

**ANNEX 2**






**CLASSIFICATION AND LABELLING  
SUMMARY TABLES**




## Annex 2

## CLASSIFICATION AND LABELLING SUMMARY TABLES



## A2.1 Explosives (see Chapter 2.1 for details)

Hazard category	Criteria	Hazard communication elements	
<b>Unstable explosives</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	
		Signal word	Danger
		Hazard statement	Unstable explosive
<b>Division 1.1</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	
		Signal word	Danger
		Hazard statement	Explosive; mass explosion hazard
<b>Division 1.2</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	
		Signal word	Danger
		Hazard statement	Explosive; severe projection hazard
<b>Division 1.3</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	
		Signal word	Danger
		Hazard statement	Explosive; fire, blast or projection hazard
<b>Division 1.4</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	
		Signal word	Warning
		Hazard statement	Fire or projection hazard
<b>Division 1.5</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	<b>1.5</b>
		Signal word	Danger
		Hazard statement	May mass explode in fire
<b>Division 1.6</b>	According to the results of the test in Part I of the <i>Manual of Tests and Criteria, UN Recommendations on the Transport of Dangerous Goods</i> .	Symbol	<b>1.6</b>
		Signal word	No signal word
		Hazard statement	No hazard statement


**A2.2 Flammable gases** (see Chapter 2.2 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	Gases and gas mixtures, which at 20 °C and a standard pressure of 101.3 kPa: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.	Symbol	
		Signal word	Danger
		Hazard statement	Extremely flammable gas
<b>2</b>	Gases or gas mixtures, other than those of Category 1, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air	Symbol	<i>No symbol</i>
		Signal word	Warning
		Hazard statement	Flammable gas





**A2.3 Flammable aerosols** (see Chapter 2.3 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	On the basis of its ingredients, of its chemical heat of combustion and, if applicable, of the results of the foam test (for foam aerosols) and of the ignition distance test and enclosed space test (for spray aerosols) (see decision logic under 2.3.4.1 in Chapter 2.3)	Symbol	
		Signal word	Danger
		Hazard statement	Extremely flammable aerosol
<b>2</b>	On the basis of its ingredients, of its chemical heat of combustion and, if applicable, of the results of the foam test (for foam aerosols) and of the ignition distance test and enclosed space test (for spray aerosols) (see decision logic under 2.3.4.1 in Chapter 2.3)	Symbol	
		Signal word	Warning
		Hazard statement	Flammable aerosol




**A2.4 Oxidizing gases** (see Chapter 2.4 for details)

Hazard category	Criteria	Hazard communication elements	
1	Any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does	Symbol	
		Signal word	Danger
		Hazard statement	May cause or intensify fire; oxidizer



**A2.5 Gases under pressure** (see Chapter 2.5 for details)

Hazard category	Criteria	Hazard communication elements	
<b>Compressed gas</b>	A gas, which when packaged under pressure is entirely gaseous at -50 °C; including all gases with a critical temperature $\leq$ -50 °C	Symbol	
		Signal word	Warning
		Hazard statement	Contains gas under pressure; may explode if heated
<b>Liquefied gas</b>	A gas which when packaged under pressure, is partially liquid at temperatures above -50 °C. A distinction is made between: (a) <i>High pressure liquefied gas</i> : a gas with a critical temperature between -50 °C and +65 °C; and (b) <i>Low pressure liquefied gas</i> : a gas with a critical temperature above +65 °C	Symbol	
		Signal word	Warning
		Hazard statement	Contains gas under pressure; may explode if heated
<b>Refrigerated liquefied gas</b>	A gas which when packaged is made partially liquid because of its low temperature	Symbol	
		Signal word	Warning
		Hazard statement	Contains refrigerated gas; may cause cryogenic burns or injury
<b>Dissolved gas</b>	A gas which when packaged under pressure is dissolved in a liquid phase solvent	Symbol	
		Signal word	Warning
		Hazard statement	Contains gas under pressure; may explode if heated





