard statements, etc.). The two systems are complementary but not directly comparable as the classification of hazardous substances do not directly align; the UN-TDG is more applicable to physico-chemical characteristics while the UN-GHS is more applicable to human health and toxicological characteristics. As such, Canada considers that hazard characteristics not covered by the UN-TDG could be added to Annex III. The Convention could adapt the definitions from the UN-GHS to support its objectives of environmentally sound management of hazardous wastes and other wastes.

Regarding the inclusion of threshold or limit values in Annex III, Canada is of the view that such a concept merits being explored and that these values should be considered on a case-by-case basis. Specifically, Canada believes that these values should not be the same as the UN-GHS values since they do not play the same role. The UN-GHS is designed for classifying the hazards of chemical products, typically homogenous substances or mixtures with known components. The Basel Convention deals with wastes, which can be composed of multiple chemicals and other components, sometimes unknown, in varying concentrations. As such, the UN-GHS values cannot always be transposed into Annex III. Any values included in Annex III should be tailored to be specifically applicable to wastes.

Terminology

The EWG has previously discussed which terminology is best when referring to possible values included in Annex III. Notably, a general issue that came out of the last meeting of the EWG in October 2021 was to "discuss whether *de minimis* concentration values, concentration limit values or cut-off concentration values should be established".

For the purposes of the UN-GHS, the terms "cut-off value" and "concentration limit" are said to be equivalent and are meant to be used interchangeably. In the Thought Starter document that was submitted, Canada proposed to attribute "*de minimis* concentration values" in waste to environmental and human health hazardous characteristics. Comments received on the Thought Starter were not supportive of this term.

For clarity going forward, Canada proposes to use only one term to refer to thresholds in Annex III. This will ensure that there are no misunderstandings between Parties when interpreting these thresholds. For consistency with entry A3180 of the Basel Convention[1], Canada recommends to use the term "concentration level". A footnote could be added to Annex III to clarify the interpretation of the term used.

Reasoning on Threshold Values

Canada believes that a good approach would be to hire a consultant (or several) to identify these values on the basis of health and environmental concerns related to the disposal of wastes containing substances posing a health or environmental hazard. These values should take into account the possibility of unknown components or under-represented concentrations measured in wastes, as well as the possible leaching of contaminants into groundwater, or other relevant environmental fate, and their subsequent dilution. As the fate of wastes is not as predictable as for pure chemicals, consultants should undertake a risk-based approach where possible to calculate waste-specific concentration values. To facilitate this work, specific waste streams could be identified. Where a risk-based approach is not possible, a "plausible worst-case scenario of waste mismanagement" could be used to calculate concentration values, as suggested by the United States in comments submitted on Canada's Thought Starter. The UN-GHS values **are not** adapted to waste situations, as they are intended to be used for pure chemicals or mixtures with known components. Caution should be applied when looking at these values to inform this work.

The Canadian Thought Starter proposed the addition of several new hazardous characteristics to be included in Annex III, for example eye irritation, skin sensitization, carcinogenicity, mutagenicity, reproductive toxicity, and specific target organ toxicity (STOT). We are of the view that the integration of threshold values in Annex III is **only** possible if it is made alongside the addition of a complete and specific set of hazardous characteristics, as these characteristics would all require separate thresholds. These human health and environmental hazardous characteristics should be considered as a package and all need to be included for the system to effectively work. Having broad hazardous characteristics where waste would be captured under a single code such as "Poisonous" or "Toxic" (currently Hazard Codes H6.1 and H11) does not work with the concept of thresholds as they would be too difficult to implement. To ensure that these thresholds would be possible to implement, it is required that they be presented in conjunction with very specific hazardous characteristics. If the new proposed Hazard Codes cover all ecotoxic and toxic substances, Hazard Codes H11 and H12 could be deleted.

Canada believes that by not splitting out hazardous characteristics into multiple categories to form a complete and specific set, there is a risk of having threshold values that are too generic, not protective

[1] A3180: Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB), or any other polybrominated analogues of these compounds, at a concentration level of 50 mg/kg or more.

enough of vulnerable populations, and not considerate of differences in the dose/response and potency required to cause various health effects.

Next Steps, Approach, and Concluding Remarks

As a next step, the expert working group, under the guidance of the Chairs, should discuss how to carry out this important work and prepare a step-by-step approach. Given the complexity and multidisciplinary nature of this work, one or multiple consultants could be hired to determine possible values to include in Annex III to provide the expert working group with a starting point. Before Canada can commit to incorporating any values, and given the importance that these could have with regards to the environmental and human health protections provided through the Convention's implementation, we must ensure that the proposed values are scientifically sound, relevant to the waste context, and implementable.

Canada would like to highlight the importance of carrying out this work in a well-informed, transparent, and scientifically sound manner. Experts with appropriate scientific and technical knowledge should be involved in the derivation of threshold values, with appropriate engagement and consultations with experts for each category and subject area. Parties should be given sufficient time and information to make an informed decision on whether to include the proposed values in the Convention. Further, Parties for which these values would be most beneficial need to express a desire and ability to implement these values in practice.

Measuring concentration levels in waste prior to export could pose a challenge to Parties that lack the technical and financial resources to conduct this work. Parties must keep in mind that recommending threshold values does not resolve the issue of accessibility to test methods and appropriate analytical equipment. Measuring concentrations in wastes requires sensitive analytical equipment, which can be expensive. Clear guidance should be given to Parties on ways to implement and enforce any values decided upon, and on the possibility for Parties to implement stricter values than the ones proposed. Possible ways to provide this guidance (e.g., technical guidelines on all Annex III hazard categories) should be kept in mind as we move forward in this process.

Despite the challenges that lay ahead in determining and potentially integrating thresholds in Annex III, Canada believes that all means for arriving at the inclusion of threshold values in the Convention should be explored. Currently, many Parties do not have any threshold values in their national legislation. Since the current hazardous characteristics in Annex III are qualitative, this leaves the assessment of hazardousness up to each Party, and some Parties have expressed that they have too limited resources to conduct these assessments. Having quantitative threshold values in Annex III would ensure that the definition of hazardousness is less subjective and provide a point of reference for all Parties, which would have benefits for the environment and human health as hazardous waste would be disposed of in a manner that protects human health and the environment.

Lastly, Parties should acknowledge that science, specifically concerning toxicology and risk assessment, is constantly evolving. It is possible that threshold values will need to reviewed and updated at regular intervals, or when new information emerges, which Parties should be aware of going into this process.

We hope this submission will be useful to inform the work of the Expert Working Group and we are looking forward to participating in this important work.

Julie Croteau
Chef, Unité Internationale | Head, International Section
Division de la réduction et gestion des déchets/ Waste reduction & management division
Environnement et Changement Climatique Canada/ Environment and Climate Change Canada

El Salvador

From: Italo Cordova <icordova@marn.gob.sv>
Sent: Friday, April 1, 2022 3:22 PM
To: Juliette Kohler <juliette.kohler@brsmeas.org>; EWG-RAmembers <EWGRAmembers@brsmeas.org>
Cc: EWG-RAobservers <EWGRAobservers@brsmeas.org>
Subject: RE: Basel Annex III - comments on cut-off concentrations

Dear Juliette:

Thank you very much for sharing the comments.

We appreciate the comments and take the opportunity to indicate that we agree with the concern raised by the United States of America as an observer to the Basel Convention, and we share the sense of maintaining in Annex III, the list of hazardous characteristics currently in force under the Convention and of maintain the references of the UN Class for transport, as established in the framework of the UN Model Regulations on the Transport of Dangerous Goods (UN TDGs), considering that they are adequate guarantees to prevent risks to health, the environment and carry out transboundary movements of waste in an environmentally sound manner.

With kind regards,

Italo Flamenco

Focal point for the Basel, Rotterdam and Stockholm Conventions

Ministry of Environment and Natural Resources

El Salvador

European Union and its Member States

EU+MS comments on whether *de minimis* concentration values, concentration limit values and cut-off concentration values should be established in Annex III – 11th May 2022

The comments presented below refer to the general issue G, set out in Appendix I to the "[draft] recommendations by the expert working group" to Annex I of document UNEP/CHW/RA_EWG.4/3/Add.3).

In its proposed text for a "General introduction" to Annex III, covered by "Option 1" under section II.C of Appendix I to the "[draft] recommendations by the expert working group" to Annex I of document UNEP/CHW/RA_EWG.4/3/Add.3), the EU+MS described the outline of an approach to determine if a waste that belongs to any category contained in Annex I displays hazard characteristics listed in Annex III.

Such an approach to determining if waste is to be classified as hazardous waste is the one currently followed in the EU and relies on the combination of a calculation methodology, based on specific substance[2] concentration limits, and testing, to determine the hazard characteristics to be attributed to a given waste. Therefore, it **provides a methodology to determine if a waste is hazardous waste or not**.

The EU+MS propose this approach as a defined, transparent and flexible approach for waste classification and thereby to provide a meaningful basis for determining whether waste meets the definition of hazardous waste in Article 1(1)(a) of the Basel Convention[3].

The calculation method supporting this approach is based on the broad assumption that the intrinsic hazards posed by substances (including those in mixtures and objects that have become waste) can be determined based on the presence and concentrations of the individual substances displaying the same hazard. This approach underlies the classification criteria defined internationally by the United Nations Globally Harmonised System[4] (GHS) for classifying substances according to their health, environmental and physical hazards. As a matter of fact, **GHS is the internationally accepted hazard classification and hazard communication instrument**. As indicated in its para 1.1.2.6.1, GHS is not intended to harmonise risk assessment procedures or risk management decisions.

We consider that having **clear and transparent rules** to enable classifying waste as hazardous (or not), based on what is known about the presence and amount of its constituents is a powerful and necessary tool to inform waste management. In the way proposed, as used in the EU, waste is classified based on the **knowledge about the hazard classification of its individual constituents** and **their concentration in waste** given that for most substances (not all) a concentration-response relationship exists. This approach is complemented with the possibility of performing **testing**, to the extent test methods are available, on waste.

The calculation method described to classify chemical mixtures, which is proposed here to be used to also classify wastes according to Annex III hazard characteristics, relies on the use of concentration limit values to classify the mixture, depending on the concentration of the different constituents and according to their hazard class and category. Different Parties using this approach for hazard classification[5] refer to these

[2] This relates to the substances present in the waste and displaying the hazard of concern according to UN GHS.
[3] Article 1(1)(a) reads "Wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III".
[4] https://unece.org/transport/standards/transport/dangerous-goods/ghs-rev9-2021
[5] For instance, Canada Hazardous Products Regulations (SOR/2015-17), US Hazardous Communication Standard (HCS) https://www.osha.gov/hazcom

thresholds as “de minimis concentration values”, “concentration limit values” or “cut-off concentration values”, all of which conceptually represent the same thing. It should be noted however that, under the EU’s Regulation on Classification, Labelling and Packaging of substances and mixtures (CLP Regulation)[6], the term "cut off value" is used to identify the minimum concentration level above which the presence of a substance must be taken into account in the hazard classification process, and "concentration limits" are used as substance thresholds for mixture classification.

The terminology used in the proposals by EU+MS to amend Annex III, as reflected in section II of Appendix I of document UNEP/CHW/RA_EWG.4/3/Add.3 (containing draft recommended options for possible amendments to Annex III), refer to “concentration limits” (e.g. for hazard characteristics H 6.1, H 11) and, where appropriate, to “cut-off values”, e.g. in section C “general introduction”. This reflects the differentiated use of the concept “concentration limit value” and “cut-off value” in the CLP Regulation.

The calculation method which is part of the approach proposed by the EU+MS, relies on concentration limit values defined for hazard classes and categories of substances, taken or adapted from those defined in GHS. It also benefits on a list of over 4000 agreed harmonised classifications for individual substances or groups of substances, contained in part 3, table 3 of Annex VI of the CLP Regulation. The use of such harmonised classifications is very advantageous for the application of the calculation methodology given that, in their absence, the classification of any individual constituent has to be first determined by applying substance classification rules in GHS, starting from primary toxicological and physical-chemical information.

The concentration limit values in GHS, applicable to mixtures, as well as its their translation into EU legislation, are the result of considerations on the nature and potency of the different effects, the level of confidence in their occurrence (e.g. as regards carcinogenity), analytical constraints and technical and political agreement where, sometimes, pragmatic choices have been made. The GHS system sets the basic rules for hazard identification and communication of substances and mixtures worldwide.

Consequently, we fail to understand concerns expressed by some Parties and observers, during initial discussions, regarding why this approach would not be appropriate to the classification of waste, for the purpose of its transboundary movement and of ensuring its environmentally sound management. To this respect, it is important to highlight that:

- Wastes consist of substances or objects that can be regarded as a mixture of substances and therefore they are in principle liable to a similar approach to hazard classification as any substance or mixture of substances according to GHS. It is acknowledged however that wastes have a more variable composition and, often, the substances are contained in complex material matrices, such as those resulting from objects that have become waste. This poses particular challenges to sampling and testing that are specific to waste.
- It is unclear why a system that has been accepted and is suitable for hazard identification and communication of products sold to the public is not suitable for waste, which, regardless of its classification, should always be managed by professionals, following appropriate channels and with overall lower expected likelihood of exposure.
- The proposed classification system enables to distinguish between waste to be classified as “hazardous” and waste which should not, in the same way as GHS results in substances being classified as hazardous or “non-hazardous”.
- The above distinction does not mean that non-hazardous waste does not need to be managed in an environmentally sound manner, or that it will not pose a risk in any conceivable situation. As indicated earlier, neither GHS, nor the system that the EU+MS propose, is intended to provide a

[6] Regulation (EC) No. 1272/2008. The full list of harmonised classifications for substances can be downloaded here: https://echa.europa.eu/information-on-chemicals/annex-vi-to-clp

risk management framework. That can only be provided, with the necessary level of granularity, under national and potentially, sectorial legislation (e.g. on general provisions on the ESM of waste, in sectorial legislation for certain types of waste).

- In our view, maintaining a system in which the rules for classification are kept fully open, based on interpretation about the relevance of the presence of hazardous substances, and the possible manifestation of hazard properties, without associated calculation and test methods, is not transparent and leads to diverging, disharmonised and potentially arbitrary decisions being applied to identical situations.
- Concerns about the lack of application of the precautionary principle, or on hindering the capacity of Parties to reject certain wastes, also seem unfounded. Regarding the former, the precautionary principle can be embedded in decisions related to waste management, under a given situation, but are difficult to incorporate in a general hazard based classification system as defined in the Basel Convention, and its implementation should also be proportionate. Regarding the latter, Parties can always consider a waste as hazardous, and therefore reject its transboundary movement under the rules of the Convention, based on their national legislation (cf. Article 1(1)(b) which may, for environmental protection objectives, go beyond internationally agreed rules).
- Finally, it is in our view problematic to maintain rules which are completely open to interpretation, or to advocate for the setting of very low regulatory limits on chemical concentration to define hazardous waste. Under this approach, the vast majority of waste could become hazardous waste; the differentiated waste management and treatment regimes for hazardous and non-hazardous wastes would lose their meaning and this could seriously affect their cost-effective management.

Iran (Islamic Republic of)

From: Roxana Maleki <rmalekiar@gmail.com>
Sent: Monday, September 12, 2022 5:10 PM
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Cc: abbas torabi <abbas.tora@gmail.com>; Naziri Asl <naziri_a@yahoo.com>
Subject: comments on the proposal for the revised recommendations on Annex III and I

Dear Ms. Kohler

Many thanks for sharing the information on the review of annexes of the Basel Convention. Please find below our general comments about the proposal for the revised recommendations on Annex III and I, based on scientific and technical considerations taking into account the report of the fourth meeting of the EWG on the RA:

- Keeping the UN Model Regulations on the Transport of Dangerous Goods as the base of UN class entries of annex III, could protect human health and the environment. Though it is required that the hazard characteristics of the UN-TDG be complemented by the wider range of hazard properties of the GHS such as carcinogenicity, germ cell mutagenicity, reproductive toxicity and target organ toxicity.

- Regarding identification of the hazard characteristics of a kind of waste as a mixture in UN GHS, there are some cases that the hazard of an ingredient of the waste is below or above the generic cut-off values or concentration limits. Therefore, the values included in Annex III should be tailored to be specifically applicable to wastes.

- We believe there is no duplication between entries of annexes I and VIII. Based on Article 1, paragraph1, subparagraph (a) of the Convention, belonging to any category contained in Annex I, is the first and main reference of the convention for identifying hazardous wastes before Annex III. Therefore, we propose to keep entries Y1-Y18, because even if they have equivalent entries in annex VIII, still entries Y1-Y18 are the basis for considering them as hazardous waste. All entries of annex VIII have roots in annex I , some of them relate to waste stream entries and the rest of them relate to the “Wastes having as constituents” entries.

- The new entries of the Basel convention for plastic wastes classification in annexes I, II and IX, besides other entries relevant to plastic waste based on the technical guidelines on the environmentally sound management of plastic wastes, indicate that plastic wastes can contain or be contaminated to heavy metals such as cadmium, mercury, lead, and different kinds of POPs.In this regard, the persistence, bioaccumulation and toxicity are the significant factors, which should be taken into account in hazard determination of plastic wastes. For this purpose, the amount of hazardous chemicals, which can leach from them to the surrounding area, and the amount of bioaccumulation and bioconcentration should be considered. Therefore, the leachable concentration of above-mentioned chemicals from plastic wastes and their BAF values and BCF values are the helpful factors, which can be applied interchangeably in determination of their hazard

for human health and environment. It is worth mentioning that the BCF values are inserted in both UN GHS and UN TDG although it is explained more fully and in more detail in the UN GHS.

Best Regards

Roxana Maleki
Head of Hazardous Wastes and Conventions Group

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United States of America

U.S. Comments on the Review of Annex III of the Basel Convention

September 23, 2021

The United States appreciates the opportunity to participate as an observer in the discussion on the review of Basel Convention Annexes in the Expert Working Group (EWG) on Review of the Annexes. We offer the following comments on two key issues under discussion by the EWG with respect to Annex III, the list of hazardous characteristics under the Convention. First, we describe the importance of retaining the references in Annex III to UN Class as established under the framework of the UN Model Regulations on the Transport of Dangerous Goods (UN TDGs); and second, we highlight concerns about the suitability of using the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) to classify certain wastes as hazardous under the Convention.

