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**Expert Working Group on the review of Annexes**

**Fourth meeting**

Geneva (online), 5–9 October 2020, 1–3 February 2021, 17–21 May 2021 and 11–15 October 2021\*  
Agenda item 4

**Review of Annexes I and III to the Basel Convention**

**Review of Annex III: Compilation of general issues and options for  
the review of Annex III to the Basel Convention**

**Note by the Secretariat**

As is mentioned in the note by the Secretariat on the review of Annexes I and III to the Basel Convention (UNEP/CHW/RA\_EWG.4/4/Rev.1), the annex to the present note sets out the compilation of general issues and options for the review of Annex III to the Basel Convention (status 21 May 2021) prepared by the co-chairs of the EWG to serve as the revised basis for further work on the review of Annex III. The present note, including its annex, has not been formally edited.

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\* These sessions will be complemented by subsequent sessions as needed.

## Annex

### Compilation of general issues and options for the review of Annex III to the Basel Convention (status 21 May 2021)

#### I. General issues<sup>1</sup>

##### A. Reference to UN class

0. Status quo
1. Delete reference to UN Class in Annex III
2. Keep the references to UN class in Annex III where appropriate

##### B. Alignment with GHS

1. Incorporate relevant elements of GHS (including concentration limit values)

##### C. 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

##### D. New introductory text<sup>2</sup>

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

#### II. Options for the review of Annex III

##### A. Caption text: LIST OF HAZARDOUS CHARACTERISTICS

0. Status quo
1. “HAZARDOUS CHARACTERISTICS” with the following subheading: “List of hazard 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

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<sup>1</sup> Section I on “General issues” reflects the status of discussions in the EWG on RA as at 21 May 2021 (see the report of the 17-21 May 2021 sessions of the fourth meeting of the EWG on RA, document UNEP/CHW/RA\_EWG.4/3/Add.2, paragraphs 64 to 70). Possible additional general issues and options may be further considered by the EWG.

<sup>2</sup> Proposal by the co-chairs to reflect the three options discussed during the 17-21 May 2021 sessions of the fourth meeting of the EWG (see paragraph of the report of the session, document UNEP/CHW/RA\_EWG.4/3/Add.2).

## C. General Introduction

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 method 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) of the [substances] [constituents as set out in Annex I] present in the waste are given. These characteristics are: [...]

- Testing method to detect 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 substance as indicated in this Annex, the result of the test shall prevail.

For [...], cut-off values for individual substances as indicated in this Annex shall apply to the assessment. Where a substance 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, guidance papers developed under the Basel Convention or by WHO and in any relevant standards as referred to in this Annex.

By way of derogation from the calculation and testing referred to above, wastes containing aldrine, alpha-HCH, beta-HCH and lindane, chlordane, chlordecone, DDT, dieldrin, endrin, hexabromobiphenyl, hexachlorobenzene, heptachlor, mirex, PCB, PCDDs/PCDFs, pentachlorobenzene and/or toxaphene 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.

## D. Current entries in Annex III<sup>3</sup>

### 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:** *An explosive substance (or mixture) is a solid or liquid substance (or mixture of substance) 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*

**Pyrotechnic substance:** *A pyrotechnic substance (or mixture) is a substance or mixture of substances 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), 7<sup>th</sup> revised edition, 2017*

1. Revise language to focus on waste (Chile)

Explosive – An explosive ~~substance or~~ waste is a ~~solid or liquid substance or~~ waste (or mixture of ~~substances or wastes~~ and 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

2. Include reference to external agent (Iran)

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 through an external agent by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings

<sup>3</sup> Text in shown in track-changes reflects proposed adjustments to the current version of the H characteristics.

3. Align with GHS definition for *explosive substance* (Colombia)

Explosive substances – ~~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 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.

4. Align with GHS definition for explosive substance and pyrotechnic substance, with modifications to keep waste focus (Argentina)

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 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.