**A2.6 Flammable liquids** (see Chapter 2.6 for details)

Hazard category	Criteria	Hazard communication elements	
1	Flash point < 23 °C and initial boiling point ≤ 35 °C	Symbol	
		Signal word	Danger
		Hazard statement	Extremely flammable liquid and vapour
2	Flash point < 23 °C and initial boiling point >35 °C	Symbol	
		Signal word	Danger
		Hazard statement	Highly flammable liquid and vapour
3	Flash point ≥ 23 °C and ≤ 60 °C	Symbol	
		Signal word	Warning
		Hazard statement	Flammable liquid and vapour
4	Flash point > 60 °C and ≤ 93 °C	Symbol	<i>No symbol</i>
		Signal word	Warning
		Hazard statement	Combustible liquid


**A2.7 Flammable solids** (see Chapter 2.7 for details)

Hazard category	Criteria	Hazard communication elements	
1	Burning rate test: Substances and mixtures other than metal powders: (a) wetted zone does not stop fire and (b) burning time < 45 s or burning rate > 2.2 mm/s Metal powders: - burning time ≤ 5 min	Symbol	
		Signal word	Danger
		Hazard statement	Flammable solid
2	Burning rate test: Substances and mixtures other than metal powders: (a) wetted zone stops the fire for at least 4 min and (b) burning time < 45 s or burning rate > 2.2 mm/s Metal powders: - burning time > 5 min and ≤ 10 min	Symbol	
		Signal word	Warning
		Hazard statement	Flammable solid


**A2.8 Self-reactive substances and mixtures** (see Chapter 2.8 for details)

Hazard category	Criteria	Hazard communication elements	
<b>Type A</b>	According to the results of tests in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.8.4.1 in Chapter 2.8.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause an explosion
<b>Type B</b>	According to the results of tests in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.8.4.1 in Chapter 2.8.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire or explosion
<b>Type C and D</b>	According to the results of tests in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.8.4.1 in Chapter 2.8.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire
<b>Type E and F</b>	According to the results of tests in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.8.4.1 in Chapter 2.8.	Symbol	
		Signal word	Warning
		Hazard statement	Heating may cause a fire
<b>Type G</b>	According to the results of tests in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.8.4.1 in Chapter 2.8.	Signal word	<i>There are no label elements allocated to this hazard category</i>
		Symbol	
		Hazard statement	



**A2.9 Pyrophoric liquids** (see Chapter 2.9 for details)

Hazard category	Criteria	Hazard communication elements	
1	The liquid ignites within 5 min when added to an inert carrier and exposed to air, or it ignites or chars a filter paper on contact with air within 5 min	Symbol	
		Signal word	Danger
		Hazard statement	Catches fire spontaneously if exposed to air

**A2.10 Pyrophoric solids** (see Chapter 2.10 for details)




Hazard category	Criteria	Hazard communication elements	
1	The solid ignites within 5 min of coming into contact with air	Symbol	
		Signal word	Danger
		Hazard statement	Catches fire spontaneously if exposed to air

**A2.11 Self-heating substances and mixtures** (see Chapter 2.11 for details)




Hazard category	Criteria	Hazard communication elements	
1	A positive result is obtained in a test using a 25 mm sample cube at 140 °C	Symbol	
		Signal word	Danger
		Hazard statement	Self-heating; may catch fire
2	(a) A positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C <u>and</u> the substance or mixture is to be packed in packages with a volume > 3 m <sup>3</sup> ; or (b) A positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C, a positive result is obtained in a test using a 100 mm cube sample at 120 °C <u>and</u> the substance or mixture is to be packed in packages with a volume > 450 litres; or (c) A positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C <u>and</u> a positive result is obtained in a test using a 100 mm cube sample at 100 °C	Symbol	
		Signal word	Warning
		Hazard statement	Self-heating in large quantities; may catch fire






**A2.12 Substances and mixtures, which in contact with water, emit flammable gases**  
(see Chapter 2.12 for details)

Hazard category	Criteria	Hazard communication elements	
1	Any substance or mixture which reacts vigorously with water at ambient temperatures and demonstrates generally a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is $\geq 10$ litres per kilogram of substance over any one minute	Symbol	
		Signal word	Danger
		Hazard statement	In contact with water releases flammable gases which may ignite spontaneously
2	Any substance or mixture which reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is $\geq 20$ litres per kilogram of substance per hour, and which does not meet the criteria for Category 1	Symbol	
		Signal word	Danger
		Hazard statement	In contact with water releases flammable gases
3	Any substance or mixture which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is $\geq 1$ litre per kilogram of substance per hour, and which does not meet the criteria for Categories 1 and 2	Symbol	
		Signal word	Warning
		Hazard statement	In contact with water releases flammable gases