The United States supports keeping the references in Annex III to UN class/numbers established by the UN TDGs. Classification of hazardous materials using UN class provides a key way for governments and stakeholders globally to identify and communicate the hazards posed by the transboundary movement of dangerous goods. Including UN class on notifications and movement documents provides critical information for importing countries, transporters, and receiving/importing facilities about the hazards posed by wastes subject to transboundary movement. In the United States, UN numbers are required as part of the documentation that accompanies shipments of dangerous goods within the United States as well as for the documentation for the export and import of hazardous waste.

As a general matter, we continue to have some concerns about the suitability of using the GHS to classify the hazards posed by the management of waste. Using GHS to classify the hazards posed by some waste could be less protective than the current method of characterizing hazardous wastes under the Basel Convention. Under GHS, many wastes would be considered mixtures, or materials that are made up of several chemicals. Chemical mixtures are generally classified as exhibiting a GHS hazard based on the hazards of the individual ingredients when they are present in the mixture above specified generic *de minimis* concentration values (See GHS section 1.3.3.2.3, rev 8, 2019). While the GHS assessment and classification of acute toxicity considers dose/response and toxic potency (Table 3.1.2), classification of hazards such as target organ toxicity, carcinogenicity and reproductive toxicity are generally based on a qualitative assessment of the strength of evidence regarding the hazard posed. Thus, the GHS generic cut-off values for these hazard classification categories do not appear to consider dose/response or toxic potency, which could result in "under-classification" for some wastes currently considered hazardous under the Convention. For example, 0.1% or 1,000ppm is the lowest threshold value proposed to classify waste as hazardous for carcinogenicity under H11, Toxic (Delayed or chronic) (see Table 6 under H11, Toxic (Delayed or chronic) in the EWG's *Compilation of general issues and options for the review of Annex III to the Basel Convention*).[7] In other words, under this proposal wastes would need to contain constituents in excess of 1,000 ppm to be considered hazardous for carcinogenicity under the Convention. Such a high threshold value would not be protective for known or

[7] Note that the lowest generic cut-off concentrations proposed for a waste to be considered hazardous due to specific target organ toxicity (STOT) is at 1% or 10,000, even higher than the lowest threshold proposed for carcinogenicity (See Table 4 under New proposed entries in Annex III in the EWG's compilation of general issues and options for the review of Annex III to the Basel Convention).

possible human carcinogens such as arsenic, benzene, cadmium, and lead [8] as demonstrated using the World Health Organization's Drinking Water Guideline values below.

The examples below demonstrate that waste containing arsenic, benzene, or lead at the lowest generic cut-off concentrations for carcinogenicity (i.e., 0.1% or 1,000 ppm) would not be considered hazardous even though leachate from such waste could cause groundwater to exceed the WHO drinking water guideline value of 0.01 mg/L for these constituents. Similarly, waste containing cadmium at the lowest GHS generic cut-off concentrations would not be considered hazardous even though leachate from such waste could cause groundwater to exceed the WHO drinking water guideline of 0.003 mg/L for cadmium. We also note that the lowest generic cut-off concentrations proposed for a waste to be considered hazardous due to specific target organ toxicity (STOT) is even higher, at 1% or 10,000 (See Table 4 under New proposed entries in Annex III in the *EWG's Compilation of general issues and options for the review of Annex III to the Basel Convention*).

And finally, it would be helpful to have more information about how the proposed classifications and generic cut-off concentrations for acute toxicity were derived since they differ from the values established under GHS (See Table 5 under H6.1 Poisonous (Acute) in the *EWG's Compilation of general issues and options for the review of Annex III to the Basel Convention* and Table 3.1.2 of GHS). The cut-off concentrations proposed in Table 5 are much higher than those established by GHS in Table 3.1.2. For example, the lowest cut-off concentration proposed for determining acute toxicity is 0.1% or 1,000 ppm (See Table 5) whereas the value established for Category 1 acute toxins under GHS is 0.5 mg/kg-body weight, or 35 mg for a 70 kg person (see GHS Table 3.1.2). Even if the allowed 1000 mg/kg were diluted tenfold (to 100 mg/kg) when transported to drinking water, consumption of less than a liter of such water might prove fatal.

We encourage Parties to consider using a risk-based approach to evaluate the hazards posed by waste containing highly toxic chemicals rather than the GHS generic cut-off values that are intended to classify hazards posed by chemical products.

<u>Example: Waste containing arsenic, benzene, or lead</u>

- The World Health Organization sets a drinking water guideline value of 0.01 mg/L for arsenic, benzene, and lead[9] (all classified as known or possible human carcinogens by the International Agency for Research on Cancer (IARC)). Because WHO values for these three constituents are the same, arsenic is used for simplicity.

- The lowest GHS generic cut-off concentration value proposed to classify waste as hazardous for carcinogenicity is 0.1% or 1,000 ppm (i.e., 1,000 mg/L).

- If a waste containing arsenic at a concentration of 1,000ppm is evaluated using a leaching test with a liquid-to-solid ratio of 10-to-1 and all the arsenic present leached out of the waste, the leachate would contain an arsenic concentration of 100 mg/L. (1,000 mg/L arsenic in waste / 10 = 100 mg/L)

[8] Arsenic, benzene, and cadmium are classified as carcinogenic to humans (Group 1) by the International Agency for Research on Cancer (IARC). Lead is classified as possibly carcinogenic to humans (Group 2B) by the IARC.
[9] Source: World Health Organization Guidelines for drinking water quality, 4th edition. 2017. https://www.who.int/publications/i/item/9789241549950

- Mismanaged waste may leach contaminants to groundwater, but some dilution may occur during groundwater transport before reaching a drinking water well. We consider two scenarios whereby waste containing arsenic leaches into groundwater at different concentrations:

    - Scenario 1:
        - Assuming the leachate is diluted 10-fold during groundwater transport to a drinking water well (i.e., the arsenic concentration in the diluted leachate is reduced by 1/10 of the original leachate concentration), then the arsenic concentration from the leachate would be 10 mg/L (100 mg/L arsenic concentration in leachate * 1/10 = 10 mg/L).
        - Therefore, at a 10-fold dilution, the concentration of arsenic at a drinking water well could exceed the WHO drinking water guideline value by 1,000 times (10 mg/L / 0.01 mg/L = 1,000 times)

    - Scenario 2
        - Assuming the leachate is diluted 100-fold (i.e., the arsenic concentration in the leachate is reduced by 1,000 of the original leachate concentration), then the arsenic concentration from the leachate would be 1 mg/L (100 mg/L * 1/100 = 1 mg/L)
        - Therefore, at a 100-fold dilution, the concentration of arsenic at a drinking water well could exceed the WHO drinking water guideline value by 100 times (1 mg/L / 0.01 mg/L = 100 times)

- This example illustrates that, even if the lowest GHS generic cut-off values for carcinogenicity are applied to waste containing arsenic, benzene, or lead, such waste would not be considered hazardous even though it could potentially leach into groundwater at a concentration 100 to 1,000 times the WHO drinking water guideline value of 0.01 mg/L for these constituents.

<u>Example: Waste containing cadmium</u>

- The World Health Organization sets a drinking water guideline value of 0.003 mg/L for cadmium[10] (classified as a known human carcinogen by the International Agency for Research on Cancer (IARC).

- The lowest GHS generic cut-off concentration value proposed to classify waste as hazardous for carcinogenicity is 0.1% or 1,000 ppm (i.e., 1,000 mg/L).

- If a waste containing cadmium at a concentration of 1,000 ppm is evaluated using a leaching test with a liquid-to-solid ratio of 10-to-1 and all the cadmium present leached out of the waste, the leachate would contain a cadmium concentration of 100 mg/L. (1,000 mg/L cadmium in waste / 10 = 100 mg/L)

[10] Source: World Health Organization Guidelines for drinking water quality, 4th edition. 2017. https://www.who.int/publications/i/item/9789241549950

- Mismanaged waste may leach contaminants to groundwater, but some dilution may occur during groundwater transport before reaching a drinking water well. We consider two scenarios whereby waste containing cadmium leaches into groundwater at different concentrations:

    - Scenario 1:
        - Assuming the leachate is diluted 10-fold during groundwater transport to a drinking water well (i.e., the cadmium concentration in the diluted leachate is reduced by 1/10 of the original leachate concentration), then the cadmium concentration from the leachate would be 10 mg/L (100 mg/L cadmium concentration in leachate * 1/10 = 10 mg/L).
        - Therefore, at a 10-fold dilution, the concentration of cadmium at a drinking water well could exceed the WHO drinking water guideline value by more than 3,300 times (10 mg/L / 0.003 mg/L = 3,333 times)

    - Scenario 2
        - Assuming the leachate is diluted 100-fold (i.e., the cadmium concentration in the leachate is reduced by 1,000 of the original leachate concentration), then the cadmium concentration from the diluted leachate would be 1 mg/L (100 mg/L * 1/100 = 1 mg/L).
        - Therefore, at a 100-fold dilution, the concentration of cadmium at a drinking water well could exceed the WHO drinking water guideline value by more than 330 times (1 mg/L / 0.003 mg/L = 333 times)

- This example illustrates that, even if the lowest GHS generic cut-off values for carcinogenicity are applied to waste containing cadmium, such waste would not be considered hazardous even though it could potentially leach into groundwater at a concentration 330 to 3,300 times the WHO drinking water guideline value of 0.003 mg/L for these constituents.

Basel Action Network

Changing Annexes to Establish "No-Harm" Concentration Levels -- A Serious Mistake

Basel Parties must not Sacrifice the Principles of Precaution, Sovereignty for Illusions of Clarity

28 February 2022

Introduction

Lately, some Parties within the Expert Working Group (EWG) on the Review of the Annexes have pressed to fundamentally alter the long-standing Basel Annex III (and possibly Annexes I, VIII and IX) to have numerical threshold levels inserted within them, perhaps those derived from the Global Harmonized System (GHS). For issues of toxicity, this would usually be a concentration value that, once set could render certain wastes falling below that value, non-hazardous and thus outside of the scope of the Convention.

While, on the surface this approach would appear to provide the elusive legal clarity we all are charged to seek when possible, this intention, in reality, is fraught with unacceptable and perverse effects which would irrevocably damage the intent and purpose of the Convention. As the science of toxicology and risk with respect to waste and exposure are far from certain, pretending they are leads to arbitrary and unprotective thresholds. By binding Parties to hard and fast levels Parties are robbed of their rights to exercise fundamental principles and obligations of the Convention and international law. These include the such as the Precautionary Principle, the Principle of Minimizing Transboundary Movement, or the Principle of National Sovereignty. Further, as we shall explain this proposal also creates an unfair playing field for developing countries, ironically the very grouping the Convention was designed to primarily protect from transboundary harm. We will examine these concerns in turn below.

I. Turning the Precautionary Principle on its Head

One could assert that not having numeric thresholds is somehow a fault of the Basel Convention and makes it impossible to implement. But for a treaty whose primary function is to protect the environment and human health (not trade and commerce), this built-in catch-all for the full potential for wastes to cause harm is in fact a great advantage. For the Convention to be truly protective of the environment of national territories and the global commons, Parties must be given the latitude to err on the side of caution by invoking the Precautionary Principle even in the face of uncertainty. Risk uncertainty is a fact and must be recognized and accommodated. Denying it makes our actions truly uncertain and more likely to cause harm.

As exemplified below, scientific uncertainty in the field of toxicology, particularly of mixed waste streams with unknown target populations, is a given. To pretend there is certainty and set an arguable level denies the very purpose for which the Precautionary Principle exists: to prevent harm in the face of such uncertainty. While not spelled out as a term within the Convention, the Precautionary Principle has been recognized and indeed highlighted in numerous Basel Convention Implementation Guidance. Most recently, the Principle was cited in the Practical Manual on ESM entitled, "General Policies and Legislation." These manuals were created as part of the effort to ensure and maintain legal certainty.

While the Convention does not mention the Precautionary Principle per se, it is clearly built into its obligations and definitions. First, there is the obligation to minimize the transboundary movement of wastes. In other words, we should not be setting levels which have an effect of removing control of some wastes from the Convention. Further, the Convention establishes the sovereign right of Parties to establish which wastes can be controlled for them to meet their own protective needs. Furthermore, there is an obligation to minimize the generation of wastes. Parties therefore should not be told that they need not take steps to minimize wastes that might happen to fall under a certain pre-set threshold. Finally, the definition of what is harm (Annex III) was intentionally left open to interpretation by the Parties -- regularly or on a case-by-case basis. It is their territory, their environment, and their human population that are to be potentially harmed. To not have a say on how best that can be done, they give up their fundamental obligation as a government.

Parties should not be forced to accept a free trade in wastes simply because the amount of a certain compound or element falls below a certain pre-set threshold. Rather, Parties should always have the right to assert the Precautionary Principle when they do not feel comfortable receiving such wastes from exporting countries and their waste traffickers.

Again, it is important to remember this is the Basel Convention, an environmental treaty established to protect the environment. It is not the GATT or GATS under the auspices of the World Trade Organization, designed to protect traders. Pre-establishing a threshold concentration limit and placing it into the Convention robs Parties of the ability to protect themselves, in favor of protecting traders.

II. Toxicological Science is Imperfect and Unable to Assess Harm with Certainty

Toxicologists would be the first to assert that it is impossible to set a threshold concentration level under which there is no harm and thus could completely fall out of Annex III.

First, concentration levels are not always a good indicator of harm. Some harm can come at a cellular and molecular level and no amount of dilution of a material can render it magically harmless. Further, once released into nature or into organisms, nature and its organism have a way of re-concentrating chemicals and elements, for example through bio-accumulation and bio-magnification.

Second, the uncertainty is made far less clear when we are talking about waste, and waste trade. In waste trade, we may not know where the wastes will finally end up and which populations may be exposed to them. We also do not know precisely the make-up of the wastes we try to categorize. Due to the imprecise manner in which wastes are produced and combined, no two wastes streams are the same. Certainly, a level as set by the GHS which concerned itself with more predictable, homogenous

products, and not mixtures of residues from a multiplicity of processes and products is not appropriate. We align ourselves with the comments of the US in this regard.

For example, something characterized as mercury wastes could contain elemental mercury or methyl mercury – the latter being far more toxic. It may also contain other toxic organic compounds or other toxic metals and these combinations could vary widely across the entire scope of mercury waste generation globally. It is impossible to know really which other compounds or elements are present without extremely costly analysis. And even if we did know all of the potential chemicals, we would not know their combined and synergistic effects on exposed populations under a myriad environmental conditions and species.

Further, thousands of chemicals currently in commerce, and thus in wastes, have an inadequate toxicological dataset or none at all. Certainly, even when data is present, it cannot be tested on all species and for all of their potential more vulnerable populations (e.g. pregnant women, children, chemically sensitive individuals etc.). Without this information, how can one establish a presumption of innocence, which is what a threshold level aims to do. Rather, prudent exercise of the Precautionary Principle is essential, given such uncertainty.

Moreover, in the scientific history of establishing dose-response curves, the thresholds of "no harm" have had to be constantly revised as new information becomes available. In no instance that we have record of have thresholds become more liberal as new data arrives, rather they have been forced to acknowledge they had not actually been set high enough to be able to make the claim of "no harm below this point." If we establish levels, we can assume at a minimum that these would need to be revisited every few months by those reviewing the latest data. And likely, based on history, we could also assume that current levels are not rigorous enough. The constantly changing landscape will be costly to keep up with, but is proof on its own that set levels are not in fact possible.

For the above reasons, it is very possible, "de minimis" or "no harm" levels could lead to the Basel Convention aiding and abetting cancers or other diseases if it is discovered later that the levels deemed "not harmful" are, in fact, harmful.

Finally, due to the uncertainty and due to the Basel Convention rules having great impact on the profit of polluters, we can expect that the science will be subject to manipulation based on powerful industries or those with conflicts of interest, who would wish to be have their wastes exempted from trade controls. We have already witnessed this several times for certain economic actors within the Basel Convention. other industries. Sectors of the plastics industry lobbied heavily at the Basel Convention to have PVC not be considered a hazardous waste when science seems to say otherwise. The shipping industry argued vociferously that a ship cannot be a waste simply because it is a ship. And most recently, the electronics industry, argued that exports for repair, despite repair operations producing or entailing wastes, cannot be considered exports of waste. The setting of “no harm” levels will be contentious, political, and extremely costly in terms of time spent in research, subsequent reviews, and never-ending lobbying and argument. In the end, we will end up with something that is likely to be less protective of the environment than the ability for Parties to act on their own with prudence and precaution in the name of self-protection and sovereignty.

III. Dilution Suddenly Becomes a False Solution to Pollution

One of the obvious perverse effects of setting concentration thresholds below which chemical wastes will be deemed non-hazardous and therefore outside of the scope of the Convention, would be to create an incentive to dilute wastes to a point where they magically become "non-hazardous". In some jurisdictions such dilution is illegal but enforcement of such a prohibition is next to impossible. Operations can easily hide dilution as being part of process. As noted earlier, concentration levels are not a good indicator of harm. Nature has a way of re-concentrating toxins and thus they should never be released into the environment at all if it can be avoided. When the issue of ship recycling became of great concern in the Convention, the Parties resoundingly deemed that even when the toxic materials in a ship were vastly outnumbered by the volume of non-toxic steel, this did not render the ships non-hazardous.

By only being concerned about concentration levels and allowing such levels to determine whether or not we should subject materials to control under the Convention, we will in fact encourage dilution as a false solution to pollution.