5. Merge with H5.2 and include links to GHS codes (EU+MS)

Explosive – ~~An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes)~~ 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. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included. When a waste contain 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:** Hazard statement Code(s) for waste constituents for the classification of wastes as hazardous by H[1]

<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Codes(s)</u>	<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Codes(s)</u>	<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Codes(s)</u>
<u>Unstable explosives</u>	<u>H200</u>	<u>Explosive 1.3</u>	<u>H203</u>	<u>Organic peroxide A</u>	<u>H240</u>
<u>Explosive 1.1</u>	<u>H201</u>	<u>Explosive 1.4</u>	<u>H204</u>	<u>Self-reactive B</u>	<u>H241</u>
<u>Explosive 1.2</u>	<u>H202</u>	<u>Self-reactive A</u>	<u>H240</u>	<u>Organic peroxide B</u>	<u>H242</u>

6. Thought starter (Canada)

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 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.

**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 from 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. Include flash point from GHS definition, with modification to strengthen waste focus and simplify the definition (Argentina)

Flammable liquids – ~~The word “flammable” has the same meaning as “inflammable”. Flammable liquids are~~ liquids wastes, or mixtures of liquids or liquids wastes 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)~~ that have a flash point of not more than 93°C or that ~~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 from 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”.

2. Merge H3, H4.1 and H4.2 in a single entry for ‘Flammable’ to avoid uncertainty in classification (e.g. aerosols, biphasic or pasty wastes) and establish clear links with GHS (EU+MS)

#### Flammable liquids

- 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: 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 H3].

**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

<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Code(s)</u>	<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Code(s)</u>	<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Code(s)</u>	<u>Hazard Class and Category Code(s)</u>	<u>Hazard statement Code(s)</u>
<u>Flammable Gas 1</u>	<u>H220</u>	<u>Flammable Liquid 2</u>	<u>H225</u>	<u>Self-reactive E F</u>	<u>H242</u>	<u>Self-heating 1</u>	<u>H251</u>
<u>Flammable Gas 2</u>	<u>H221</u>	<u>Flammable Liquid 3</u>	<u>H226</u>	<u>Organic Peroxide C D</u>	<u>H242</u>	<u>Self-heating 2</u>	<u>H252</u>
<u>Aerosol 1</u>	<u>H222</u>	<u>Flammable Solid 1</u>	<u>H228</u>	<u>Organic Peroxide E F</u>	<u>H242</u>	<u>Water-reactive 1</u>	<u>H260</u>
<u>Aerosol 2</u>	<u>H223</u>	<u>Flammable Solid 2</u>	<u>H228</u>	<u>Pyrophoric liquid 1</u>	<u>H250</u>	<u>Water-reactive 2</u>	<u>H261</u>
<u>Flammable Liquid 1</u>	<u>H224</u>	<u>Self-reactive C D</u>	<u>H242</u>	<u>Pyrophoric solid 1</u>	<u>H250</u>	<u>Water reactive 3</u>	<u>H261</u>

3. Thought starter (Canada)

Includes flammable liquids and liquid desensitized explosives.

The word “flammable” has the same meaning as “inflammable”.

*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 °C 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

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

1. Align with GHS definition for *flammable solid* and *readily combustible solids* (Colombia)

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

2. Align with GHS definitions for *flammable solid* and *readily combustible solids* with modifications to keep waste focus (Argentina)

Flammable solids – ~~Solids, or waste solids, other than those classed as explosives,~~ Solid waste (or solid mixture of wastes) which ~~under conditions encountered in transport are~~ 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.

3. Merge H3, H4.1 and H4.2 in a single entry for ‘Flammable’ (EU+MS)

(For full proposal see option 2 under H3 )

4. Clarify applicability to some Annex IX entries for paper and textile wastes. Such wastes can be flammable, if exposed to intense solar radiation (Iran)

5. Thought starter (Canada)

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, 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

#### **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 substance:** 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. Align with GHS definition for self-heating substance (Colombia)

~~Substances or wastes liable to spontaneous combustion~~ Self-heating substances and mixtures – a self-heating substance or waste 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 spontaneous heating self-heat under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire; 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).

