



**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals****Sub-Committee of Experts on the Globally Harmonized
System of Classification and Labelling of Chemicals****Thirty-ninth session**

Geneva, 9-11 December 2020

Item 3 (i) of the provisional agenda

Classification criteria and related hazard communication:**Other issues****Deletion of definitions for physical hazard classes in
chapter 1.2 of the GHS****Addendum****Transmitted by the expert from Germany***

1. Following the feedback received during the informal consultations in July the expert from Germany would like to provide the additional information below for consideration by the Sub-Committee:
2. In addition to the arguments given in paragraph 4 in document ST/SG/AC.10/C.4/2020/11, the Sub-Committee may wish to note that with respect to human health hazards, a comparable situation occurred in 2016, when the definitions in chapters 3.1 to 3.10 were updated. At that time, the Sub-Committee decided to remove the duplicate definitions for skin corrosion, skin irritation, serious eye damage, and eye irritation from Chapter 1.2, on the basis of a proposal by the United States of America (see informal document INF.26 (thirty-first session)).
3. For ease of reference and to facilitate the discussions, a comparative overview of the current definitions is provided in the following tables.

* 2020 (A/74/6 (Sect.20) and Supplementary, Subprogramme 2.

Table 1: Overview of the current physical hazard class definitions in Chapter 1.2 and the current physical hazard class definitions in Part 2

<i>Chapter</i>	<i>GHS Chapter 1.2 Definition</i>	<i>GHS Part 2 Definition</i>
2.1	Explosive substance means 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;	An explosive substance (or mixture) 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.
2.1	Pyrotechnic substance means 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;	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.
2.1	Explosive article means an article containing one or more explosive substances;	An explosive article is an article containing one or more explosive substances or mixtures.
2.1	Pyrotechnic article means an article containing one or more pyrotechnic substances;	A pyrotechnic article is an article containing one or more pyrotechnic substances or mixtures.
2.1	<i>Additional definitions might be introduced due to the revision of Chapter 2.1.</i>	
2.2	Flammable gas means a gas having a flammable range with air at 20 °C and a standard pressure of 101.3 kPa;	A flammable gas is a gas having a flammable range with air at 20 °C and a standard pressure of 101.3 kPa.
2.2	Pyrophoric gas means a flammable gas that is liable to ignite spontaneously in air at a temperature of 54 °C or below.	A pyrophoric gas is a flammable gas that is liable to ignite spontaneously in air at a temperature of 54 °C or below.
2.2	Chemically unstable gas means a flammable gas that is able to react explosively even in the absence of air or oxygen;	A chemically unstable gas is a flammable gas that is able to react explosively even in the absence of air or oxygen.
2.3	<i>Proposed to be introduced by ST/SG/AC.10/C.4/2020/2</i> <i>Aerosols (aerosol dispensers) mean any non-refillable receptacles made of metal, glass or plastics and containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state.</i>	Aerosols, this means aerosol dispensers, are any non-refillable receptacles made of metal, glass or plastics and containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state.