IV. Disproportionate Burden on Developing Countries the Convention was Created to Protect

The Basel Convention was created primarily to protect developing countries from the exploitation caused by waste traders externalizing costs and harm to them from developed countries. Thus, it is ironic and contradictory to utilize analytical, numeric concentration levels that will be costly and difficult to implement and enforce. Developing countries will be disproportionately burdened due to limited resources at their disposal to make use of the very expensive analytical lab work that will be required. Gas chromatography-mass spectrometric analysis is extremely expensive and not many labs in the developing world are capable of doing it. And yet, even if this analysis is required of the traders prior to export, a competent authority will still need to be able to independently corroborate the claims. It is unreasonable to expect a small government with limited staff and budget to defend its assertion that a waste should be controlled as a hazardous waste, and risk being challenged or sued by a company with far greater resources for lawyers and laboratories with a very different, self-serving idea.

The case of the Probo Koala dumping in Cote d'Ivoire comes to mind where hundreds of people got ill and some died, while –Trafigura, a very large company, wished to escape legal jeopardy. If Trafigura could have argued that the sludges dumped in Abidjan were below allowable levels and the government of Cote d'Ivoire were then forced to become embroiled in a protracted battle pitting samples and analysis to prove that they even have a legal basis to act against the company, this would have slowed progress tremendously and there may never have been ultimate accountability. The victim country would have had little legal basis to detain responsible Parties for prosecution. The government would be forced to conduct very expensive analysis to show otherwise, and possibly due to the dilution issue noted above or the scientific uncertainty issue, (nobody was ever certain what was the direct cause of the poisoning in that particular case), it would have become a legal circus with lawyers and consultants getting rich at the expense of the affected population. Such legal battles favor rich well-heeled plaintiffs and not developing country defendants. The victim country in such a case may never get accountability for the crime, and are in affect victimized twice: first from the chemical assault, and second from the attempt to prove a legal basis for prosecution and accountability at great cost.

V. Conclusion

Even from the cursory examination above of the effects of the proposed action to set numeric threshold limits for "harm and no-harm" in the Convention, are seen as fundamentally inappropriate.

A new, reliance on thresholds for harm would actually represent a massive de-regulation for the Basel Convention as many substances which fall beneath the concentration levels (normally or by design), would in one sweeping change now suddenly fall outside of the Convention's scope of control. This action will not add to the scope and effect of the existing Basel Convention, but will subtract from it.

Parties must be able to maintain their right to protection under international law from wastes exported to their territory by international traders. The right to object due to even perceived or probable harm must remain a fundamental right of Parties as was envisioned by the right to define hazardousness at national level (Article 1, 1, b) and to allow interpretation in Annex III as to what constitutes harm.

Removing this sovereign right and placing it in the hands of analytical chemists and lawyers is unthinkable for a treaty based on the right to protect one's environment, even when it means traders might not make the profits they would wish to make.

Compounding the infringement of rights is the fact that this change to the very structure of the Convention would disproportionately favor traders over victims, developed countries over developing countries, the mighty over the weak.

Finally, from a scientific standpoint, such a change is not commensurate with the vast uncertainty of the science of toxicology, which fails us due to the complexity of waste streams, the number of potentially affected species, and the number of variable vulnerabilities even within a species. Good scientists first and foremost recognize the limits of science. The truly scientific approach for environmental protective policy is to invoke the precautionary approach in the light of such overwhelming uncertainty.

Should Parties wish to be *informed* about proven toxicological studies while making their determination of harm (risk assessment), such as observing LD50 toxicology tests etc., then the place for that information is clearly to be supplied via Guidance documents, not placed within legally binding Annexes. Guidance can appropriately provide the Parties with information but should never mandate the abandonment of the Precautionary Principle or basic sovereign rights, clearly established within the Convention.

END

Hazardous Waste Europe

23 March 2022

INCLUSION OF CONCENTRATIONS IN ANNEX III
POSITION OF HWE

Members are invited to comment on the general issue: "Discuss whether *de minimis* concentration values, concentration limit values or cut-off concentration values should be established" (§22 of document **UNEP**/CHW/RA_EWG.4/3/Add.3 of 8 december 2021).

Comments on the issue were already submitted by HWE on 23 July 2020:
"HWE does not really understand the added value of adding "de minimis concentration values". We prefer to use a more classical approach when information is lacking which consists in applying a worse case scenario. This approach ensures a better protection of health and the environment."

Let us develop our position.

The role of Annex III is to provide a method to determine if a waste is intrinsically hazardous with the aim to extensively protect human health and the environment. However the current version of Annex III systematically refers to the United Nations Recommendations on the Transport of Dangerous Goods which determine physical hazard properties of substances in view of avoiding accidents and spills in the environment during transport. This objective is different for several reasons:

- The protected target is more limited
- Only physical hazards are considered in the rules on the Transport of Dangerous Goods, whereas other hazard properties need to be assessed to determine intrinsic hazardousness, e.g. carcinogenic, mutagenic, reprotoxic
- In general wastes are mixtures of substances rather than substances.

Therefore, Annex III should refer to rules that are more adapted to determine the intrinsic hazardousness of waste.
In this view, the GHS ensures a better protection of health and of the environment and provides more appropriate rules. First of all, it encompasses a wider list of hazard properties than the UN classes. Secondly, they are better adapted to assess the hazardousness of mixtures of substances. This is why HWE supports basing Annex III on the GHS. This implies including concentration limit values and cut-off concentration values.

On the contrary, HWE does not understand why Annex III should include Categories, e.g. 1, 2 or 3 on acute toxicity, and associated de minimis concentrations. This would maintain the current link to the United Nations Recommendations on the Transport of Dangerous Goods, whereas this set of rules are considered less protective and not well adapted.

[Draft r] [R]ecommendations by the expert working group on the review of Annexes for possible amendment proposals to Annex I, including whether any additional constituents in relation to plastic waste should be added to Annex I, and findings of the expert working group on the consequential implications of the review of Annex I to the Convention (status 15 September 2022)

I. Possible amendment proposals to Annex I of the Basel Convention

1. The expert working group on the review of Annexes recommends that possible amendment proposals to Annex I should:

(a) Be based on one or more of the objectives of the review of the annex, as set out in the annex to decision BC-13/2, which are to:

(i) Improve/update the description of categories of wastes in Annex I;

(ii) Improve environmental controls by including any additional categories of wastes in Annex I that occur in practice; and

(iii) Clarify the descriptions in Annex I to address conflicts or overlaps.

[...][1]

2. The expert working group on the review of Annexes also recommends that further work on the review of Annex I be based on the general issues and the [draft] recommended options for possible amendment proposals to Annex I set out in appendix I to the present recommendations.

II. Whether any additional constituents in relation to plastic waste should be added to Annex I to the Convention

3. The expert working group on the review of Annexes also recommends that further work on whether any additional constituents in relation to plastic waste should be added to Annex I be based on the proposal set out in appendix II to the present [draft] recommendations.[2]

III. Findings of the expert working group on the consequential implications of the review of Annex I to the Convention

[…][3]

[1] See paragraphs 14–16 of the report of the 17–21 May 2021 sessions of the fourth meeting of the EWG and paragraphs 71–73 of the 11–15 October 2021 sessions of the fourth meeting of the EWG.

[2] See paragraph 61 of the report of the 17–21 May 2021 sessions of the fourth meeting of the EWG and paragraph 96 of the 11–15 October 2021 sessions of the fourth meeting of the EWG.

[3] See paragraph 62 of the report of the 17–21 May sessions of the fourth meeting of the EWG and paragraph 97 of the 11–15 October sessions of the fourth meeting of the EWG.

Annex I to the [draft] recommendations by the expert working group

1. The following are [draft] recommended options prepared by the expert working group on the review of the Annexes during its fourth meeting (online on 17–21 May 2021, and 11–15 October 2021) for possible amendments to Annex I.

2. The expert working group discussed general issues and reviewed each entry set out in Annex I. The [draft] recommended options do not necessarily reflect the views of all the members.

3. Each option was supported by at least one member of the expert working group. The status quo, namely the current drafting of an entry, was supported by at least one member if it is reflected as an option; when the status quo is not reflected as an option, it is because no member supported it. The options either set out modifications to existing entries, a proposed action (e.g. delete or merge entries) or the addition of new entries (Z1, A1 to D4) which are listed after entries currently listed in Annex I for ease of reference. The expert working group also agreed that the ordering of the entries could be further considered.

4. The expert working group agreed to further consider the provision of supporting information or rationales subsequently to the suspension of its meeting on 15 October 2021. The present version of the recommendations sets out supporting information or rationales received from the expert working group by 15 May 2022. It should be noted that the present version of the recommendations does not include all supporting information and rationales provided in the past on Annex I (see documents UNEP/CHW/RA_EWG.2/INF/8, UNEP/CHW/RA_EWG.3/INF/7, and UNEP/CHW/RA_EWG.4/INF/14), as well as comments presented in the meetings, which can be found in reports of EWG meetings (see documents UNEP/CHW/RA_EWG.2/8/Rev.1, UNEP/CHW/RA_EWG.3/8, UNEP/CHW/RA_EWG.4/3/Add.2 and UNEP/CHW/RA_EWG.4/3/Add.3).

5. More information on the fourth meeting of the expert working group on the review of the Annexes, including meeting documents, is available at the Basel Convention website.[1]

I. General issues

A. Distinction between waste streams and waste constituents

0. Status quo

Supporting information, rationales and/or relevant scientific and technical considerations: No environmental gain is obtained by removing these waste streams.
Some wastes originating from activities listed in YI to YI8 might not contain any individual Annex I [or Annex VIII] constituent in a sufficient concentration to trigger an Annex III characteristic, but the sum of their constituents might.
Retaining Y1-Y18 provides the regulator with complementary elements to ensure controls that take into account the synergistic effects of certain constituents.

1. Delete Y1-Y18

Supporting information, rationales and/or relevant scientific and technical considerations: All waste streams in Annex I are covered by entries in Annex VIII.
Complementing the current constituents (Y19-Y45) with the suggested ones seems to be sufficient to safeguard coverage of all hazardous wastes under the Convention.
There are a number of entries in Annex VIII which are not related to Y1-Y18. If waste streams would be kept in Annex I, the question could arise whether additional waste streams should be added in Annex I which would lead to a sort of second Annex VIII.

2. Review Y1-Y18 entry by entry

B. Order of listing

0. Status quo

1. Introduce a new numbering system for the constituents

[1] See http://www.basel.int/Implementation/LegalMatters/LegalClarity/Meetings/4rdRAEWGmtg/tabid/8522/Default.aspx.

Note: Annex II contains the four codes Y46 to Y49, which should be taken into account when considering new entries in Annex I.

C. Subheadings for Y19-Y45 and any new constituents

0. Status quo

1. List the constituents according to the following subheadings:

   (a) Metal constituents

   (b) Other inorganic constituents

   (c) Organic constituents

   (d) Inorganic or organic constituents

II. [Draft] [R][r]ecommended options for possible amendments to Annex I

Caption text: CATEGORIES OF WASTES TO BE CONTROLLED

0. Status quo

1. CATEGORIES OF WASTES RELEVANT FOR THE CATEGORIZATION OF WASTE AS HAZARDOUS

Subheading for Y1-Y18: WASTE STREAMS

0. Status quo

1. Delete

Entries Y1-Y18

Y1: Clinical wastes from medical care in hospitals, medical centers and clinics

0. Status quo

1. Infectious biological waste from medical or veterinary services or research activities

2. Biopathogenic waste generated in the services of human or animal health care by carrying out activities of prevention, control, diagnosis, treatment, rehabilitation or research, as well as in other establishments

3. Delete

Note: See also the suggestion to include a new Y-entry “Infectious substances”, identified as D3.

Y2: Wastes from the production and preparation of pharmaceutical products

0. Status quo

1. Delete

Y3: Waste pharmaceuticals, drugs and medicines

0. Status quo

1. Delete

Note: See also the suggestion to include a new Y-entry “Pharmaceutical, including phytopharmaceutical, or veterinary compounds, e.g. cytotoxic and cytostatic drugs”, identified as D1.

Y4: Wastes from the production, formulation and use of biocides and phytopharmaceuticals

0. Status quo

1. Wastes from the production, formulation and use of biocides and phytosanitary products, which do not meet the specifications, are expired or not suitable for the originally intended use that cannot be classified from a constituent

2. Delete

Note: See also the suggestion to include a new Y-entry “Biocides”, identified as D2.

Y5: Wastes from the manufacture, formulation and use of wood preserving chemicals

0. Status quo

1. Wastes from the manufacture, formulation and use of wood preserving chemicals including treated cork and wood waste

   Supporting information, rationales and/or relevant scientific and technical considerations: The OECD Decision on the Control of Transboundary Movements of Wastes Destined for Recovery Operations considers 'Treated cork and wood wastes' (AC170) a hazardous waste, see https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0266%20.

2. *Delete*

Note: See also the suggestion to include a new Y-entry "Creosotes", identified as C9.

Y6: Wastes from the production, formulation and use of organic solvents

0. Status quo

1. Delete

Y7: Wastes from heat treatment and tempering operations containing cyanides

0. Status quo

1. Delete

Y8: Waste mineral oils unfit for their originally intended use

0. Status quo

1. Delete

Note: See also the proposal to include two new Y-entries "Hydrocarbons" and "Mineral oils" [in the section on waste constituents to address the wastes covered by Y8], identified as C1 and C2.

Y9: Waste oils/water, hydrocarbons/water mixtures, emulsions

0. Status quo

1. Delete

Note: See also the proposal to include two new Y-entries "Hydrocarbons" and "Mineral oils" [in the section on waste constituents to address the wastes covered by Y9], identified as C1 and C2.

Y10: Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)

0. Status quo

1. Delete

Notes:

See also the suggestion to include a new Y-entry "Chemicals listed in Annexes A, B or C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.", identified as C10.

See also the suggestion to include a new Y-entry "Polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)" [in the section on waste constituents to address the wastes covered by Y10], identified as C13.

Y11: Waste tarry residues arising from refining, distillation and any pyrolytic treatment

0. Status quo

1. Delete

Y12: Waste from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish

0. Status quo

1. Wastes from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish and laboratory contrast media, including those that have solvents, heavy metals or biocides

2. *Delete*

Y13: Waste from production, formulation and use of resins, latex, plasticizers, glues/adhesives

0. Status quo

1. Delete

Y14: Waste chemical substances arising from research and development of teaching activities which are not identified and/or are new and whose effects on man and/or the environment are not known

0. Status quo

1. Delete

Y15: Wastes of an explosive nature not subject to other legislation

0. Status quo

1. Wastes of an explosive nature

2. Delete

Note: See also the suggestion to include a new Y-entry "Substances of an explosive character, e.g. azides, chlorates, perchlorates and peroxides", identified as D4.

Y16: Wastes from production, formulation and use of photographic chemicals and processing materials

0. Status quo

1. Delete

Y17: Wastes resulting from surface treatment of metals and plastics

0. Status quo

1. Delete

Y18: Residues arising from industrial waste disposal operations

0. Status quo

1. Waste arising from disposal operations

2. Delete

Proposal for new waste stream categories

Z1: Waste electrical and electronic equipment including scrap

Supporting information, rationales and/or relevant scientific and technical considerations: As was mentioned in General issues A option 1, the constituents of this waste stream are already included in the current constituents (Y19-Y45) or in the suggested new ones.
COP 15 decided to include a new entry Y49 in Annex II: electrical and electronic waste, to include a new entry A1181 in Annex VIII and to delete entry A1180 from Annex VIII, and to delete entries B1110 and B4030 from Annex IX.

Subheading for Y19-Y45: WASTES HAVING AS CONSTITUENTS:

0. Status quo

1. WASTES HAVING AS CONSTITUENTS OR CONTAMINATED WITH

Entries Y19-Y45

Y19: Metal carbonyls

0. Status quo

Y20: Beryllium, beryllium compounds

0. Status quo

Y21: Hexavalent chromium compounds

0. Status quo

Y22: Copper compounds

0. Status quo

1. Granulated copper; copper compounds

Supporting information, rationales and/or relevant scientific and technical considerations: Not only copper compounds, but also certain forms of metallic copper exhibit ecotoxic properties that could render the waste as hazardous under H12.
See entry in Annex VI to Regulation (EC) No 1272/2008 (CLP Regulation); see http://data.europa.eu/eli/reg/2008/1272/2021-10-01): "granulated copper; [particle length: from 0,9 mm to 6,0 mm; particle width: from 0,494 to 0,949 mm]" Aquatic Chronic 2. H411.
Relevant supporting assessments by the Risk Assessment Committee (RAC) of the European Chemicals Agency are:
"M-factors for long-term aquatic hazard for the copper substances listed in Commission Regulation (EU) 2016/1179"; see
951ec919-e038-e9e3-90bb-0ba50c536d87 (europa.eu)
(note that Annex VI to the CLP Regulation has been amended by Commission Regulation (EU) 2016/1179) and "Opinion proposing harmonised classification and labelling at EU level of Granulated copper"; see [04.01-ML-014.02] (europa.eu).

Y23: Zinc compounds

0. Status quo

1. Zinc compounds, zinc in metallic dispersible form (metal powder)

Supporting information, rationales and/or relevant scientific and technical considerations: Zinc powder and zinc dust are classified as Aquatic Acute 1 and Aquatic Chronic 1 according to GHS criteria. In addition, not stabilised zinc powder is also classified as a Pyrophoric Solid (H250) and as a Water reactive substance (H250).
Classification can be found in the CLP Regulation under entries 030-001-00-1 and 030-001-01-9. See http://data.europa.eu/eli/reg/2008/1272/2021-10-01.
Detailed information on the toxicity to aquatic and terrestrial organisms of zinc metal can be found in the Risk Assessment Report prepared by the Netherlands in the year 2008. See https://echa.europa.eu/documents/10162/d7248de0-eb5b-4a9b-83b9-042c4fd66998.
The identification of zinc powder as a reactive substance with pyrophoric properties can be seen for instance in its associated IPCS/INCHEM data sheet prepared by WHO/ILO. See]https://inchem.org/documents/icsc/icsc/eics1205.htm

Y24: Arsenic; arsenic compounds

0. Status quo

Y25: Selenium; selenium compounds

0. Status quo

Y26: Cadmium; cadmium compounds

0. Status quo

Y27: Antimony; antimony compounds

0. Status quo

Y28: Tellurium; tellurium compounds

0. Status quo

Y29: Mercury; mercury compounds

0. Status quo

Y30: Thallium; thallium compounds

0. Status quo

Y31: Lead, lead compounds

0. Status quo

Y32: Inorganic fluorine compounds excluding calcium fluoride

0. Status quo

Y33: Inorganic cyanides

0. Status quo

Y34: Acidic solutions or acids in solid form

0. Status quo

Y35: Basic solutions or bases in solid form

0. Status quo

Y36: Asbestos (dust and fibres)

0. Status quo

1. Asbestos and asbestos-like substances

Note: See also the suggestion to include a new Y-entry "Fibers other than asbestos capable of causing lung damage through inhalation", identified as B3.