2. Align with GHS definitions for self-heating substances, pyrophoric liquids and solids and self-reactive substances, with modifications to keep waste focus (Argentina)

~~Substances or wastes liable to spontaneous combustion – Substances or wastes (or mixtures of wastes) which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on that can spontaneously heat, or even ignite, up in contact with air, and being then liable to catch fire 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).~~

3. Merge H3, H4.1 and H4.2 in a single entry for ‘Flammable’ (EU+MS)

(For full proposal see option 2 under H3)

4. Thought starter (Canada)

Substances ~~or wastes~~ liable to spontaneous combustion

Includes pyrophoric substances and self-heating substances.

~~Pyrophoric substances are 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. – 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).

#### **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. Revise language to focus on wastes (Argentina)

~~Substances or wastes (or mixtures of wastes) which, in contact with water emit flammable gases – Substances or 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~~

2. Align with GSH definitions for *substances and mixtures which, in contact with water, emit flammable gases* (Colombia)



Substances or ~~mixtures/wastes~~ which, in contact with water, emit flammable gases – Substances or ~~wastes- 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

3. Merge H3, H4.1 and H4.2 in a single entry for ‘Flammable’ (EU+MS)

(For full proposal see H3)

4. Thought starter (Canada)

Substances ~~or wastes~~ which in contact with water emit flammable gases

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

### 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. Revise language to focus on wastes (Argentina)

Oxidizing – ~~Substances or w~~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.

2. Align with GHS definitions for *oxidizing liquids* and *oxidizing solids* (Colombia)

Oxidizing – *Oxidizing liquids: an oxidizing liquid is a liquid* ~~Substances or wastes~~ which, while in itself not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials. *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.*

3. Ensure compatibility and clear links with GHS classification (EU+MS)

Oxidizing – ~~Substances or w~~Wastes which, ~~while in themselves not necessarily combustible,~~ may, generally by ~~yielding-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 oxidising, 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]

<u>Hazard Class Category Code(s)</u>	<u>Hazard statement Code(s)</u>
<u>Oxidizing Gases 1</u>	<u>H270</u>
<u>Oxidizing Liquid 1</u>	<u>H271</u>
<u>Oxidizing Solid 1</u>	<u>H271</u>
<u>Oxidizing Liquid 2, Oxidizing Liquid 3</u>	<u>H272</u>
<u>Oxidizing Solid 2, Oxidizing Solid 3</u>	<u>H272</u>

4. Thought starter (Canada)

Substances ~~or wastes~~ 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. Align with GHS definition for *organic peroxides* (Colombia)

Organic Peroxides – Organic peroxides are liquid or solid organic substances ~~or 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.

2. Align with GHS definitions for *organic peroxides*, while keeping the waste focus (Argentina)

Organic Peroxides – Organic peroxides are liquid or organic substances ~~or 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.

3. Delete H5.2 (the qualifier ‘organic peroxides’ does not implicate possible waste effects) and include organic peroxides under ‘Explosive’ (H1) or ‘Flammable’ (extended H3) according to their characteristics (EU+MS)

4. Thought starter (Canada)

Organic substances ~~or 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. Organic peroxides are thermally unstable substances which may undergo exothermic self-accelerating decomposition

### 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. Include toxicity in target organs to align with GHS categories and revise language to focus on wastes (Argentina)

Poisonous (Acute) – ~~Substances or 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.

2. Align with GHS definition for *acute toxicity* (Colombia)

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.~~ 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.

3. Ensure compatibility and clear links with GHS classification (EU+MS)

~~Poisonous (Acute Toxicity) – Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact 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 statement Code(s) for waste constituents and the correspondign 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%

4. Thought starter (Canada)

~~Poisonous~~ Toxic substances (substances of relatively high acute toxicity)

Substances ~~or wastes~~ 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 (note the related hazardous characteristic H14)<sup>2</sup>

De minimis concentration values in wastes containing toxic substances of:

Category 1: XX mg/kg

Category 2 XX mg/kg

Category 3 XX mg/kg

## 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 ADR Convention definition\*:*

<sup>2</sup> 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).

**Infectious substances:** For the purposes of ADR, infectious substances are substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as microorganisms (including bacteria, viruses, rickettsiae, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

\*ADR (applicable as from 1 January 2017) (Volume 1)

1. Revise language to focus on wastes (Argentina)

Infectious substances – Substances or wastes (or mixtures of substances or wastes) containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans

2. Align with GHS definition for infectious substances (Colombia)

Infectious substances – These are substances or wastes known or reasonably expected to containing pathogens. Pathogens are defined as viable micro-organisms (including bacteria, viruses, rickettsiae, parasites, fungi) or their toxins and other agents such as prions, which are known or suspected to can cause disease in animals or humans or animals.