Chapter GHS Chapter 1.2 Definition	GHS Part 2 Definition
<p>2.3 <i>Proposed to be introduced by ST/SG/AC.10/C.4/2020/2</i></p> <p><i>Chemicals under pressure mean liquids or solids (e.g., pastes or powders), pressurized with a gas at a pressure of 200 kPa (gauge) or more at 20 °C in pressure receptacles other than aerosol dispensers and which are not classified as gases under pressure.</i></p>	<p>Chemicals under pressure are liquids or solids (e.g., pastes or powders), pressurized with a gas at a pressure of 200 kPa (gauge) or more at 20 °C in pressure receptacles other than aerosol dispensers and which are not classified as gases under pressure.</p> <p>NOTE: Chemicals under pressure typically contain 50% or more by mass of liquids or solids whereas mixtures containing more than 50% gases are typically considered as gases under pressure</p>
<p>2.4 Oxidizing gas means any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does;</p> <p>NOTE: “Gases which cause or contribute to the combustion of other material more than air does” means pure gases or gas mixtures with an oxidizing power greater than 23.5% as determined by a method specified in ISO 10156:2017.</p>	<p>An oxidizing gas is any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.</p> <p>NOTE: “Gases which cause or contribute to the combustion of other material more than air does” means pure gases or gas mixtures with an oxidizing power greater than 23.5% as determined by a method specified in ISO 10156:2017.</p>
<p>2.5 <i>Proposed to be introduced by ST/SG/AC.10/C.4/2020/2</i></p> <p><i>Gases under pressure, mean gases which are contained in a receptacle at a pressure of 200 kPa (gauge) or more at 20 °C, or which are liquefied or liquefied and refrigerated. They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.”</i></p>	<p>Gases under pressure are gases which are contained in a receptacle at a pressure of 200 kPa (gauge) or more at 20 °C, or which are liquefied or liquefied and refrigerated.</p> <p>They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.</p>
<p>2.5 Compressed gas means a gas which when packaged under pressure is entirely gaseous at -50 °C; including all gases with a critical temperature ≤ -50 °C;</p>	<p>Compressed gas</p> <p>A gas which when packaged under pressure is entirely gaseous at -50 °C; including all gases with a critical temperature ≤ -50 °C.</p>
<p>2.5 Liquefied gas means a gas which when packaged under pressure, is partially liquid at temperatures above - 50 °C. A distinction is made between:</p> <p>(i) High pressure liquefied gas: a gas with a critical temperature between -50 °C and +65 °C; and</p> <p>(ii) Low pressure liquefied gas: a gas with a critical temperature above +65 °C;</p>	<p>Liquefied gas</p> <p>A gas which when packaged under pressure, is partially liquid at temperatures above -50 °C. A distinction is made between:</p> <p>(a) High pressure liquefied gas: a gas with a critical temperature between -50 °C and +65 °C; and</p> <p>(b) Low pressure liquefied gas: a gas with a critical temperature above +65 °C.</p>

<i>Chapter</i>	<i>GHS Chapter 1.2 Definition</i>	<i>GHS Part 2 Definition</i>
2.5	Refrigerated liquefied gas means a gas which when packaged is made partially liquid because of its low temperature;	Refrigerated liquefied gas A gas which when packaged is made partially liquid because of its low temperature.
2.5	Dissolved gas means a gas which when packaged under pressure is dissolved in a liquid phase solvent;	Dissolved gas A gas which when packaged under pressure is dissolved in a liquid phase solvent.
2.6	Flammable liquid means a liquid having a flash point of not more than 93 °C;	A flammable liquid means a liquid having a flash point of not more than 93 °C.
2.7	Flammable solid means a solid which is readily combustible, or may cause or contribute to fire through friction;	A flammable solid is a solid which is readily combustible, or may cause or contribute to fire through friction.
2.7	Readily combustible solid means powdered, granular, or pasty substance or mixture which is dangerous if it can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly;	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.
2.8	Self-reactive substance means a thermally unstable liquid or solid substance liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). This definition excludes substances or mixtures classified under the GHS as explosive, organic peroxides or as oxidizing;	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. A self-reactive substance or mixture is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.
2.9	Pyrophoric liquid means a liquid which, even in small quantities, is liable of igniting within five minutes after coming into contact with air;	A pyrophoric liquid is a liquid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.
2.10	Pyrophoric solid means a solid which, even in small quantities, is liable of igniting within five minutes after coming into contact with air;	A pyrophoric solid is a solid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.

<i>Chapter GHS Chapter 1.2 Definition</i>	<i>GHS Part 2 Definition</i>
2.11 Self-heating substance means a solid or liquid substance, other than a pyrophoric substance, which, by reaction with air and without energy supply, is liable to self-heat; this substance differs from a pyrophoric substance in that it will ignite only when in large amounts (kilograms) and after long periods of time (hours or days);	<p>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).</p> <p>NOTE: Self-heating of a substance or mixtures is a process where the gradual reaction of that substance or mixture with oxygen (in air) generates heat. If the rate of heat production exceeds the rate of heat loss, then the temperature of the substance or mixture will rise which, after an induction time, may lead to self-ignition and combustion.</p>
2.12 Substance which, in contact with water, emits flammable gases means a solid or liquid substance or mixture which, by interaction with water, is liable to become spontaneously flammable or to give off flammable gases in dangerous quantities;	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.
2.13 Oxidizing liquid means a liquid which, while in itself not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material;	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.
2.14 Oxidizing solid means a solid which, while in itself not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material;	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.