Y37: Organic phosphorus compounds

0. Status quo

Y38: Organic cyanides

0. Status quo

Y39: Phenols; phenol compounds including chlorophenols

0. Status quo

1. Merge with Y40: Organic oxygen compounds, e.g. ethers and phenols including chlorophenols other than covered by C10

   Supporting information, rationales and/or relevant scientific and technical considerations: Phenol (entry 604-001-00-2) is classified in the CLP Regulation, according to GHS criteria, as Muta. 2, Acute Tox. 3, STOT RE 2, Skin Corr. 1B (H341, H331, H311, H301, H373, H314). Detailed information on the toxicity of phenol can be found in the EU Risk Assessment report on phenol (2006). https://echa.europa.eu/documents/10162/1ca68f98-878f-4ef6-914a-9f21e9ad2234.
   This is part of a proposal for a reorganization of all persistent organic pollutants, considering current entries Y39, Y40, Y43, Y44 and Y45, as well as new entries C7 and C10. The complete reorganization is shown in the appendix to this annex.

Note: See also the suggestion to include a new Y-entry "Chemicals listed in Annexes A, B and C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.", identified as C10.

Y40: Ethers

0. Status quo

1. Merge with Y39: Organic oxygen compounds, e.g. ethers and phenols including chlorophenols other than covered by C10

   Supporting information, rationales and/or relevant scientific and technical considerations: Ethanediol (ethylene glycol) (entry 603-027-00-1) is classified in the CLP Regulation, according to GHS criteria, as Acute Tox. 4 (H302).
   Tert-butyl methyl ether (MTBE) (entry 603-181-00-X) is classified as a Flam. Liq. 2 and Skin Irrit. 2 (H225, H315).
   All referred classifications can be found in the CLP Regulation.
   Detailed information on the toxicology of glycol ethers can be found in ECETOC Technical Report 95. 2005. See https://www.ecetoc.org/wp-content/uploads/2014/08/ECETOC-TR-095-Vol-I.pdf.
   This is part of the proposal for a reorganization of all persistent organic pollutants presented in the appendix to this annex.

Note: See also the suggestion to include a new Y-entry "Chemicals listed in Annexes A, B and C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.", identified as C10.
[.]

Y41: Halogenated organic solvents

0. Status quo

Y42: Organic solvents excluding halogenated solvents

0. Status quo

Y43: Any congenor of polychlorinated dibenzo-furan

0. Status quo

1. Merge with Y44 and part of Y39 (pentachlorophenol) and Y40 (decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE) as "Chemicals listed in Annexes A, B or C of the Stockholm Convention e.g. PCDD/PCDF, PCB etc", identified as C10.

   Supporting information, rationales and/or relevant scientific and technical considerations: Grouping all POPs into a single (new) entry providing a dynamic reference to all substances listed in Annexes A, B or C of the Stockholm Convention is the most effective and "future proof" approach.
   This is part of the proposal for a reorganization of all persistent organic pollutants presented in the appendix to this annex.

Y44: Any congenor of polychlorinated dibenzo-p-dioxin

0. Status quo

1. Merge with Y43 and part of Y39 (pentachlorophenol) and Y40 (decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE) as "Chemicals listed in Annexes A, B or C of the Stockholm Convention e.g. PCDD/PCDF, PCB etc", identified as C10.

   Supporting information, rationales and/or relevant scientific and technical considerations: Grouping all POPs into a single (new) entry providing a dynamic reference to all substances listed in Annexes A, B or C of the Stockholm Convention is the most effective and "future proof" approach.
   This is part of the proposal for a reorganization of all persistent organic pollutants presented in the appendix to this annex.

Y45: Organohalogen compounds other than substances referred to in this Annex (e.g. Y39, Y41, Y42, Y43, Y44)

0. Status quo

1. Organohalogen compounds, e.g. brominated or chlorinated flame retardants, chlorofluorocarbons, bromofluorohydrocarbons, other than the chemicals referred to in Y41 and the new entry for merging Y43 and Y44 and part of Y39 (pentachlorophenol) and Y40 (decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE)

2. Organohalogen compounds, e.g. brominated or chlorinated flame retardants, chlorofluorocarbons, bromofluorohydrocarbons, other than covered by Y41 and C10

   Supporting information, rationales and/or relevant scientific and technical considerations: Numerous organohalogen compounds have been classified as hazardous according GHS criteria. Examples are 1,2,3-trichoropropane (entry 602-062-00-X) as Carc. 1B, hexafluoropropene (entry 602-061-00-4) as STOT SE 3; tetrabromobisphenol-A (entry 604-074-00-0) as Aquatic Acute 1.
   Further classifications can be found in the CLP Regulation.
   Chlorofluorocarbons or bromofluorohydrocarbons cause ozone depletion and are banned or severely restricted by the Montreal Protocol. See https://ozone.unep.org/sites/default/files/2019-12/The%20Ozone%20Treaties%20EN%20-%20WEB_final.pdf.
   This is part of the proposal for a reorganization of all persistent organic pollutants presented in the appendix to this annex.

Note: See also the suggestion to include a new Y-entry "Chemicals listed in Annexes A, B and C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.", identified as C10 which merges Y43 and Y44 and part of Y39 (pentachlorophenol) and Y40 (decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE).

Proposals for new waste constituents

A. Metal constituents

A1 Aluminium in metallic dispersible form (metal powder), aluminium compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Aluminium powder (pyrophoric) with entry 013-001-00-6 is classified as a Pyrophoric Solid 1 and as Water Reactive Water-react. 2 (H250, H261). Stabilised aluminium powder (013-002-00-1) is classified as a Flammable Solid 1 and Water-reactive. 2 (H228, H261). Anhydrous aluminium chloride (013-003-00-7) is classified as Skin Corr. 1B (H314).
All referred classifications can be found in the CLP Regulation.
Aluminium is a well-known neurotoxicant. Accumulation in the human body has been related to the presence of aluminium in dialysis fluids and the concomitant intake of aluminium-containing drugs. This accumulation has resulted in dialysis encephalopathy that was often fatal. Neurotoxic effects have been observed in welders with aluminium urine >100 µg/L. Aluminium has been suggested to be one of several factors contributing to Alzheimer's disease, although this has not been satisfactorily demonstrated. Information quoted from: Handbook on the Toxicology of Metals, 3rd Edition. 2009. Chapter 17 – Aluminum. See https://www.academia.edu/42363530/Handbook_on_the_Toxicology_of_Metals_3rd_Edition.
A recent review of health effects of aluminium can be found in the opinion by the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER) "Final opinion tolerable intake of aluminium with regards to adapting the migration limits for aluminium in toys". https://ec.europa.eu/health/system/files/2018-03/scheer_o_009_0.pdf.

A2 Alkaline or alkaline earth metals: lithium, sodium, potassium, calcium in uncombined form and magnesium in metallic dispersible form (metal powder); inorganic lithium compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Lithium (entry 003-001-00-4) is classified as Water-react. 1 and Skin Corr. 1B (H260, H314).
A recent assessment of the health effects (reproductive toxicity) of lithium carbonate, lithium chloride and lithium hydroxide was adopted by the European Chemicals Agency in September 2021. See https://echa.europa.eu/documents/10162/e2a3c38e-85fe-505c-a325-293c70a74da5.
Sodium (entry 011-001-00-0) sodium is classified in the CLP Regulation as Water-react. 1 and Skin Corr. 1B (H260, H314).
Potassium (entry 019-001-00-2) is classified in the CLP Regulation as Water-react. 1 and Skin Corr. 1B (H260, H314).
Calcium (entry 020-001-00-X) is classified in the CLP Regulation as Water-react. 2 (H261).
Magnesium powder (pyrophoric) (entry 012-001-00-3) is classified in the CLP Regulation as Pyr. Sol. 1 and Water-react. 1 (H250, H260).
Magnesium, powder or turnings (entry 012-002-00-9) is classified in the CLP Regulation as Flam. Sol. 1, Self-heat. 1 and Water-react. 2 (H228, H252, H261).
All referred classifications can be found in the CLP Regulation.

A3 Vanadium compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Divanadium pentaoxide (entry 023-001-00-8) is classified in the CLP Regulation as Muta. 2, Repr 2, Acute Tox. 4, STOT SE 3, STOT RE 1 and Aquatic Chronic 2 (H341, H361d, H332, H302, H335, H372, H411).
All referred classifications can be found in the CLP Regulation.
Further information on the toxicology of Vanadium can be found in the ATSDR Toxicological Profile of Vanadium. September 2012. See https://www.atsdr.cdc.gov/toxprofiles/tp58.pdf.

A4 Nickel, nickel compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Nickel (entry 028-002-00-7) is classified in the CLP Regulation as Carc. 2, STOT RE 1 and Skin Sens. 1 (H351, H372, H317).
Nickel powder; [particle diameter < 1 mm] (entry 028-002-01-4) is classified in the CLP Regulation as Carc. 2, STOT RE 1, Skin Sens. 1 and Aquatic Chronic 3 (H351, H372, H317, H412).
Nickel dioxide (entry 028-004-00-8) is classified in the CLP Regulation as Carc. 1A, STOT RE 1, Skin Sens. 1 and Aquatic Chronic 4 (H350i, H372, H317, H413).
Nickel (II) 9hlegmat (entry 028-006-00-9) is classified in the CLP Regulation as Carc. 1A, Muta. 2, STOT RE 1, Skin Sens. 1, Aquatic Acute 1 and Aquatic Chronic 1 (H350i, H341, H372, H317, H400, H410). Many other nickel compounds are classified as hazardous.
All referred classifications can be found in the CLP Regulation.

Detailed information on the toxicity of nickel and nickel compounds can be found in the EU Risk Assessment Report on Nickel. 2008. See https://echa.europa.eu/documents/10162/cefda8bc-2952-4c11-885f-342aacf769b3.

A5 Cobalt; cobalt compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Cobalt metal and numerous cobalt compounds are classified as hazardous in the CLP Regulation, following GHS criteria. Some examples of classified substances are provided below:
Cobalt (entry 027-001-00-9) is classified as Carc. 1B, Muta. 2, Repr. 1B, Resp. Sens. 1, Skin Sens. 1 and Aquatic Chronic 4
(H350, H341, H360F, H334, H317, H413)
Cobalt oxide (entry 027-002-00-4) is classified as Acute Tox. 4, Skin Sens. 1, Aquatic Acute 1 and Aquatic Chronic 1 (H302, H317, H400, H410).
Cobalt dichloride (entry 027-004-00-5) is classified as Carc. 1B, Muta. 2, Repr. 1B, Acute Tox. 4, Resp. Sens. 1, Skin Sens. 1, Aquatic Acute 1, Aquatic Chronic 1 (H350i, H341, H360F, H302, H334, H317, H400, H410).
All referred classifications can be found in the CLP Regulation.
Further information on the toxicity of cobalt, and the basis for its hazard classification, can be found in the report by the Risk Assessment Committee of the European Chemicals Agency. 2017. See https://echa.europa.eu/documents/10162/b7316b11-ae65-1dd0-2e64-bb6ad3efbd82.

A6 Silver compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Silver nitrate (entry 047-001-00-2) is classified in the CLP Regulation, based on GHS criteria, as Ox. Sol. 2, Skin Corr. 1B, Aquatic Acute 1 and Aquatic Chronic 1 (H272, H314, H400, H410).
All referred classifications can be found in the CLP Regulation.
A proposal to classify silver as a hazardous substance has been submitted by Sweden in 2021 to the European Chemicals Agency, under the CLP Regulation. The proposed classification is: Skin Sens. 1, H317; Muta. 2, H341; Repr. 1B, H360FD; Aquatic Acute 1, H400; Aquatic Acute 1, Aquatic Chronic 1, H410.
Further information on the toxicology and physical chemical properties of silver are available in the related dossier: See https://echa.europa.eu/documents/10162/fcd8f90a-2394-d9fc-ca96-6b9bed3e8fa1.

A7 Organic tin compounds and tin tetrachloride

Supporting information, rationales and/or relevant scientific and technical considerations:
Numerous organic tin compounds as well as an inorganic tin compound are classified as hazardous substances in the CLP Regulation, according to GHS classification criteria. Some examples include:
Tin tetrachloride (entry 050-001-00-5) is classified as Skin Corr. 1B and Aquatic Chronic 3 (H314, H412).
Trimethyltin compounds (entry 050-005-00-7) are classified as Acute Tox. 1, Acute Tox. 2, Aquatic Acute 1 and Aquatic Chronic 1 (H310, H330, H300, H400, H410).
Tributyltin compounds (050-008-00-3) are classified as Repr. 1B, Acute Tox. 3, Acute Tox. 4, STOT RE 1, Skin Irrit. 2, Eye Irrit. 2, Aquatic Acute 1, Aquatic Chronic 1 (H360FD, H301,H312, H372, H315, H319, H400, H410).
Dibutyltin dichloride (DBTC) (entry 050-022-00-X) is classified as Muta. 2, Repr. 1B, Acute Tox. 2, Acute Tox. 3, Acute Tox. 4, STOT RE 1, Skin Corr. 1B, Aquatic Acute 1, Aquatic Chronic 1 (H341, H360FD, H330, H301, H312, H372, H314, H400, H410).
All referred classifications can be found in the CLP Regulation
Further information on the toxicological profile of tin and tin compounds can be found in ATSDR 2005; see https://www.atsdr.cdc.gov/toxprofiles/tp55.pdf.
and in the chapter by Dopp and Rettenmeier in the book Encyclopedia of Metalloproteins. See https://www.researchgate.net/publication/277889777_Tin_Toxicity.

A8 Barium; barium compounds, excluding barium sulfate

Supporting information, rationales and/or relevant scientific and technical considerations: Some barium compounds are classified for their acute toxicity in the CLP Regulation, according to GHS criteria. Some examples include:
Barium chloride (entry 056-004-00-8) is classified as Acute Tox. 3 and Acute Tox. 4 (H301, H332).

Barium salts, with the exception of barium sulphate (entry 056-002-00-7) and some other exceptions are classified as Acute Tox. 4 (H332, H302).
All referred classifications can be found in the CLP Regulation.
Further information on the toxicity of barium and barium compounds can be found in the Toxicological Profile for Barium and barium compounds published by ATSDR in toxicological profile for barium and barium compounds, available at https://www.atsdr.cdc.gov/toxprofiles/tp24.pdf.

B. Other inorganic constituents

B1 Inorganic isocyanates

Supporting information, rationales and/or relevant scientific and technical considerations: Potassium cyanate is classified as Acute Tox. 4 (H302) according GHS criteria. Sodium cyanate is classified as Acute Tox. 4 and Aquatic Chronic 3 (H302, H412) according GHS criteria. Classification can be found in the CLP Regulation under entries 615-016-00-9 and 011-006-00-8.

B2 Inorganic sulphides

Supporting information, rationales and/or relevant scientific and technical considerations: Sodium sulphide is classified as Acute tox. 4, Acute Tox. 3, Skin corr 1 B and Aquatic Acute 1 (H311, H302, H314, H400) according GHS criteria. Sodium polysulphides is classified as Acute Tox. 3, Skin Corr. 1B and Aquatic Acute 1 (H301, H314, H400) according GHS criteria. Classification can be found in the CLP Regulation under entries 016-009-00-8 and 016-010-00-3.

B3 Fibers other than asbestos capable of causing lung damage through inhalation

Supporting information, rationales and/or relevant scientific and technical considerations: Certain man-made vitreous fibres are known to cause lung damage. Further information on the specific fibers and their effects can be found in:
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. WHO IARC. 2002. Vol. 81. See https://monographs.iarc.who.int/wp-content/uploads/2018/06/mono81.pdf.
Recommendation from the Scientific Committee on Occupational Exposure Limits for man-made mineral fibres (MMMF) with no indication for carcinogenicity and not specified elsewhere. SCOEL/SUM/88. March 2012. See https://ec.europa.eu/social/BlobServlet?docId=7722&langId=en&.
Certain refractory ceramic fibres are classified as carcinogens of Cat. 1B in the CLP Regulation (under index number 650-017-00-8. Certain mineral wools are classified as Carc. Cat 2 under entry 650-016-00-2.

Note: see also Y36

C. Organic constituents

C1 Hydrocarbons other than covered by C2 to C4

Supporting information, rationales and/or relevant scientific and technical considerations: See information on toxicity of hydrocarbons at: https://www.concawe.eu/wp-content/uploads/Hazard-classification-and-labelling-of-petroleum-substances-in-the-European-Economic-Area-%E2%80%93-2020.pdf.

C2 Mineral oils

Supporting information, rationales and/or relevant scientific and technical considerations: In principle covered by C1 but a specific code for mineral oils would be acceptable.

C3 Aromatic compounds other than covered by C4

Supporting information, rationales and/or relevant scientific and technical considerations: Benzene, toluene ethylbenzene and xylene (BTEX) are a group of related volatile organic compounds and often applied in practical waste analysis. They are classified as hazardous according GHS criteria. Classification of benzene (entry 601-020-00-8) as Flam. Liq. 2, Carc. 1, Muta. 1B, STOT RE 1, Asp. Tox. Eye Irrit. 2 and Skin Irrit 2 (H225, H350, H340, H372, H304, H319 and H315); toluene (entry 601-021-00-3) as Flam. Liq. 2, Repr. 2, Asp. Tox. 1, STOT RE 2, Skin Irrit. 2 and STOT SE 3 (H225, H361, H304, H373, H315, H336); ethylbenzene (entry 601-023-00-4) as Flam. Liq. 2, Acute Tox. 4, STOT RE 2 and Asp. Tox. (H225, H332, H373, H304) or

xylene (entry 601-022-00-9) as Flam. Liq. 3, Acute Tox. 4, Acute Tox. 4 Skin Irrit. 2 (H226, H332, H312, H315) and further aromatic compounds can be found in the CLP Regulation. Further information can also be found in https://www.atsdr.cdc.gov/interactionprofiles/ip-btex/ip05.pdf and https://publications.iarc.fr/_publications/media/download/6043/20a78ade14e86cf076c3981a9a094f45da6d27cc.pdf.