**Note:** Colombia highlights the need to update and adopt the BC guidance on H6.2.

3. Expand definition to include, for example, disease for vegetal life (EU+MS)

Infectious ~~substances~~ Substances or wastes containing viable micro-organisms or their toxins which are known or suspected reliably believed to cause disease in animals or humans man or other living organisms. The attribution of H[6.2] shall be assessed by the rules laid down in reference documents or national legislation.

4. Thought starter (Canada)

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

## 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.**

*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. Revise language to focus on wastes and widen approach (Argentina)

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

2. Include pH values for wastes (Chile)

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.

3. Align with GHS definition for *Skin corrosion* and *Corrosivity to metals* (Colombia)

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 substance or mixture. OR A substance or mixture which is corrosive to metals is a substance or mixture which by chemical action ~~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~~ metals, other goods or the means of transport; they may also cause other hazards.

**Note:** Colombia highlights the need to update and adopt the BC guidance on H6.2.

4. Revise language to focus on skin corrosion, with links to GHS classification and calculation criteria (EU+MS)

~~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 even destroy, other goods or the means of transport; they may also cause other hazards. 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%.~~

5. Thought starter (Canada)

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

#### 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. Revise language based on classification of GHS (health) and include waste focus (Argentina)

~~Liberation of toxic gases in contact with air or water – Substances or wastes (or mixture of wastes) which, by interaction in contact with air or water, are liable to give off toxic gases in dangerous quantities liberate gases that can cause death, serious injury or damage to human health, if they are inhaled or come into contact with the skin.~~

2. Revise language to clarify the characteristics of the released gases (EU+MS)

~~Liberation of toxic gases in contact with air or water~~ Release of an acute toxic gas – Substances or wastes which, by interaction with air or water, are liable to give off releases acute toxic gases (Acute Toxicity 1, 2 or 3) in dangerous quantities 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.

3. Clarify distinction with H4.3 (Colombia)

4. Thought starter (Canada)

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

**Note:** See also the suggestion from Switzerland 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. Revise language based on classification of GHS (health) and include waste focus (Argentina)

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

2. Revise language to clarify that toxicity is established at substance level (Chile)

~~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. The characteristic is defined by the toxicities of specific substances present in the waste:  $LC_{(w)} = \frac{\sum C_{(a)}}{LC_{50(a)}} \dots \frac{C_{(n)}}{LC_{50(n)}}$~~

3. Limit H11 to ‘Carcinogenic’ and complement with new entries (Mutagenic, Reprotoxic, etc.) (EU+MS)

~~Toxic (Delayed or chronic) Carcinogenic~~ – ~~Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity. 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 statement Code(s)	Concentration limit
Carcinogenic 1A	H350	0.1%
Carcinogenic 1B	H350	0.1%
Carcinogenic 2	H351	1.0%

#### 4. Thought starter (Canada)

Substances ~~or wastes~~ 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 including carcinogenicity~~

**Note:** Colombia highlights the need to develop a BC guideline on H11.

#### 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:** *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.*

**Chronic aquatic toxicity:** *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. Align with GHS terminology ('organisms') and include focus on wastes (Argentina)

Exotoxic – ~~Substances or 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 ~~biotic systems~~organisms.

#### 2. Align with GHS definition for Hazardous to the aquatic environment (Colombia)

Exotoxic – ~~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.~~ Hazardous to the aquatic environment: Acute aquatic toxicity: means the intrinsic property of a substance to be injurious to an organism in a short-term aquatic exposure to that substance. [Short-term (acute) hazard, for classification purposes, means the hazard of a chemical caused by its acute toxicity to an organism during short-term aquatic exposure to that chemical.] OR 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. [Long-term (chronic) hazard, for classification purposes, means the hazard of a chemical caused by its chronic toxicity following long-term exposure in the aquatic environment.]