**A2.13 Oxidizing liquids** (see Chapter 2.13 for details)

Hazard category	Criteria	Hazard communication elements	
1	Any substance or mixture which, in the 1:1 mixture, by mass, of substance and cellulose tested, spontaneously ignites; or the mean pressure rise time of a 1:1 mixture, by mass, of substance and cellulose is less than that of a 1:1 mixture, by mass, of 50% perchloric acid and cellulose	Symbol	
		Signal word	Danger
		Hazard statement	May cause fire or explosion; strong oxidizer
2	Any substance or mixture which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 40% aqueous sodium chlorate solution and cellulose; and the criteria for Category 1 are not met	Symbol	
		Signal word	Danger
		Hazard statement	May intensify fire; oxidizer
3	Any substance or mixture which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose; and the criteria for Categories 1 and 2 are not met	Symbol	
		Signal word	Warning
		Hazard statement	May intensify fire; oxidizer


**A2.14 Oxidizing solids** (see Chapter 2.14 for details)

Hazard category	Criteria	Hazard communication elements	
1	Any substance or mixture which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose	Symbol	
		Signal word	Danger
		Hazard statement	May cause fire or explosion; strong oxidizer
2	Any substance or mixture which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 2:3 mixture (by mass) of potassium bromate and cellulose and the criteria for Category 1 are not met	Symbol	
		Signal word	Danger
		Hazard statement	May intensify fire; oxidizer
3	Any substance or mixture which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 3:7 mixture (by mass) of potassium bromate and cellulose and the criteria for Categories 1 and 2 are not met	Symbol	
		Signal word	Warning
		Hazard statement	May intensify fire; oxidizer





**A2.15 Organic peroxides** (see Chapter 2.15 for details)

Hazard category	Criteria	Hazard communication elements	
<b>Type A</b>	According to the results of test series A to H in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.15.4.1 in Chapter 2.15	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause an explosion
<b>Type B</b>	According to the results of test series A to H in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.15.4.1 in Chapter 2.15	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire or explosion
<b>Type C and D</b>	According to the results of test series A to H in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.15.4.1 in Chapter 2.15	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire
<b>Type E and F</b>	According to the results of test series A to H in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.15.4.1 in Chapter 2.15	Symbol	
		Signal word	Warning
		Hazard statement	Heating may cause a fire
<b>Type G</b>	According to the results of test series A to H in the <i>UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under 2.15.4.1 in Chapter 2.15	Signal word	<i>There are no label elements allocated to this hazard category</i>
		Symbol	
		Hazard statement	



**A2.16 Corrosive to metals** (see Chapter 2.16 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm per year at a test temperature of 55 °C when tested on both materials	Symbol	
		Signal word	Warning
		Hazard statement	May be corrosive to metals