C4 Polycyclic aromatic hydrocarbons

Supporting information, rationales and/or relevant scientific and technical considerations: Numerous PAHs are classified as hazardous substances due to their carcinogenicity, mutagenicity or toxicity for reproduction, as well as due to their ecotoxicity. Detailed information on assigned classifications can be found in the CLP Regulation, for example: naphthalene (entry 601-052-00-2) as Carc. 2, benzo[a]pyrene (entry 601-032-00-3) as carc. 1B. Polycyclic aromatic compounds are often used as a sum parameters in waste classification. Further detailed information on the toxicity of PAHs can be found in:
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol.92. October 2005. Some Non-heterocyclic Polycyclic Aromatic Hydrocarbons and Some Related Exposures. See http://publications.iarc.fr/110.

C5 Organic nitrogen compounds, e.g. aliphatic or aromatic amines

Supporting information, rationales and/or relevant scientific and technical considerations: Some examples of the classification of relevant amines include: Trimethylamine (entry 612-001-00-9) as Flam. Gas 1, Acute Tox 4, STOT SE 3, Skin Irrit 2, Eye Dam. 1(H220, H332, H335, H315, H318).
Nitrobenzene (entry 609-003-00-7) as Carc. 2, Repr. 1B, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, STOT RE 1 and Auqatic Chronic 3 (H351, H360, H301, H331, H311, H372, H412); Aniline (entry 612-008-00-7) as Carc. 2, Muta 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, STOT RE 1, Eye Dam. 1, Skin Sens 1, Aquatic Acute 1 (H351, H341, H331, H311, H301, H372, H318, H317, H400).
Further classifications can be found in the CLP Regulation.
Further detailed information can be found in:
IARC Monograph Vol. 127. (2021) Some Aromatic Amines and Related Compounds. See https://publications.iarc.fr/599
IARC Monograph Vol. 123. (2020) Some Nitrobenzenes and Other Industrial Chemicals. See http://publications.iarc.fr/584
IARC Monographs Vol. 122. (2019) Isobutyl nitrite, β-picoline, and some acrylates. https://publications.iarc.fr/_publications/media/download/5994/f020f11a6da11e6966cb8eacff492542d7f64935.pdf.

C6 Organosulfur compounds

Supporting information, rationales and/or relevant scientific and technical considerations: Numerous organosulfur compounds are classified as hazardous according to GHS criteria. Some relevant examples are Dimethyl sulphate (entry 016-023-00-4) as Carc. 1B, Muta 2, Acute Tox. 2, Acute Tox. 3, Skin. Corr. 1B, Skin. Sens (H350, H341, H330, H301, H314, H317); ethanethiol (entry 016-022-00-9) as Flam. Liq 2, Acute Tox. 4 Aquatic Acute and Aquatic Chronic 1 (H225, H332, H400, H410) and bis(methoxythiocarbonyl) disulphide (entry 016-024-00-X) as Acute Tox. 4, Aquatic Acute 1, Aquatic Chronic 1 (H301, H400, H401).
Further classifications can be found in the CLP Regulation.

C7 Organic oxygen compounds, e.g. ethers and phenols including chlorophenols other than covered by C10

Supporting information, rationales and/or relevant scientific and technical considerations: Numerous organic oxygen compounds ware classified as hazardous according to GHS criteria. Some relevant examples are methanol (entry 603-001-00-X) as Flam. Liq. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3 STOT SE 1 (H225, H331, H311, H301, H370); tert-butyl methyl ether (entry 603-181-00-X) as Flam. Liq. 2, Skin Irrit 2 (H225, H315); 2-chlorophenol (entry 604-008-00-0) as Acute Tox. 4, Acute Tox. 4 Acute Tox 4, Aquatic Chronic 2 (H332, H312, H302, H411); 2,4-dichlorophenol (entry 604-011-00-7) as Acute Tox. 4, Eye Irrit. 2, Skin cor. 1B, Aquatic Chronic 2 (H311, H302, H314, H411) or bisphenol A (entry 604-030-00-0) as Repr. 1B, STOT SE 3, Eye Dam. 1, Skin Sens. 1 (H360, H335, H318, H317).
Further classifications organic oxygen compounds can be found in the CLP Regulation.
Further detailed information can also be found in:

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans Vol 36. 1985. Allyl Compounds, Aldehydes, Epoxides and Peroxides. See https://publications.iarc.fr/_publications/media/download/1584/3ef54f58ce19b8cb94da1d31bc8ead4eb6679a2a.pdf.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans Vol 77. 2000. Some Industrial Chemicals. See https://publications.iarc.fr/_publications/media/download/2519/d3673e35a0c40e4a03f2b642b6a5d50d59cac040.pdf.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans Vol 117. 2019. Pentachlorophenol and Some Related Compounds. See https://publications.iarc.fr/_publications/media/download/5717/3507e6ef7631cd3e073e5cb65415daa0b524989c.pdf.
This is part of the proposal for a reorganization of all persistent organic pollutants presented in the appendix to this annex.

Note: C7 is identical with Y39 option 1 and Y40 option 1

C8 Organic isocyanates, e.g. methyl isocyanate

Supporting information, rationales and/or relevant scientific and technical considerations: Methyl isocyanate (entry 615-001-00-7) is classified as Flam. Liq. 2, Repr. 2, Acute Tox. 2, Acute Tox. 3, Acute Tox. 3. Resp. Sens. 1, Skin Sens. 1, STOT SE 3, Skin Irrit. 2, Eye Dam. 1 (H225, H361, H330, H311, H301, H334, H317, H335, H315, H318) according to GHS categories. Toluene-2,4-di-isocyanate (entry 615-001-00-4) is classified as Carc. 2, Acute Tox. 2, Eye Irrit. 2, STOT SE 3, Skin Irrit. 2, Resp. Sens. 1, Skin Sens. 1, Aquatic Chronic 3 (H351, H330, H319, H335, H315, H334, H317, H412) according to GHS criteria.
Classification of methyl isocyanate, toluene-2,4-di-isocyanate and further isocyanate can be found in the CLP Regulation.

C9 Creosotes

Supporting information, rationales and/or relevant scientific and technical considerations: Creosotes are mixtures of substances and are produced by distillation of tars from fossil fuels or the pyrolysis of plant material, e.g. wood. The distillate of coal tar produced by high temperatures is classified as Carc 1 B (H350) according to GHS criteria. Classification can be found in the CLP Regulation under entry 648-101-00-4.

C10 Chemicals listed in Annexes A, B or C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.

Supporting information, rationales and/or relevant scientific and technical considerations: Grouping all POPs into a single (new) entry providing a dynamic reference to all substances listed in Annexes A, B or C of the Stockholm Convention is the most effective and "future proof" approach.

Note: C10 includes Y43 and Y44 and part of Y39 (pentachlorophenol) and Y40 (decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE).

Supporting information, rationales and/or relevant scientific and technical considerations: Grouping all POPs into a single (new) entry providing a dynamic reference to all substances listed in Annexes A, B or C of the Stockholm Convention is the most effective and "future proof" approach.
This is part of the proposal for a reorganization of all persistent organic pollutants presented in the appendix to this annex.]

C11 Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride

Supporting information, rationales and/or relevant scientific and technical considerations: Listed as a POP substance in Annex A of the Stockholm Convention, this entry should be covered by the group entry C10.

C12 Short-chain chlorinated paraffins

Supporting information, rationales and/or relevant scientific and technical considerations: Listed as a POP substance in Annex A of the Stockholm Convention, this entry should be covered by the group entry C10.

C13 Polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)

Supporting information, rationales and/or relevant scientific and technical considerations:
PCBs and HBB are listed as POP substances in Annex A of the Stockholm Convention. This entry should on the one hand be covered by the group entry C10 (PCBs and HBB), and on the other hand by group entry Y45 "organohalogen compounds" covering PCTs and PBBs other than HBB.
Further information on the toxicity of PBBs can be found in:
EFSA Panel on Contaminants in the Food Chain (CONTAM); Scientific Opinion on Polybrominated Biphenyls (PBBs) in Food. EFSA Journal 2010 ; 8(10) :1789. https ://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2010.1789.
ATSDR,2004. Toxicological profile for polybrominated biphenyls and polybrominated diphenyl ethers. https://www.atsdr.cdc.gov/toxprofiles/tp68.pdf.
WHO, 1994. International Programme on Chemical Safety (IPCS). Environmental Health Criteria 152. Polybrominated biphenyls. https://apps.who.int/iris/bitstream/handle/10665/39263/9241571527-eng.pdf?sequence=1.
Exhaustive information on the toxicity of PCBs and of PCTs can be found in:
World Health Organization & International Programme on Chemical Safety, 1993. Polychlorinated biphenyls and terphenyls, 2nd. Ed. World Health Organization. See https://apps.who.int/iris/bitstream/handle/10665/38678/9241571403-eng.pdf?sequence=1&isAllowed=y.

C14 Organosilicon compounds

Supporting information, rationales and/or relevant scientific and technical considerations:
Organosilicon compounds contain carbon-silicon bounds. These compounds are widely used in commercial products. Most common are sealants, caulks or adhesives.
Classification of Octamethylcyclotetrasiloxane as Repro. 2, Aquatic Chronic 4 (H361, H413) according to GHS criteria can be found in the CLP Regulation under entry 014-018-00-1.

D. Organic or inorganic constituents

D1 Pharmaceutical, including phytopharmaceutical, or veterinary compounds, e.g. cytotoxic and cytostatic drugs

D2 Biocides

D3 Materials containing pathogens

D4 Azides, chlorates, perchlorates and peroxides

Supporting information, rationales and/or relevant scientific and technical considerations: Lead azide [≥ 20 % phlegmatiser] is classified as Exp. 1.1, Repr 1A, Acute Tox. 4, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1 (H201, H360, H332, H302, H373, H400, H410) according GHS criteria (entry 082-003-01-4). Ammonium perchlorate is classified as Expl. 1.1, Ox. Sol. 1 (H201, H271) according GHS criteria (entry 017-009-00-0). These and further entries can be found in the CLP Regulation.

Paragraphs (a) to (d) at the end of Annex I

0. Status quo

[Draft r] [R]ecommendations by the expert working group on the review of Annexes for possible amendment proposals to Annex III, including whether any additional characteristics in relation to plastic waste should be added to Annex III, and findings of the expert working group on the consequential implications of the review of Annex III to the Convention (status 15 September 2022)

I. Possible amendment proposals to Annex III of the Basel Convention

1. The expert working group on the review of Annexes recommends that possible amendment proposals to Annex III should:

(a) Be based on one or more of the objectives of the review of the annex, as set out in the annex to decision BC-13/2, which are to:

(i) Improve/update the list of hazardous characteristics in Annex III;
(ii) Improve environmental controls by including any additional hazardous characteristics in Annex III that occur in practice; and
(iii) Clarify the descriptions in Annex III to address conflicts or overlaps.

[…][1]

2. The expert working group on the review of Annexes also recommends that further work on the review of Annex III be based on the general issues and the recommended options for possible amendment proposals to Annex III set out in appendix I to the present [draft] recommendations.

II. Whether any additional characteristics in relation to plastic waste should be added to Annex III to the Convention

3. The expert working group on the review of Annexes also recommends that further work on whether any additional characteristics in relation to plastic waste should be added to Annex III be based on the text set out in appendix II to the present [draft] recommendations[2].

III. Findings of the expert working group on the consequential implications of the review of Annex III to the Convention

[…][3]

[1] See paragraphs 12–15 and 20–24 of the 11–15 October 2021 sessions of the fourth meeting of the EWG.

[2] See paragraphs 68–69 of the 11–15 October 2021 sessions of the fourth meeting of the EWG.

[3] See paragraph 70 of the 11–15 October 2021 sessions of the fourth meeting of the EWG.

Annex I to the [draft] recommendations by the expert working group

1. The following are [draft] recommended options prepared by the expert working group on the review of the Annexes during its fourth meeting (online on 17–21 May 2021, and 11–15 October 2021) for possible amendments to Annex III.

2. The expert working group discussed general issues and a general introduction, and reviewed each entry and text set out in Annex III. The [draft] recommended options do not necessarily reflect the views of all the members.

3. Each option was supported by at least one member of the expert working group. The status quo, namely the current drafting of an entry or text, was supported by at least one member if it is reflected as an option; when the status quo is not reflected as an option, it is because no member supported it. The options either set out modifications to existing entries, a proposed action (e.g. delete or merge entries) or the addition of new entries (1 to 13) and new text which are listed after entries currently listed in Annex III for ease of reference. The expert working group also agreed that the ordering of the entries could be further considered.

4. For some options, supporting information was provided by proponents, such as alignment with the UN Recommendations on Transport of Dangerous Goods – Model Regulations (UN Model Regulations) and with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). In this regard, it should be noted that there may be differences in the way the UN Model Regulations and the GHS are implemented at the national level.[1]

5. The expert working group agreed to further consider the provision of supporting information or rationales subsequently to the suspension of its meeting on 15 October 2021. The present version of the recommendations sets out supporting information or rationales received from the expert working group by 15 May 2022. It should be noted that the present version of the recommendations does not include all supporting information and rationales provided in the past on Annex III (see documents UNEP/CHW/RA_EWG.2/INF/8, UNEP/CHW/RA_EWG.3/INF/7, UNEP/CHW/RA_EWG.4/INF/14 and UNEP/CHW/RA_EWG.4/INF/20), as well as comments presented in the meetings, which can be found in reports of EWG meetings (see documents UNEP/CHW/RA_EWG.2/8/Rev.1, UNEP/CHW/RA_EWG.3/8, UNEP/CHW/RA_EWG.4/3/Add.2 and UNEP/CHW/RA_EWG.4/3/Add.3).

6. More information on the fourth meeting of the expert working group on the review of the Annexes, including meeting documents, is available at the Basel Convention website.[2]

I. General issues

A. Reference to UN class

0. Status quo
   Supporting information, rationales and/or relevant scientific and technical considerations: UN Model Regulations provide a key way to identify and communicate the hazards posed by the transboundary movement of dangerous goods, specifically when referring to physical hazards (e.g. explosive, corrosive, flammable).
1. Delete reference to UN Class in Annex III
   Supporting information, rationales and/or relevant scientific and technical considerations: UN Model Regulations are limited to physical hazards whereas other hazard properties need to be assessed to determine intrinsic hazardousness (e.g. carcinogenic, mutagenic, reprotoxic).
2. Keep the references to UN class in Annex III where appropriate

B. Alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)[3]

[1] The text of these two sentences was finalized by email subsequently to the suspension of the meeting (see paragraph 18 of the report of the 11-15 October 2021 sessions of the fourth meeting of the EWG (UNEP/CHW/RA_EWG.4/3/Add.3)).

[2] See http://www.basel.int/Implementation/LegalMatters/LegalClarity/Meetings/4rdRAEWGmtg/tabid/8522/Default.aspx.

[3] Globally Harmonized System of Classification and Labelling of Chemicals (GHS Rev. 9, 2021). available at: https://unece.org/transport/standards/transport/dangerous-goods/ghs-rev9-2021.

1. Incorporate relevant elements of GHS

Supporting information, rationales and/or relevant scientific and technical considerations:
UN Model Regulations and GHS are complementary but not directly comparable as the classification of hazardous substances do not directly align.
GHS ensures a better protection as it encompasses a wider list of hazard properties than UN Model Regulations and are better adapted to assess the hazardousness of mixtures of substances. GHS implies including concentration limit values and cut-off concentration values.

By including GHS concentration limit values and cut-off concentration values care should be taken all wastes currently considered hazardous under the Convention are included

C. Alignment with UN Recommendations on Transport of Dangerous Goods – Model Regulations (UN Model Regulations)[4]

1. Incorporate relevant elements of UN Model Regulations

D. Terminology

0. Status quo: reference to "substances or wastes"
1. Reference to "wastes"
   Supporting information, rationales and/or relevant scientific and technical considerations: alignment with articles 1.1(a) and 2.1 of BC
2. Reference to "substances"
   Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with UN Model Regulations
3. Review of the use of the term "mixture" in relation to "substances" or to "wastes"
4. Reference to "substances and mixture"

E. Structure of Annex III and test methods

0. Status quo
1. Introduce an introductory text, including on test methods, and list the hazard characteristics according to:
   - Physical hazards
   - Human health hazards
   - Environmental hazards
   - Delayed hazards

F. Elements of a new introductory text

1. Introduce text on *de minimis* or concentration values
2. Introduce text on acute toxicity
3. Introduce text on methods to determine if a waste displays hazard characteristics, notably calculation methods and testing methods, how these methods relate to each other and a specific derogation from these methods for waste containing certain POPs
4. Introduce text on the terminology inter alia wastes, substances, objects, mixtures

G. *De minimis* concentration values, concentration limit values or cut off concentration values

1. Discuss whether *de minimis* concentration values, concentration limit values or cut off concentration values should be established.

II. [Draft] [r][R]ecommended options for possible amendments to Annex III

A. Caption text: LIST OF HAZARDOUS CHARACTERISTICS

0. Status quo

[4] Recommendations on the Transport of Dangerous Goods Model Regulations – 22nd Revised Edition (Vol. I & II), available at: https://unece.org/transport/dangerous-goods/un-model-regulations-rev-22.

1. “HAZARDOUS CHARACTERISTICS” with the following subheading: “List of [hazard] [hazardous] characteristics”, after the general introduction.