#### 3. Revise language to establish links with GHS classification and include calculation criteria (EU+MS)

Exotoxic – ~~Substances or wastes~~ which ~~if released~~ presents or may present immediate or delayed adverse impacts ~~risks for one or more sectors of the environment by means of bioaccumulation and/or toxic effects upon biotic systems.~~ 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%. [ $c(H420) \geq 0.1\%$ ]

- 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. [ $\sum c(H400) \geq 25\%$ ]

- 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. [ $100 \times \sum c(H410) + 10 \times \sum c(H411) + \sum c(H412) \geq 25\%$ ]

- 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 concentrations 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. [ $\sum c(H410) + \sum c(H411) + \sum c(H412) + \sum c(H413) \geq 25\%$ ]

Where :  $\Sigma$  = sum and c= concentrations of the substances.

4. Assess whether PBT and vPvB properties are covered by H12 (Switzerland)

5. Thought starter (Canada)

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, not including substances covered by other codes in this Annex.

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

1. Need to include waste focus (Argentina)

2. Revise language to include details of waste content and conditions (EU+MS)

Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste – When a waste contains one or more substances having at least one of the following characteristics:

- mass explode in fire (H205), or

- explode when dry, or

- form explosive peroxides, or

- present risk of explosion 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. Capable, by any means after disposal, or yielding another material, e.g., leachate, which possesses any of the characteristics listed above. In addition, waste may be classified as hazardous by H[13] based on other applicable criteria, such as an assessment of the leachate.

**Note:** Colombia highlights a need for further guidance on H13, e.g. to clarify whether H13 is limited to final disposal operations (see reference to ‘leachates’).

### 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. Include reference to guidelines (Chile)

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. Guidelines have been established which include limits and describe tests to apply for measuring these characteristics in waste.

2. Delete and replace with explanation on testing in introductory text (EU+MS)
3. Replace with the following text (Canada)

#### **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 H14-H22, 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. ~~to materials listed in Annex I, in order to decide if these materials exhibit any of the characteristics listed in this Annex.~~

#### **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;
- 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 United 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.

#### **E. New proposed entries in Annex III**

##### **1a Irritant (Switzerland)**

##### **1b Irritant – skin irritation and eye damage (EU+MS)**



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 as 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.

## 2a Specific Target Organ Toxicity (STOT)/Aspiration Toxicity (EU+MS)

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 mm<sup>2</sup>/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

## 2b H20: Specific target organ toxicity (Canada)

*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

## 3 Toxic for reproduction (Reprotoxic) (EU+MS)

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%

#### 4a Mutagenic agents (Iran)

#### 4b Mutagenic (EU+MS)

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%

#### 4c H17: Germ cell mutagenicity (Canada)

*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

#### 5a Sensitizing (Switzerland)

#### 5b Sensitising (EU+MS)

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[...].

#### 6a Gases (capture all gases regulated in the UN Recommendations on the Transport of Dangerous Goods)

#### 6b Flammable gases (Switzerland)

#### 6c Release of toxic gases in contact with acids (Switzerland)

#### 6d H2.1: Flammable gases (Canada)

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

**6e H2.2: Non-flammable, non-toxic gases (Canada)**

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

**6f H2.3 Toxic gases (Canada)**

~~(Canada)~~

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<sub>50</sub> value equal to or less than 5000 ml/m<sup>3</sup>

**7a PBT and vPvB properties (if not included in H12) (Switzerland)****7b Bioaccumulation and long term transition (Iran)****7c H23: Persistent organic pollutant (Canada)**

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

**8 Characteristics that capture hazardous wastes from high-tech processes, transgenic production and nanotechnology products (Iran)****9 H14: Toxic substances (substances of relatively low acute toxicity) (Canada)**

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

**10 H15: Serious eye damage/eye irritation (Canada)**

*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

**11 H16: Respiratory/skin sensitization (Canada)**

*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

### 12 H18: Carcinogenicity (Canada)

*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

### 13 H19 (Canada)

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

### 14 H21: Aspiration hazard (Canada)

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

### 15 H22: Hazardous to the aquatic environment (acute or chronic toxicity) (Canada)

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

**16 H24: Endocrine disruptor (Canada)**

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

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