**A2.17 Acute toxicity** (see Chapter 3.1 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	Oral LD <sub>50</sub> ≤ 5 mg/kg bodyweight; or Dermal LD <sub>50</sub> ≤ 50 mg/kg bodyweight; or Inhalation (gas) LC <sub>50</sub> ≤ 100 ppm; or Inhalation (vapour) LC <sub>50</sub> ≤ 0.5 mg/l; or Inhalation (dust, mist) LC <sub>50</sub> ≤ 0.05 mg/l	Symbol	
		Signal word	Danger
		Hazard statement	Fatal if swallowed (oral) Fatal in contact with skin (dermal) Fatal if inhaled (gas, vapour, dust, mist)
<b>2</b>	Oral LD <sub>50</sub> > 5 but ≤ 50 mg/kg bodyweight; or Dermal LD <sub>50</sub> > 50 but ≤ 200 mg/kg bodyweight; or Inhalation (gas) LC <sub>50</sub> > 100 but ≤ 500 ppm; or Inhalation (vapour) LC <sub>50</sub> > 0.5 but ≤ 2.0 mg/l; or Inhalation (dust, mist) LC <sub>50</sub> > 0.05 but ≤ 0.5 mg/l	Symbol	
		Signal word	Danger
		Hazard Statement	Fatal if swallowed (oral) Fatal in contact with skin (dermal) Fatal if inhaled (gas, vapour, dust, mist)
<b>3</b>	Oral LD <sub>50</sub> > 50 but ≤ 300 mg/kg bodyweight; or Dermal LD <sub>50</sub> > 200 but ≤ 1000 mg/kg bodyweight, or Inhalation (gas) LC <sub>50</sub> > 500 but ≤ 2500 ppm; or Inhalation (vapour) LC <sub>50</sub> > 2.0 but ≤ 10.0 mg/l; or Inhalation (dust, mist) LC <sub>50</sub> > 0.5 but ≤ 1.0 mg/l	Symbol	
		Signal word	Danger
		Hazard statement	Toxic if swallowed (oral) Toxic in contact with skin (dermal) Toxic if inhaled (gas, vapour, dust, mist)
<b>4</b>	Oral LD <sub>50</sub> > 300 but ≤ 2000 mg/kg bodyweight; or Dermal LD <sub>50</sub> > 1000 but ≤ 2000 mg/kg bodyweight, or Inhalation (gas) LC <sub>50</sub> > 2500 but ≤ 20000 ppm; or Inhalation (vapour) LC <sub>50</sub> > 10.0 but ≤ 20.0 mg/l; or Inhalation (dust, mist) LC <sub>50</sub> > 1.0 but ≤ 5.0 mg/l	Symbol	
		Signal word	Warning
		Hazard statement	Harmful if swallowed (oral) Harmful in contact with skin (dermal) Harmful if inhaled (gas, vapour, dust, mist)
<b>5</b>	Oral or dermal LD <sub>50</sub> > 2000 but ≤ 5000 mg/kg bodyweight Inhalation (gases, vapours and/or dusts/mists) LC <sub>50</sub> in the equivalent range of the oral and dermal LD <sub>50</sub> (i.e., > 2000 but ≤ 5000 mg/kg bodyweight) See also the additional criteria: (a) Indication of significant toxicity effects in humans; (b) Any mortality at Category 4; (c) Significant clinical signs at Category 4; (d) Indication from other studies	Symbol	<i>No symbol</i>
		Signal word	Warning
		Hazard statement	May be harmful if swallowed (oral) May be harmful in contact with skin (dermal) May be harmful if inhaled (gas, vapour, dust, mist)

**A2.18 Skin corrosion/irritation** (see Chapter 3.2 for details)

Hazard category	Criteria	Hazard communication elements	
<p style="text-align: center;"><b>1</b></p> <p><b>Corrosive</b> <b>Including</b> <b>subcategories</b> <b>A, B, and C;</b> <b>see Chapter 3.2,</b> <b>Table 3.2.1</b></p>	<p>1. <i>For substances and tested mixtures:</i></p> <p>(a) Human experience showing irreversible damage to the skin;</p> <p>(b) Structure-activity relationship to a substance or mixture already classified as corrosive;</p> <p>(c) pH extremes of <math>\leq 2</math> or <math>\geq 11.5</math> including acid/alkali reserve capacity;</p> <p>(d) Positive results in a valid and accepted <i>in vitro</i> skin corrosion test; or</p> <p>(e) Animal experience or test data that indicate that the substance/mixture causes irreversible damage to the skin following exposure of up to 4 h (see Table 3.2.1)</p> <p>2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.2.3.2)</i></p> <p>3. <i>If bridging principles do not apply,</i></p> <p>(a) For mixtures where the concentrations of the ingredients can be added, classify in Category 1: if the sum of the concentrations of Category 1 ingredients is <math>\geq 5\%</math>; or</p> <p>(b) For mixtures where the concentrations of the ingredients cannot be added, classify in Category 1: if the mixture contains <math>\geq 1\%</math> of a Category 1 ingredient (see 3.2.3.3.4)</p>	Symbol	
		Signal word	Danger
		Hazard statement	Causes severe skin burns and eye damage
<p style="text-align: center;"><b>2</b></p> <p><b>Irritant</b> <b>(applies to all</b> <b>authorities)</b></p>	<p>1. <i>For substances and tested mixtures:</i></p> <p>(a) Human experience or data showing reversible damage to the skin following exposure of up to 4 h;</p> <p>(b) Structure-activity relationship to a substance or mixture already classified as an irritant;</p> <p>(c) Positive results in a valid and accepted <i>in vitro</i> skin irritation test; or</p> <p>(d) Animal experience or test data that indicate that the substance/mixture causes reversible damage to the skin following exposure of up to 4 h, mean value of <math>\geq 2.3 \leq 4.0</math> for erythema/eschar or for oedema, or inflammation that persists to the end of the observation period, in 2 of 3 tested animals (Table 3.2.2)</p> <p>2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.2.3.2).</i></p> <p>3. <i>If bridging principles do not apply,</i></p> <p>(a) For mixtures where the concentrations of the ingredients can be added, classify in Category 2:</p> <p>(i) if the sum of concentrations of Category 1 ingredients is <math>\geq 1\%</math> but <math>&lt; 5\%</math>; or</p> <p>(ii) if the sum of concentrations of Category 2 ingredients is <math>\geq 10\%</math>; or</p> <p>(iii) if <math>[(10 \times \text{sum of concentrations of Category 1 ingredients}) + (\text{sum of concentrations of Category 2 ingredients})]</math> is <math>\geq 10\%</math>; or</p> <p>(b) For mixtures where the concentrations of the ingredients cannot be added, classify in Category 2: if the mixture contains <math>\geq 3\%</math> of a Category 2 ingredient (see 3.2.3.3.4)</p>	Symbol	
		Signal word	Warning
		Hazard statement	Causes skin irritation