B. Footnote 14 for UN Class: Corresponds to the hazard classification system included in the United Nations Recommendations on the Transport of Dangerous Goods (ST/SG/AC.10/1/Rev.5, United Nations, New York, 1988)

1. Delete together with UN Class column
2. Keep footnote 14 and update the reference

Supporting information, rationales and/or relevant scientific and technical considerations: keep the reference to the UN Model Regulations

C. General Introduction

0. Status quo

1. When assessing the hazard characteristics of waste, the criteria laid down in this Annex shall apply. To determine if a waste [that belongs to any category contained in Annex I] displays hazard characteristics, the following methods can be applied:

   - Calculation methods to assess the characteristics for which thresholds and related calculation criteria based on the concentration, hazard class, category code(s), and hazard statement code(s)[5] of the constituents as set out in Annex I present in the waste are given. Hazard classes, categories and hazard statements refer to those defined in GHS and refer to concentration thresholds, defined for such constituents to which said hazard statements can be assigned. These characteristics are: […]

   - Testing methods to determine whether the waste displays hazard characteristics.

   Where a hazard characteristic of a waste has been assessed by a test and by using the concentrations of a hazardous constituent as indicated in this Annex, the result of the test shall prevail.

   For […], cut-off values for individual constituents as indicated in this Annex shall apply to the assessment. Where a constituent is present in the waste below its cut-off value, it should not be included in any calculation for comparison with a threshold.

   Standardized tests have been derived with respect to pure substances and materials. In many countries, national tests have been developed which can be applied to categories of wastes listed in Annex I, in order to decide if these wastes exhibit any of the characteristics listed in this Annex. In addition, available relevant internationally recognized test methods and guidelines could be used, inter alia the OECD guidelines for the testing of chemicals,[6] ISO guidelines, and in any relevant standards as referred to in this Annex. The use of certain tests for waste may not be possible or advisable due to technical or practical limitations or due to animal welfare considerations.

   [By way of derogation from the calculation and testing referred to above, wastes containing [aldrin, alpha-HCH, beta-HCH and lindane, chlordane, chlordecone, DDT, dieldrin, endrin, hexabromobiphenyl, hexachlorobenzene, heptachlor, mirex, PCB, PCDDs/PCDFs, pentachlorobenzene and/or toxaphene] [POPs listed under the Stockholm Convention] exceeding the low POP contents indicated in the "General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants developed under the Basel Convention" shall be classified as hazardous.]

2. This Annex sets out the characteristics that render a waste to be hazardous. For a waste to be classified as hazardous, it must possess one or more of the hazard characteristics identified in this Annex.

   Methodologies that can be applied to determine if a waste has, or does not have, one or more hazard characteristics include the following:

   - Test methods, including physical, toxicological and microbiological tests to determine whether the waste displays one or more hazard characteristics.

   Standardized tests have been developed for some pure substances and materials. In many countries, national tests have been developed, which can be applied to categories of wastes listed in Annex I to determine if these wastes exhibit any of the characteristics listed in this Annex. There are also internationally recognized test methods and guidelines can be used, including OECD guidelines for the testing of chemicals,[7] ISO guidelines, and standards in this Annex.

   - Desktop calculation methods using published thresholds and relevant calculation criteria, based on the concentration, hazard class, category code(s), and hazard statement code(s)[8] of Annex I constituents as set out in present in the waste can be applied. Where a hazard

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[5] See http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html.

[6] http://www.oecd.org/env/ehs/testing/oecdguidelinesforthetestingofchemicals.htm.

[7] http://www.oecd.org/env/ehs/testing/oecdguidelinesforthetestingofchemicals.htm.

[8] See http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html.

characteristic of a waste has been assessed both by a test method and by a desktop calculation method, results obtained from applying test methods take precedence.

Wastes containing POPs listed in Annexes A, B and C of the Stockholm Convention at levels that exceed the relevant low POP content limits indicated in the "General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants developed under the Basel Convention" shall be classified as hazardous.

D. Current entries and text in Annex III

H1 Explosive

An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such temperature and pressure and at such a speed as to cause damage to the surroundings

Related GHS definitions:*

Explosive substance or mixture: *An explosive substance or mixture is a solid or liquid substance or mixture which is in itself capable by chemical reaction of producing gas at such temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic substances and mixtures are included even when they do not evolve gases.*

Pyrotechnic substance or mixture: *A pyrotechnic substance or mixture is a substance or mixture designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions.*

**Globally Harmonized System of Classification and Labelling of Chemicals (GHS Rev. 9, 2021)*

1. H1 Explosive

   A solid or liquid waste (or mixture of wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. This definition includes pyrotechnic substances, even when they do not release gases. [Pyrotechnic substance is a substance (or mixture of substances) designed to produce an effect by heat, light, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions.]

   Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS definition for explosive substance and pyrotechnic substance, with modifications to keep waste focus

2. *Merge with part of H5.2*

   H1 Explosive

   Waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included. When a waste contains one or more substances classified by one of the hazard class and category codes and hazard statement codes shown in Table 1 the waste shall be assessed for H[1], where appropriate and proportionate, according to test methods. If the presence of a substance, a mixture or an article indicates that the waste is explosive, it shall be classified as hazardous by H[1].

   Table 1 to be updated as indicated below, in order to take account of changes to this hazardous characteristic, introduced in revision 9 of GHS. Changes made with respect to the current version are **in bold**, deletions are in strikethroughHazard statement Code(s) for waste constituents for the classification of wastes as hazardous by H[1]

Hazard Class and Category Code(s)	Hazard statement Codes(s)	Hazard Class and Category Code(s)	Hazard statement Codes(s)	Hazard Class and Category Code(s)	Hazard statement Codes(s)
Unstable explosives	**H209, H210, H211**	Explosive 1.3	**H209**	Organic peroxide A	H240
Explosive 1.1	**H209**	Explosive 1.4	**H204**	Self-reactive B	H241
Explosive 1.2	**H209**	Self-reactive A	H240	Organic peroxide B	H242
~~[Explosive 1.5]~~	~~[H205]~~	~~[Explosive 1.6]~~			

Supporting information, rationales and/or relevant scientific and technical considerations: Include links to GHS codes. The inclusion of explosive organic peroxides here results from the fact that these substances meet the requirements to be classified as explosive. An "organic peroxide" is not a property, it is the name given to a family of chemical compounds. Sub-division 1.5 and 1.6 are not included as they cover very insensitive and extremely insensitive substances and mixtures and as such are not relevant for the classification of waste. Hazard statement H205, previously assigned to Explosives in sub-division 1.5 has been deleted in GHS revision 9.

3. H1 Explosive

An explosive substance is a solid or liquid substance (or mixture of substances) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic substances are included even when they do not evolve gases.

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with UN Model Regulations

H3 Flammable liquids

The word "flammable" has the same meaning as "inflammable". Flammable liquids are liquids or mixtures of liquids or liquids containing solids in solutions or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60.5°C, closed-cup test, or not more than 65.6°C, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying form the above figures to make allowance for such differences would be within the spirit of this definition.)

Related GHS definition:

Flammable liquid: *A flammable liquid means a liquid having a flash point of not more than 93°C.*

1. H3 Flammable liquids

Liquid wastes, or mixtures of liquids or liquid wastes containing solids in solutions or suspension that have a flash point of not more than 93°C or that give off a flammable vapour at temperatures of not more than 60.5°C, closed-cup test, or not more than 65.6°C, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying form the above figures to make allowance for such differences would be within the spirit of this definition.) Note: The word "flammable" has the same meaning as "inflammable".

Supporting information, rationales and/or relevant scientific and technical considerations: Include flash point from GHS definition, with modification to strengthen waste focus and simplify the definition

2. Merge H3, H4.1, H4.2, H4.3 and part of H5.2

H3 Flammable

- Flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C

- Flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air;

- Flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction;

- Flammable gaseous waste: gaseous waste which is flammable in air at 20°C and a standard pressure of 101.3 kPa;

- Water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities;

- Other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste.

When a waste contains one or more substances classified by one of the following hazard class and category codes and hazard statement codes shown in Table 3, the waste shall be assessed, where appropriate and proportionate, according to test methods. If the presence of a substance indicates that the waste is flammable, it shall be classified as hazardous by H[3].

Table 3**:** Hazard Class and Category Code(s) and Hazard statement Code(s) for waste constituents for the classification of wastes as hazardous by H3

Hazard Class and Category Code(s)	Hazard statement Code(s)	Hazard Class and Category Code(s)	Hazard statement Code(s)	Hazard Class and Category Code(s)	Hazard statement Code(s)	Hazard Class and Category Code(s)	Hazard statement Code(s)
Flammable Gas 1	H220	Flammable Liquid 2	H225	Self-reactive E F	H242	Self-heating 1	H251
Flammable Gas 2	H221	Flammable Liquid 3	H226	Organic Peroxide C D	H242	Self-heating 2	H252
Aerosol 1	H222	Flammable Solid 1	H228	Organic Peroxide E F	H242	Water-reactive 1	H260
Aerosol 2	H223	Flammable Solid 2	H228	Pyrophoric liquid 1	H250	Water-reactive 2	H261
Flammable Liquid 1	H224	Self-reactive C D	H242	Pyrophoric solid 1	H250	Water reactive 3	H261
[Desensitized explosives 1]	[H206]	[Desensitized explosives 2]	[H207]	[Desensitized explosives 3]	[H208]	[Desensitized explosives 4]	[H208]
[Combustible liquid]	[H227]						

Supporting information, rationales and/or relevant scientific and technical considerations:
Avoid uncertainty in classification (e.g. aerosols, biphasic or pasty wastes) and establish clear links with GHS. Grouping of all flammability characteristics, regardless of whether it relates to solids, liquids or gases, in a single entry.
Further granularity can be proposed via the hazard statements under GHS.
Desensitized explosives 1, 2, 3 and 4 in Chapter 2.17 of GHS as well as "combustible liquids" are very specific classes of hazards and for reasons of simplification might be excluded from Annex III.

3. H3 Flammable liquids

Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60°C, closed-cup test, or not more than 65.6°C, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition.) Liquids with a flash point of more than 35 ºC which do not sustain combustion need not be considered as flammable liquids.
Liquid desensitized explosives are explosive substances which are dissolved or suspended in water or other liquid substances, to form an homogeneous liquid mixture to suppress their explosive properties

Supporting information, rationales and/or relevant scientific and technical considerations:
Alignment with UN Model Regulations and include flammable liquids and liquid desensitized explosives. The word "flammable" has the same meaning as "inflammable".

H4.1 Flammable solids

Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction

Related GHS definitions:

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

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

1. H4.1 Flammable solids

   Solid waste (or solid mixture of wastes) which is readily combustible, or may cause or contribute to fire through friction. The solids that easily ignite are powdered, granular, pasty or semi-solid substances which are dangerous if they can be easily ignited by brief contact with an ignition source.

   Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS definitions for flammable solid and readily combustible solids with modifications to keep waste focus

2. *Merge H3, H4.1 H4.2, H4.3 and part of H5.2*

   For the text see option 2 under H3

3. H4.1 Flammable solids

   Solids, which, under conditions encountered in transport, are readily combustible, or may cause or contribute to fire through friction, self-reactive substances and polymerizing substances which are liable to undergo a strongly exothermic reaction; or solid desensitized explosives which may explode if not diluted sufficiently.

   Flammable Solids are readily combustible solids and solids which may cause fire through friction. Readily combustible solids are powdered, granular, or pasty substances which are dangerous if they can be easily ignited by brief contact with an ignition source, and if the flame spreads rapidly.

   Self-reactive substances are thermally unstable substances liable to undergo a strongly exothermic decomposition even without participation of oxygen.

   Polymerizing substances are substances which, without stabilization, are liable to undergo a strongly exothermic reaction resulting in the formation of larger molecules or resulting in the formation of polymers under conditions normally encountered in transport.
   Solid desensitized explosives are explosive substances which are wetted with waste or alcohols or are diluted with other substances, to form a homogeneous solid mixture to suppress their explosive properties

   Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the UN Model Regulations to add definition and two substances and one type of solid

H4.2 Substances or wastes liable to spontaneous combustion

Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.

Related GHS definitions:

Self-heating substance: *A self-heating substance or mixture is a solid or liquid substance or mixture other than a pyrophoric liquid or solid, which, by reaction with air and without energy supply, is liable to self-heat; this substance or mixture differs from a pyrophoric liquid or solid in that it will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).*

Pyrophoric liquid*: A pyrophoric liquid is a liquid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.*

Pyrophoric solid*: A pyrophoric solid is a solid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.*

Self-reactive substances or mixtures: *Self-reactive substances or mixtures are thermally unstable liquid or solid substances or mixtures liable to undergo a strongly exothermic decomposition even*

without participation of oxygen (air). This definition excludes substances and mixtures classified under the GHS as explosives, organic peroxides or as oxidizing.

1. H4.2 Self-heating substances and mixtures

   A self-heating substance or mixture is a solid or liquid substance or mixture, other than a pyrophoric liquid or solid, which, by reaction with air and without energy supply, is liable to self-heat; this substance or mixture differs from a pyrophoric liquid or solid in that it will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).

   Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS definition for self-heating substance. Self-heating substances and mixtures known to spontaneously combust without air, but by generating internal oxygen during fermentation and pyrolysis should be included.

2. H4.2 [Substances or] wastes liable to spontaneous combustion

   Wastes (or mixtures of wastes) that can spontaneously heat, or even ignite, up in contact with air, without the contribution of energy, or wastes (or mixture of wastes) that are thermally unstable and can undergo intense exothermic decomposition even in the absence of oxygen (air).

   Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS definitions for self-heating substances, pyrophoric liquids and solids and self-reactive substances, with modifications to keep waste focus

3. Merge H3, H4.1 H4.2, H4.3 and part of H5.2

   For the text see option 2 under H3

4. H4.2 Substances liable to spontaneous combustion

   Includes pyrophoric substances and self-heating substances.

   Pyrophoric substances are substances, including mixtures and solutions, which even in small quantities ignite within five minutes of coming in contact with air.

   Self-heating substances are substances, other than pyrophoric substances, which in contact with air without energy supply are liable to self-heating. These substances will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).

   Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the UN Model Regulations and clarification that pyrophoric substances and self-heating substances are covered under H4.2

H4.3 Substances or wastes which, in contact with water emit flammable gases

Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities

Related GHS definition:

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

1. H4.3 Wastes (or mixtures of wastes) which, in contact with water emit flammable gases

   Wastes (or mixtures of wastes) which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities

   Supporting information, rationales and/or relevant scientific and technical considerations: Revise language to focus on wastes

2. Merge H3, H4.1 H4.2, H4.3 part of H5.2

   For the text see option 2 under H3

3. H4.3 Substances which in contact with water emit flammable gases

Substances which emit a flammable gas at a rate greater than 1 L/kg of substance per hour or spontaneously ignite at any step in the procedure described in section 2.4.4.2 of Chapter 2.4 of the *United Nations Recommendations on the Transport of Dangerous* Goods, or a comparable evidence recognized by a national competent authority.

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the UN Model Regulations

H5.1 Oxidizing

Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials.

Related GHS definitions:

Oxidizing liquids: *An oxidizing liquid is a liquid which, while in itself not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.*

Oxidizing solids: *An oxidizing solid is a solid which, while in itself is not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.*

1. H5.1 Oxidizing

   Wastes (or mixture of wastes) which, while in themselves are not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials.

   Supporting information, rationales and/or relevant scientific and technical considerations: Revise language to focus on wastes

2. Merge with part of H5.2

   H5.1 Oxidizing

   Wastes which, may, generally by providing oxygen, cause or contribute to the combustion of other materials. When a waste contains one or more substances classified by one of the hazard class and category codes and hazard statement codes shown in Table 2, the waste shall be assessed for H[5], where appropriate and proportionate, according to test methods. If the presence of a substance indicates that the waste is oxidizing, it shall be classified as hazardous by H[5].

   Table 2: Hazard Class and Category and Hazard statement Code(s) for the classification of wastes as hazardous by H[5]

Hazard Class Category Code(s)	Hazard statement Code(s)
Oxidizing Gases 1	H270
Oxidizing Liquid 1	H271
Oxidizing Solid 1	H271
Oxidizing Liquid 2	H272
Oxidizing Solid 2	H272
Oxidizing Liquid 3	H272
Oxidizing Solid 3	H272

   Supporting information, rationales and/or relevant scientific and technical considerations: Ensure compatibility and clear links with GHS classification and covers part of H5.2 because many organic peroxides are oxidizing.
   Includes waste containing organic peroxides to which the relevant hazard statements are assigned under GHS. An "organic peroxide" does not describe a specific hazard property, but a name given to a family of chemical compounds.

3. H5.1 Oxidizing
   Substances which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other materials

H5.2 Organic Peroxides

Organic substances or wastes which contain the bivalent-o-o-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.

Related GHS definition:

Organic peroxides: *Organic peroxides are liquid or solid organic substances which contain the bivalent -O-O- structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. The term also includes organic peroxide formulations (mixtures). Organic peroxides are thermally unstable substances or mixtures, which may undergo exothermic self-accelerating decomposition. In addition, they may have one or more of the following properties:*

(a) be liable to explosive decomposition;

(b) burn rapidly;

(c) be sensitive to impact or friction;

(d) react dangerously with other substances.

1. H5.2 Organic Peroxides

   Organic peroxides are liquid or organic wastes (or mixture of wastes) which contain the bivalent -o-o-structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. The term also includes organic peroxide formulations (mixtures). Organic peroxides are thermally unstable substances or mixtures, which may undergo exothermic self-accelerating decomposition. In addition, they may have one or more of the following properties:
   (a) be liable to explosive decomposition;
   (b) burn rapidly;
   (c) be sensitive to impact or friction;
   (d) react dangerously with other substances.

   Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS definitions for organic peroxides, while keepign the waste focus

2. *Delete H5.2 and address organic peroxides under 'Explosive' (H1 option 2), 'Flammable' (H3 option 2) or 'Oxidizing' (H5.1 option 2) according to their characteristics*

   Supporting information, rationales and/or relevant scientific and technical considerations: "Organic peroxides" does not describe a specific hazard property, but a name given to a family of chemical compounds. Wastes should be assigned to the corresponding hazard according to the properties of the specific organic peroxides they contain (based on the attributable GHS hazard statements).