<i>Chapter GHS Chapter 1.2 Definition</i>	<i>GHS Part 2 Definition</i>
<p>2.15 Organic peroxide means a liquid or solid organic substance which contains the bivalent -O-O- structure and may be considered a derivative 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);</p>	<p>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:</p> <ul style="list-style-type: none"> (a) be liable to explosive decomposition; (b) burn rapidly; (c) be sensitive to impact or friction; (d) react dangerously with other substances. <p>An organic peroxide is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.</p>
<p>2.16 Corrosive to metal means a substance or a mixture which by chemical action will materially damage, or even destroy, metals;</p>	<p>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.</p>
<p>2.17 Desensitized explosives mean solid or liquid explosive substances or mixtures which are phlegmatized to suppress their explosive properties in such a manner that they do not mass explode and do not burn too rapidly and therefore may be exempted from the hazard class “Explosives” (see Chapter</p>	<p>Desensitized explosives are solid or liquid explosive substances or mixtures which are phlegmatized to suppress their explosive properties in such a manner that they do not mass explode and do not burn too rapidly and therefore may be exempted from the hazard class “Explosives” (Chapter 2.1; see also Note 2 of paragraph 2.1.2.2).¹</p>

<i>Chapter GHS Chapter 1.2 Definition</i>	<i>GHS Part 2 Definition</i>
2.1; see also Note 2 to paragraph 2.1.2.2).	<p>The class of desensitized explosives comprises:</p> <p>(a) Solid desensitized explosives: explosive substances or mixtures which are wetted with water or alcohols or are diluted with other substances, to form a homogeneous solid mixture to suppress their explosive properties.</p> <p>NOTE: This includes desensitization achieved by formation of hydrates of the substances.</p> <p>(b) Liquid desensitized explosives: explosive substances or mixtures which are dissolved or suspended in water or other liquid substances, to form a homogeneous liquid mixture to suppress their explosive properties.</p>

4. It is proposed not to duplicate these definitions and to keep them in Part 2 only (see paragraph 8 in document ST/SG/AC.10/C.4/2020/11).

Table 2: Definitions concerning other physical-chemical properties/ safety characteristics that are given in Chapter 1.2 which have no corresponding definition in Part 2

<i>GHS Chapter 1.2 Definition</i>	<i>Definition provided in GHS Part 2</i>
Critical temperature means the temperature above which a pure gas cannot be liquefied, regardless of the degree of compression;	No definition provided.
<i>Dust</i> means solid particles of a substance or mixture suspended in a gas (usually air);	No definition provided
Flash point means the lowest temperature (corrected to a standard pressure of 101.3 kPa) at which the application of an ignition source causes the vapours of a liquid to ignite under specified test conditions;	No definition provided.
Gas means a substance which (i) at 50 °C has a vapour pressure greater than 300 kPa (absolute); or (ii) is completely gaseous at 20 °C at a standard pressure of 101.3 kPa;	No definition provided.
Liquid means a substance or mixture which at 50 °C has a vapour pressure of not more than 300 kPa (3 bar), which is not completely gaseous at 20 °C and at a standard pressure of 101.3 kPa, and which has a melting point or initial melting point of 20 °C or less at a standard pressure of 101.3 kPa. A viscous substance or mixture for which a specific melting point cannot be determined shall be subjected to the ASTM	No definition provided.

*GHS Chapter 1.2 Definition**Definition provided in GHS Part 2*

D 4359-90 test; or to the test for determining fluidity (penetrometer test) prescribed in section 2.3.4 of Annex A of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR);

Mist means liquid droplets of a substance or mixture suspended in a gas (usually air); No definition provided.

Self-accelerating decomposition temperature (SADT) means the lowest temperature at which self-accelerating decomposition may occur with substance as packaged No definition provided.

Solid means a substance or mixture which does not meet the definitions of liquid or gas; No definition provided.

Vapour means the gaseous form of a substance or mixture released from its liquid or solid state. No definition provided.

5. No change is proposed for these definitions, they should be kept in chapter 1.2 only (see paragraph 7 in document ST/SG/AC.10/C.4/2020/11).