3. H5.2 Organic Peroxides

   Organic substances which contain the bivalent-O-O structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. Organic peroxides are thermally unstable substances which may undergo exothermic self-accelerating decomposition

   Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with UN Model Regulations

H6.1 Poisonous (Acute)
Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.

Related GHS definition:
Acute toxicity: *Acute toxicity refers to serious adverse health effects (i.e., lethality) occurring after a single or short-term oral, dermal or inhalation exposure to a substance or mixture.*

1. H6.1 Poisonous (Acute)

Wastes (or mixture of wastes) liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact. Includes waste that exhibit specific toxicity in target organs by single exposure.
Supporting information, rationales and/or relevant scientific and technical considerations: Include toxicity in target organs to align with GHS categories and revise language to focus on wastes

2. H6.1 Acute toxicity

Acute toxicity refers to serious adverse health effects (i.e., lethality) occurring after a single or shorter oral, dermal or inhalation exposure to a substance or mixture.

Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS definition for acute toxicity

3. H6.1 Acutely Toxic

Wastes which can cause acute toxic effects following oral or dermal administration, or inhalation exposure. If the sum of the concentrations of all substances contained in a waste, classified with an acute toxic hazard class and category code and hazard statement code given in Table 5, exceeds or equals the threshold given in that table, the waste shall be classified as hazardous by H[6.1]. When more than one substance classified as acute toxic is present in a waste, the sum of the concentrations is required only for substances within the same hazard category

The following cut-off values shall apply for consideration in an assessment:
- For Acute Toxicity 1, 2 or 3 (H300, H310, H330, H301, H311, H331): 0.1%;
- For Acute Toxicity 4 (H302, H312, H332): 1%
Table 5: Hazard Class and Category Code(s) and Hazard statemetn Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by H[6.1]

Hazard Class and Category Code(s)	Hazard statement Code(s)	Concentration limit	Hazard Class and Category Code(s)	Hazard statement Code(s)	Concentration limit	Hazard Class and Category Code(s)	Hazard statement Code(s)	Concentration limit
Acute Toxicity 1 (Oral)	H300	0.1%	Acute Toxicity 1 (Dermal)	H310	0.25%	Acute Toxicity 1 (Inhalation)	H330	0.1%
Acute Toxicity 2 (Oral)	H300	0.25%	Acute Toxicity 2 (Dermal)	H310	2.5%	Acute Toxicity 2 (Inhalation)	H330	0.5%
Acute Toxicity 3 (Oral)	H301	5%	Acute Toxicity 3 (Dermal)	H311	15%	Acute Toxicity 3 (Inhalation)	H331	3.5%
Acute Toxicity 4 (Oral)	H302	25%	Acute Toxicity 4 (Dermal)	H312	55%	Acute Toxicity 4 (Inhalation)	H332	22.5%

Supporting information, rationales and/or relevant scientific and technical considerations: Grammatical adjustment of the title to align with other hazardous characteristics.
Ensure compatibility and clear links with GHS classification with hazard statements aligned with GHS. The concentration limits are based on the maximum permissible toxic burden by route of exposure and are correlated with the Acute Toxicity Estimate (ATE) LD50/LC50 values (lethal dose / lethal concentration causing 50% mortality) of the various hazard statements. GHS Category 5 is not considered, given this applies to substances of relatively low acute toxicity, that may pose a hazard to relevant populations. This has not been considered relevant in the context of waste management.

4. H6.1 Toxic substances (substances of relatively high acute toxicity)

Substances liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.

Includes only substances allocated to Category 1, 2 or 3 of Chapter 3.1 of the Globally Harmonized System of Classification and Labelling of Chemicals[9]

De minimis concentration values in wastes containing toxic substances of:

Category 1: XX mg/kg

[9] Corresponds to the hazard classification system included in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (ST/SG/AC.10/30/Rev.8/, United Nations, New York, 2019).

Category 2 XX mg/kg

Category 3 XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations[10]: hybrid approach between UN Model Regulations and GHS to separate high acute toxicity from low acute toxicity; note the proposed new entry 8.

Supporting information, rationales and/or relevant scientific and technical considerations[11]: Although the number of hazardous characteristics should be expanded to cover distinct hazardous characteristics that are not sufficiently addressed in Annex III, care should be taken to limit new characteristics to those strictly necessary so as to reduce the overall complexity of the classification system. Therefore, it might be better not to break down the current code H 6.1 for "acute toxicity" into two separate codes, covering GHS acute toxicity classes 1 to 3 and 4 and 5, respectively.

H6.2 Infectious substances
Substances or wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans

Related UN Model Regulations definition:*
Infectious substances: *Infectious sustances are substances known or reasonably 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 humans or animals.*
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1. H6.2 Infectious wastes

   These are wastes know or reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsiae, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

   Supporting information, rationales and/or relevant scientific and technical considerations: align with the UN Model Regulations

2. H6.2 Infectious

   Wastes containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms. The attribution of H[6.2] shall be assessed by the rules laid down in reference documents or national legisation.

   Supporting information, rationales and/or relevant scientific and technical considerations: The reference to "substances" should be deleted, because substances as such are not infectious. Align with the UN Model Regulations and expand definition to include, for example, diseases of plants. The text does not explicitly mention pathogens, but simply micro-organisms and their toxins and relates then to causing disease.

3. H6.2 Infectious substances

   Substances known or reasonably expected to contain pathogens. Pathogens are defined as microorganisms and other agents such as prions, which can cause disease in animals or humans.

   Supporting information, rationales and/or relevant scientific and technical considerations: align with the UN Model Regulations

H8 Corrosives

[10] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for option 4

[11] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for option 4

Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or event destroy, other goods or the means of transport; they may also cause other hazards.

Related GHS definitions:
Skin corrosion: *Skin corrosion refers to the production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis occurring after exposure to a substance or mixture.*
Corrosive to metals: *A substance or a mixture which is corrosive to metals is a substance or a mixture which by chemical action will materially damage, or even destroy, metals.*

1. H8 Corrosives

   Wastes (or mixture of wastes) which, by contact and by chemical action, will cause severe damage to living tissue, or, in the case of leakage, will materially damage materials.

   Supporting information, rationales and/or relevant scientific and technical considerations: Revise language to focus on wastes and widen approach

2. H8 Corrosives

   Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or event destroy, other goods or the means of transport; they may also cause other hazards. A waste is considered corrosive if its pH < 2.0 or pH > 11.5.

   Supporting information, rationales and/or relevant scientific and technical considerations: Include pH values for wastes

3. H8 Corrosives

   Skin corrosion: skin corrosion refers to the production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis occurring after exposure to a waste or mixture of waste.

   Corrosive to metals is a waste or mixture of waste which by chemical action will materially damage, or event destroy metals.

   Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS defintion for Skin corrosion and Corrosivity to metals

4. H8 Corrosive

   Wastes which on application can cause skin corrosion. When a waste contains one or more substances classified as Skin corrosion 1A, 1B or 1C (H314) and the sum of their concentrations exceeds or equals 5%, the waste shall be classified as hazardous by H[8]. The cut-off value for consideration in an assessment for Skin corrosion 1A, 1B, 1C (H314) is 1.0%.

   Supporting information, rationales and/or relevant scientific and technical considerations: Revise language to focus on skin corrosion, with links to GHS classification and calculation criteria. Grammatical adjustment of the title to align with other hazardous characteristics. Aligned to hazard statements and concentrations in table 3.2.3. of GHS. The reference to metals has not been included, as all corrosives to metals will be skin corrosives.

5. H8 Corrosives

   Substances which, by chemical action, will cause irreversible damage to the skin, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport

   Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the UN Model Regulations

H10 Liberation of toxic gases in contact with air or water
Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.

1. H10 Liberation of toxic gases in contact with air or water

   Wastes (or mixture of wastes) which, in contact with air or water liberate gases that can cause death, serious injury or damage to human health, if they are inhaled or come into contact with the skin.

   Supporting information, rationales and/or relevant scientific and technical considerations: Revise language based on classification of [GHS (health)] and include waste focus

2. H10 Release of an acute toxic gas

Wastes which, releases acute toxic gases (Acute Toxicity 1, 2 or 3) in contact with water, damp air or an acid. When a waste contains substances or mixtures which in contact with water, damp air, or acids, evolve gases classified for acute toxicity in category 1, 2 or 3 in potentially dangerous amounts, it shall be classified as hazardous by H[10] according to test methods or guidelines.

Supporting information, rationales and/or relevant scientific and technical considerations:
Revise language to clarify the characteristics of the released gases.
Clarification of the title in line with the text.
A link to GHS hazard classes for acute toxicity of gases should be provided, but no specific equivalent hazard statement exists in GHS for this hazardous characteristic]

3. H10 Liberation of toxic gases in contact with air or water

Substances which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.

Supporting information, rationales and/or relevant scientific and technical considerations:
Deletion of "wastes"
Note: See also the proposed new entry 6a to include a new H-characteristic for 'release of toxic gases in contact with acids'.

H11 Toxic (Delayed or chronic)
Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.

1. H11 Toxic (Delayed or chronic)

Wastes (or mixture of wastes) which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects. Also included are those wastes that may cause germ cell mutation, carcinogenicity, reproductive toxicity and target organ toxicity at repeated exposures.

Supporting information, rationales and/or relevant scientific and technical considerations:
Revise language based on classification of GHS (health) and include waste focus

2. H11 Carcinogenic

Waste which induces cancer or increases its incidence. When a waste contains a substance classified by one of the following hazard class and category codes and hazard statement codes and exceeds or equals one of the following concentration limits shown in Table 6, the waste shall be classified as hazardous by H[11]. When more than one substance classified as carcinogenic is present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by H[11].

Table 6: Hazard Class and Category Code(s) and Hazard statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by H[11]

Hazard Class and Category Code(s)	Hazard statemetn Code(s)	Cocnentration limit
Carcinogenic 1A	H350	0.1%
Carcinogenic 1B	H350	0.1%
Carcinogenic 2	H351	1.0%

Supporting information, rationales and/or relevant scientific and technical considerations:
Limit H11 to 'Carcinogenic' and complement with new entries (Mutagenic – proposed new entry 4b, Toxic for reproduction - new entry 3[, etc.]).
Limitation of the title in line with the text.
H11 aligned with hazard class and categories in GHS chapter 3.6. Concentration limits consistent with table 3.6.1. of GHS.

3. H11 Toxic (Delayed or chronic)

Substances which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, not including substances covered by other codes in this Annex

Supporting information, rationales and/or relevant scientific and technical considerations: Delete the term "waste''. Refer to proposed additions for new hazardous characteristics for specific target organ toxicity (proposal 2b), germ cell mutagenicity (proposal 4c), serious eye damage/eye irritation, (proposal 10), respiratory/skin sensitization (proposal 11), carcinogenicity (proposal 12), reproductive toxicity (proposal 13), aspiration hazard (proposal 14).

H12 Ecotoxic
Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.

Related GHS definitions:
Acute aquatic toxicity: *Means the intrinsic property of a substance to be injurious to an organism in a short-term aquatic exposure to that substance*
Chronic aquatic toxicity: *Means the intrinsic property of a substance to cause adverse effects to aquatic organisms during aquatic exposures which are determined in relation to the life-cycle of the organism.*

1. H12 Ecotoxic

Wastes (or mixture of wastes) which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon organisms.

Supporting information, rationales and/or relevant scientific and technical considerations: Align with GHS terminology ('organisms') and include focus on wastes

2. H12 Ecotoxic

Wastes which presents or may present immediate or delayed adverse impacts to the environment. Wastes which fulfils any of the following conditions shall be classified as hazardous by H[12]:
- Waste which contains a substance classified as ozone depleting assigned the hazard statement code H420 and the concentration of such a substance equals or exceeds the concentration limit of 0.1%. [c(H420) ≥ 0.1%]
- Waste which contains one or more substances classified as aquatic acute assigned the hazard statement code H400 and the sum of the concentrations of those substances equals or exceeds the concentration limit of 25%. A cut-off value of 0.1% shall apply to such substances. [Σ c (H400) ≥ 25%]
- Waste which contains one or more substances classified as aquatic chronic 1, 2 or 3 assigned to the hazard statement code(s) H410, 411 or H412, and the sum of the concentrations of all substances classified as aquatic chronic 1 (H410) multiplied by 100 added to the sum of the concentrations of all substances classified as aquatic chronic 2 (H411) multiplied by 10 added to the sum of the concentrations or all substances classified as aquatic chronic 3 (H412) equals or exceeds the concentration limit of 25%. A cut-off value of 0.1% applies to substances classified as H410 and a cut-off value of 1% applies to substances classified as H411 or H412. [100 x Σc (H410) + 10 x Σc (H411) + Σc (H412) ≥ 25%]
- Waste which contains one or more substances classified as aquatic chronic 1, 2, 3 or 4 assigned the hazard statement code(s) H410, H411, H412 or H413 and the sum of the concetnrations or all substances classified as aquatic chronic equals or exceeds the concentration limit of 25%. A cut-off value of 0.1% applies to substances classified as H410 and a cut-off value of 1% applies to substances classified as H411, H412 or H413. [Σ c H410 + Σ c H411 + Σ c H412 + Σ c H413 ≥ 25%]
Where : Σ = sum and c= concentrations of the substances.

Supporting information, rationales and/or relevant scientific and technical considerations:
Language, hazard classes, categories and hazard statements aligned with GHS. For simplification only Aquatic Acute 1 and Aquatic Chronic 1 to 4 are included.
Calculation rules for mixtures based on equations in tables 4.1.3 (acute) and 4.1.4, but including certain simplifications for ease of application to waste classification. In particular, M factors are not applied. Further details can be found in Annex III of Directive 2008/98/EC (see http://data.europa.eu/eli/dir/2008/98/2018-07-05).
See also: Hennebert et al 2014: https://pubmed.ncbi.nlm.nih.gov/24994468/

3. H12 Ecotoxic

Substances which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems, not including substances covered by other codes in this Annex.

Supporting information, rationales and/or relevant scientific and technical considerations:
Delete the term "waste''. Refer to proposed additions for new hazardous characteristics for hazardous to the aquatic environment (acute or chronic toxicity) (proposal 15)

H13 Capable, by any means after disposal, or yielding another material, e.g., leachate, which possesses any of the characteristics listed above.

0. Status quo

1. H13 Waste capable of exhibiting a hazardous characteristic listed above not directly displayed by the original waste – When a waste contains one or more substances that:
- are explosive when dry, or
- may form explosive peroxides, or
- may explode if heated under confinement,
The waste shall be classified as hazardous by H[13], unless the waste is in such a form that it will not under any circumstance exhibit explosive or potentially explosive properties. In addition, waste may be classified as hazardous by H[13] based on other applicable cirteria, such as an assessment of the leachate.

Supporting information, rationales and/or relevant scientific and technical considerations:
Revise language to include details of waste content and conditions.
Clarification of the title.
The reference to H205 has been deleted, as H205 has been deleted in GHS revision 9.
Associated to specific EU hazard statements under the CLP Regulation which are not contained in GHS: Explosive when dry (EUH001), May form explosive peroxides (EUH019) and Risk of explosion if heated under confinement (EUH044).
In addition, waste can be classified based on assessment of its leachate.
There is no equivalent GHS or UN Model Regulations hazardous characteristic.

Tests

The potential hazard posed by certain types of wastes are not yet fully documented; tests to define quantitatively these hazards do not exist. Further research is necessary in order to develop means to characterise potential hazards posed to man and/or environment by these wastes. Standardized tests have been derived with respect to pure substances and materials. Many countries have developed national tests which can be applied to materials listed in Annex I, in order to decide if these materials exhibit any of the characteristics listed in this Annex.

1. *Delete and replace with explanation on testing in the general introduction*

2. Tests and classification principles

The potential hazards posed by certain types of wastes are not yet fully documented; tests to define quantitatively these hazards do not exist. Further research is necessary in order to develop means to characterise potential hazards posed to man and/or the environment by these

wastes. Standardized tests have been derived with respect to pure substances and materials. The *UN Manual of Tests and Criteria* contain criteria, test methods and procedures that can be applied to materials listed in Annex I, in order to decide if these materials exhibit any of the characteristics listed in this Annex, in conjunction with classification principles outlined in the *United Nations Recommendations on the Transport of Dangerous Goods* (2019), when appropriate. For hazardous characteristics 2(b), 3(b), 4(b), 5(b) and 8 to 12,[12] the classification principles included in the Globally Harmonized System of Classification of Chemicals (2019) should be used instead. Many countries have developed national tests which can also be applied.

E. New proposed entries and text in Annex III

1. Irritant – skin irritation and eye damage

Waste which on application can cause skin irritation or damage to the eye. When a waste contains one or more substances in concentrations above the cut-off value, that are classified by one of the following hazard class and category codes and hazard statement codes and one or more of the following concentration limits is exceeded or equalled, the waste shall be classified as hazardous by H[…]. The cut-off value for consideration in an assessment for Skin corrosion 1A [H314), Skin irritation 2 (H315), Eye damage 1 (H318) and Eye irritation 2 (H319) is 1%. If the sum of the concentrations of all substances classified as Skin corrosion 1A (H314) exceeds or equals 1%, the waste shall be classified as hazardous according to H[…]. If the sum of the concentrations of all substances classified as H318 exceeds or equals 10%, the waste shall be classified as hazardous according to H[…]. If the sum of the concentrations of all substances classified H315 and/or H319 exceeds or equals 20%, the waste shall be classified as hazardous according to H[…]. Note that wastes containing substances classified as H314 (Skin corrosion 1A, 1B, or 1C) in amounts greater than or equal to 5% will be classified as hazardous by H8. H[…] will not apply if the waste is classified as H8.

Supporting information, rationales and/or relevant scientific and technical considerations: The text has been based on GHS hazard classes, categories and hazard statements. Concentration limits based on GHS but with some adaptation to make more appropriate for waste management. This refers primarily to limit of 20% assigned to H315-H319 (skin irritation + serious eye damage).

2(a) Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

When a waste contains one or more substances classified by one or more of the following hazard class and category codes and hazard statement codes shown in Table 4, and one or more of the concentration limits in Table 4 is exceeded or equalled, the waste shall be classified as hazardous according to H[…]. When substances classified as STOT are present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by H[…]. When a waste contains one or more substances classified as Asp. Tox 1 and the sum of those substances exceeds or equals the concentration limit, the waste shall be classified as hazardous by H[…] only where the overall kinematic viscosity (at 40°C) does not exceed 20.5 mm2/s. The kinematic viscosity shall only be determined for fluids.

Table 4: Hazard Class and Category Code(s) and Hazard statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by H[…].

Hazard Class and Category Code(s)	Hazard statement Code(s)	Concentration limit
STOT SE 1	H370	1%
STOT SE 2	H371	10%
STOT SE 3	H335	20%
STOT RE 1	H372	1%
STOT RE 2	H373	10
Aspiration Toxicity 1	H304	10

Supporting information, rationales and/or relevant scientific and technical considerations: Defined in chapter 3.8 and 3.9 of GHS. Not covered by UN Model Regulations.

[12] These hazardous characteristics are new proposed entries for Annex III, as set out below in section E.

In addition, and for the purpose of simplification towards waste classification, acute toxic effects due to Aspiration hazards associated to substances in waste, as defined in chapter 3.10 of GHS, relative to substances with hazard statement H304 "May be fatal if swallowed and enters the airways" are included under this hazardous characteristic. Aspiration Hazard of Category 2, identified with H305 "May be harmful if swallowed and enters the airways" has not been included, given it is considered of limited relevance to waste classification.
The proposed concentration limits for the attribution of the hazardous characteristic to waste, based on the concentration of individual substances classified with the corresponding hazard statements, are those under GHS for classification of mixtures. This is with the exception of the limit for STOT SE 3 substances, for which a concentration limit is not given under GHS (and for which a 20% limit has been defined).

2(b) Specific target organ toxicity

Specific target organ toxicity- single exposure refers to specific toxic effects on target organs occurring after a single exposure to a substance or mixture.

Specific target organ toxicity- repeated exposure refers to specific toxic effects on target organs occurring after repeated exposure to a substance or mixture.

De minimis concentration values in wastes containing specific target organ toxicants-single exposure of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Category 3: XX mg/kg

De minimis concentration values in wastes containing specific target organ toxicants-repeated exposure of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Category 3: XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the GHS

3(a) Toxic for reproduction (Reprotoxic)

Waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring. When a waste contains a substance classified by one of the following hazard class and category codes and hazard statement codes and exceeds or equals one of the following concentration limits shown in Table 7, the waste shall be classified hazardous according to H[…]. When more than one substance classified as toxic for reproduction is present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by H[…].
Table 7**:** Hazard Class and Category Code(s) and Hazard statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by H[…].

Hazard Class and Category Code(s)	Hazard statement Code(s)	Concentration limit
Reprotoxic 1A	H360	0.3%
Reprotoxic 1B	H360	0.3%
Reprotoxic 2	H361	3.0%

Supporting information, rationales and/or relevant scientific and technical considerations: Defined in chapter 3.7 of GHS. Not covered by UN Model Regulations.
Applicable concentration limits are those defined in GHS for classification of mixtures.
The additional category of effects on or via lactation, covered under GHS and hazard statement H362 "May cause harm to brest-fed children" is not covered in the text given it is considered of limited relevance to waste classification.

3(b) Reproductive toxicity

Reproductive toxicity refers to adverse effects on sexual function and fertility in adults, as well as developmental toxicity in the offspring, occurring after exposure to a substance or mixture, but not including induction of genetically based inheritable effects.

De minimis concentration values in wastes containing reproductive toxicants of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with GHS

4(a) Mutagenic for germ cells

Waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell. When a waste contains a substance classified by one of the following hazard class and category codes and hazard statement codes and exceeds or equals one of the following concentration limits shown in Table 8, the waste shall be classified as hazardous according to H[…]. When more than one substance classified as mutagenic is present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by H[…].

Table 8: Hazard Class and Category Code(s) and Hazard statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by H[…].

Hazard Class and Category Code(s)	Hazard statement Code(s)	Concentration limit
Mutagenic 1A	H340	0.1%
Mutagenic 1B	H340	0.1%
Mutagenic 2	H341	1%

Supporting information, rationales and/or relevant scientific and technical considerations: Defined in chapter 3.5 of GHS. Not covered by UN Model Regulations.
Applicable concentration limits are those defined in GHS for classification of mixtures.
The wording "mutagenic to germ cells" is proposed for consistency with other hazardous characteristics in which adjectives are used.

4(b) Germ cell mutagenicity

Germ cell mutagenicity refers to heritable gene mutations, including heritable structural and numerical chromosome aberrations in germ cells occurring after exposure to a substance or mixture.

De minimis concentration values in wastes containing mutagenic substances of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with GHS

5(a) Sensitising

Waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs. When a waste contains a substance classified as sensitising and is assigned to one of the hazard statement codes H317 or H334 and one individual substance equals or exceeds the concentration limit of 10%, the waste shall be classified as hazardous by H[…].

Supporting information, rationales and/or relevant scientific and technical considerations: Defined in chapter 3.4 of GHS. Applicable concentration limit deviates from that defined in GHS for classification of mixtures (10% proposed vs 1% in GHS). The reason for this is that on account on different exposure scenarios during waste management vs consumer use (e.g. application of products on the skin).

5(b) Respiratory/skin sensitization

Respiratory sensitization refers to hypersensitivity of the airways occurring after inhalation of a substance or a mixture.

Skin sensitization refers to an allergic response occurring after skin contact with a substance or a mixture.

De minimis concentration values in wastes containing sensitizing substances of:

Category 1 (Respiratory sensitization): XX mg/kg

Category 2 (Skin sensitization): XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with GHS

6(a) Release of toxic gases in contact with acids

Supporting information, rationales and/or relevant scientific and technical considerations: The incorporation of entries 6(a), 6(b) and 6(d) is considered an unnecessary complication of the classification system
These entries would be addressed by:
- H3 option 2 (to Merge H3, H,4.1, H4.2 and H4.3 in a single entry for 'Flammable')
- H10 option 2 (Release of an acute toxic gas), and
- H6.1 option 3 (Acutely toxic).

Note: see also option 2 under H10

6(b) Flammable gases

Flammable Gases, which consists of gases that, at 20°C and an absolute pressure of 101.3 kPa,

(i) are ignitable when in a mixture of 13 per cent or less by volume with air, or

(ii) have a flammability range with air of at least 12 percentage points determined in accordance with tests or calculations in ISO 10156, or a comparable evidence recognized by a national competent authority

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the UN Model Regulations (class 2.1)
Note: see also option 2 under H3

6(c) Non-flammable, non-toxic gases

Gases which:

(i) are asphyxiant-gases which dilute or replace the oxygen normally in the atmosphere, or

(ii) are oxidizing- gases which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does, as determined by a method specified in ISO 10156, or a comparable evidence recognized by a national competent authority

Supporting information, rationales and/or relevant scientific and technical considerations[13]: Alignment with the UN Model Regulations (class 2.2)

Supporting information, rationales and/or relevant scientific and technical considerations[14]: The characteristic "Non-flammable, non-toxic gases" seems of little relevance for waste classification (which very rarely has to deal with gases). For the purpose of simplification it is suggested to exclude 6(c) from Annex III.

Note: see also option 2 under H5.1

[13] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 6(c)

[14] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 6(c)

6(d) Toxic gases

Gases which:

(i) are known to be so toxic or corrosive to humans or other as to pose a hazard to health according to CGA P-20, ISO Standard 10298, or a comparable evidence recognized by a national competent authority, or

(ii) are presumed to be toxic or corrosive to humans because they have an LC_{50} value equal to or less than 5000 ml/m^3

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with the UN Model Regulations (class 2.3)
Note: see also option 2 under H10

6bis Persistent, Bioaccumulative and Toxic (PBT) and very Peristent and very Bioaccumuative (vPvB) properties (if not included in H12)

7. Persistent organic pollutant

A persistent organic pollutant is a substance or mixture that is persistent, that bio-accumulates and that is likely, as a result of its long-range environmental transport, to lead to significant adverse human health and/or environmental effects

Supporting information, rationales and/or relevant scientific and technical considerations[15]: Alignment with the Stockholm Convention

Supporting information, rationales and/or relevant scientific and technical considerations[16]: "Persistent organic pollutant" should not be added as a distinct hazardous characteristic, considering this is as such not a hazardous characteristic, but a legal definition that can be attributed to certain substances under the Stockholm Convention.

Note: see text on POPs in options 1 and 2 for a General introduction

8. Toxic substances (substances of relatively low acute toxicity)

Includes only substances allocated to Category 4 or 5 of Chapter 3.1 of the Globally Harmonized System of Classification and Labelling of Chemicals. (note the related hazardous characteristic H6.1)

De minimis concentration values in wastes containing toxic substances of:

Category 4: XX mg/kg

Category 5 XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations[17]: Alignment with GHS

Supporting information, rationales and/or relevant scientific and technical considerations[18]: "Low toxicity" substances should not be added under a separate hazardous characteristic, as the number of hazardous characteristics should be limited to those strictly necessary so as to reduce the overall complexity of the classification system for waste.
Note: see option 4 under H6.1

9. Serious eye damage/eye irritation

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[15] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 7

[16] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 7

[17] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 8

[18] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 8

Serious eye damage refers to the production of tissue damage in the eye, or physical decay of vision, which is not fully reversible, occurring after exposure of the eye to a substance or mixture.

Eye irritation refers to the production of changes in the eye, which are fully reversible, occurring after the exposure of the eye to a substance or mixture.

De minimis concentration values in wastes containing substances of:

Category 1 (Serious eye damage): XX mg/kg

Category 2 (Eye irritation): XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations[19]: Alignment with GHS

Supporting information, rationales and/or relevant scientific and technical considerations[20]: To reduce overall complexity of the classification system, this characteristic should be kept together with cutaneous effects under "Irritant" or "Corrosive".

Note: see H8 and proposed new entry 1

10. Carcinogenicity

Carcinogenicity refers to the induction of cancer or an increase in the incidence of cancer occurring after exposure to a substance or mixture. Substances and mixtures which have induced benign and malignant tumours in well performed experimental studies on animals are considered also to be presumed or suspected human carcinogens unless there is strong evidence that the mechanism of tumour formation is not relevant for humans.

De minimis concentration values in wastes containing carcinogenic substances of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with GHS

Note: see option 2 under H11

11. Aspiration hazard

Aspiration hazard refers to severe acute effects such as chemical pneumonia, pulmonary injury or death occurring after aspiration of a substance or mixture.

De minimis concentration values in wastes containing an aspiration hazard substance of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations[21]: Alignment with GHS

Supporting information, rationales and/or relevant scientific and technical considerations[22]: There is no need to define this characteristic separately. This characteristic should be integrated in option 2(a) above (on STOT), even if under GHS they are dealt with separately from STOT.

Note: see proposed new entry 2a

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[19] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 9

[20] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 9

[21] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 11

[22] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 11

12. Hazardous to the aquatic environment (acute or chronic] toxicity)

An environmentally hazardous substance to the aquatic environment is a substance that satisfies the criteria for categories Acute 1, Acute 2, Acute 3, Chronic 1, Chronic 2 or Chronic 3 according to Chapter 4.1 of the Globally Harmonized System of Classification and Labelling of Chemicals.

Acute aquatic toxicity means the intrinsic property of a substance to be injurious to an organism in a short-term aquatic exposure to that substance.

Chronic aquatic toxicity means the intrinsic property of a substance to cause adverse effects to aquatic organisms during aquatic exposures which are determined in relation to the life-cycle of the organism.

De minimis concentration values in wastes containing substances toxic to aquatic environment (acute) of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Category 3: XX mg/kg

De minimis concentration values in wastes containing substances toxic to aquatic environment (chronic) of:

Category 1: XX mg/kg

Category 2: XX mg/kg

Category 3: XX mg/kg

Supporting information, rationales and/or relevant scientific and technical considerations: Alignment with GHS
Note: see option 2 under H12

13. Endocrine [disruptor] [disruption]

An endocrine disruptor is an exogenous substance or mixture that alters function(s) of the endocrine system and consequently causes adverse health effects in an intact organism, or its progeny, or (sub) populations

Supporting information, rationales and/or relevant scientific and technical considerations[23]:Based on references from the World Health Organization

Supporting information, rationales and/or relevant scientific and technical considerations[24]: The possible attribution of a new hazardous characteristic to endocrine disrupting substances is a matter that should be discussed for substances and mixtures in future possible work to amend GHS, and only then potentially considered under Annex III of the Basel Convention. Furthermore, some relevant hazardous characteristics associated to some endocrine disrupting substances, such as oestrogenic and anti-androgenic effects are already potentially covered under the hazardous characteristic proposed for "reproductive toxicity".

New proposed text for placement after the current text on "Tests"

Precedence of Hazardous Characteristics

When hazardous wastes meet the criteria for inclusion in more than one hazardous characteristic but meet the criteria for inclusion in one of the following hazardous characteristic, that one class is the primary hazardous characteristic:

a) H1, Explosives, except for the substances with the following attributed UN numbers, for which H1 is a subsidiary class: UN3101; UN3102; UN3111; UN3112; UN3221; UN3222; UN3231; UN3232;

[23] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 13

[24] Members have put forward different supporting information, rationales and/or relevant scientific and technical considerations for 13

b) H2, Gases, and within this characteristic, H2.3, Toxic Gases, takes precedence over H2.1, Flammable Gases, and H2.1, Flammable Gases, takes precedence over H2.2, Non-flammable and Non-toxic Gases;
c) H3, Liquid desensitized explosives;
d) H4.1, Solid desensitized explosives that are included in Packing Group I of the United Nations Transport of Dangerous Goods Model Regulations, or self-reactive substances;
e) H4.2, Pyrophoric solids or liquids included in Packing Group I of the United Nations Transport of Dangerous Goods Model Regulations, or substances liable to spontaneous combustion;
f) H5.2, Organic Peroxides;
g) H6.1, Toxic Substances that are included in Packing Group I of the United Nations Transport of Dangerous Goods Model Regulations, due to inhalation toxicity;
h) H6.2, Infectious Substances.

If a hazardous waste meets the criteria for inclusion in more than one of the hazardous characteristics identified above, or if a hazardous waste has multiple hazards none of which are listed above, the most stringent packing group of the U*nited Nations Transport of Dangerous Goods Model Regulations*, denoted to the respective hazardous characteristics of the waste, takes precedence over other packing groups and the corresponding hazardous characteristic is the primary hazardous characteristic.

Supporting information, rationales and/or relevant scientific and technical considerations: The classification system should follow established criteria already defined internationally for the transport of dangerous goods and under GHS.

All relevant and applicable hazardous characteristics should be considered in classification as all are important in establishing the appropriate risk management measures in the management of waste.

Current methodologies generally consist of methods developed for the testing of substances and mixtures and are often not suited to address the specific characteristics of waste (complexity of matrix, heterogeneity, etc.). Therefore, specific sample preparation and test methods, tailored to waste, should be considered in the continuing process.

Annex II to the [draft] recommendations by the expert working group

Whether any additional characteristics in relation to plastic waste should be added to Annex III to the Convention

The following characteristics seem relevant in relation to plastic wastes:[1]

a) From the current entries: H11 (Toxic (Delayed or chronic)) - see the proposal to limit H11 to Carcinogenic -, H12 (Ecotoxic), and possibly H13 (Capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the characteristics listed above);

b) From the new proposed entries: 3(a) (Toxic for reproduction), 3(b) (Reproductive toxicity), 4(a) (Mutagenic for germ cells), 4(b) (Germ cell mutagenicity), 7 (POPs), 12 (Hazardous to the aquatic environment (acute or chronic toxicity) and 13 (Endocrine [disruptor] [disruption])".

[1] Note that certain options under the current entries are wider than the current entries and may therefore also be relevant.

Appendix: Proposal for a reorganization of entries of all Persistent Organic Pollutants in Annex I to the Convention

ENTRIES FOR PERSISTENT ORGANIC POLLUTANTS				
	Current entries			**New entries proposed by EU+MS**
Y39	**Phenols, phenol compounds including chlorophenols**		**C7+C10**	
Y40	**Ethers**		**C7+C10**	
Y43	**Any congenor of polychlorinated dibenzo-furan**		**C10**	
Y44	**Any congenor of polychlorinated dibenzo-p-dioxin**		**C10**	
Y45	**Organohalogen compounds other than substances referred to in this Annex (e.g. Y39, Y41, Y42, Y43, Y44)**		**Y45**	**Organohalogen compounds, e.g. brominated or chlorinated flame retardants, chlorofluorocarbons, bromofluorohydrocarbons, other than the chemicals referred to in C10**
	New entries presented in the Report of the fourth meeting of the Expert Working Group on the review of Annexes (supplementary sessions, 11-15 October 2021)			
C7	**Organic oxygen compounds, e.g. ethers and phenols including chlorophenols other than covered by C10**		**C7**	**Organic oxygen compounds, e.g. ethers and phenols including chlorophenols other than covered by C10**
C10	**Chemicals listed in Annexes A, B or C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.**		**C10**	**Chemicals listed in Annexes A, B or C of the Stockholm Convention, e.g. PCDD/PCDF, PCB etc.**
C11	**Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride**		**C10**	
C12	**Short-chain chlorinated paraffins**		**C10**	
C13	**Polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)**		**C10 and Y45**	

Annex II to the [draft] recommendations by the expert working group

Whether any additional constituents in relation to plastic waste should be added to Annex I to the Convention

The following constituents seem relevant in relation to plastic wastes:

a) From the current constituents: Y24, Y26, Y27, Y31 and Y45 option 1;

b) From the proposals for new constituents: C4, C7 (which covers Y39 and Y40, including e.g. phthalates and bisphenol A, except pentachlorophenol and decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE) and C10 (which includes Y43 and Y44 and part of Y39 (pentachlorophenol) and Y40 (decaBDE, tetraBDE, pentaBDE, hexaBDE, heptaBDE)).

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