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## A2.18

*Skin corrosion/irritation (see Chapter 3.2 for details) (Cont'd)*


Hazard category	Criteria	Hazard communication elements	
<p style="text-align: center;"><b>3</b></p> <p><b>Mild irritant</b></p> <p><b>(applies to some authorities)</b></p>	<p>1. <i>For substances and tested mixtures</i> Animal experience or test data that indicates that the substance/mixture causes reversible damage to the skin following exposure of up to 4 h, mean value of <math>\geq 1.5 &lt; 2.3</math> for erythema/eschar in 2 of 3 tested animals (See Table 3.2.2).</p>	Symbol	<i>No symbol</i>
	<p>2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.2.3.2).</i></p>	Signal word	Warning
	<p>3. <i>If bridging principles do not apply,</i></p> <p>(a) For mixtures where the concentrations of the ingredients can be added, classify in Category 3:</p> <p>(i) if the sum of concentrations of Category 2 ingredients is <math>\geq 1\%</math> but <math>&lt; 10\%</math>; or</p> <p>(ii) if the sum of the concentrations of Category 3 ingredients is <math>\geq 10\%</math>; or</p> <p>(iii) if <math>[(10 \times \text{sum of concentrations of Category 1 ingredients}) + (\text{sum of concentrations of Category 2 ingredients})]</math> is <math>\geq 1\%</math> but <math>&lt; 10\%</math>; or</p> <p>(iv) if <math>[(10 \times \text{sum of concentrations of Category 1 ingredients}) + (\text{sum of concentrations of Category 2 ingredients}) + (\text{sum of concentrations of Category 3 ingredients})]</math> is <math>\geq 10\%</math>;</p> <p>(b) For mixtures where the concentrations of the ingredients cannot be added, classify in Category 3: if the mixture contains <math>\geq 3\%</math> of a Category 3 ingredient (see 3.2.3.3.4)</p>	Hazard statement	Causes mild skin irritation

**A2.19**      **Serious eye damage/eye irritation** (see Chapter 3.3 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>  <b>Irreversible effects</b>	1. <i>For substances and tested mixtures</i> (a) Classification as corrosive to skin; (b) Human experience or data showing damage to the eye which is not fully reversible within 21 days; (c) Structure-activity relationship to a substance or mixture already classified as corrosive; (d) pH extremes of $\leq 2$ and $\geq 11.5$ including buffering capacity; (e) Positive results in a valid and accepted <i>in vitro</i> test to assess serious damage to eyes; or (f) Animal experience or test data that the substance or mixture produces either: (i) in at least one animal, effects on the cornea, iris or conjunctiva that are not expected to reverse or have not reversed; or (ii) in at least 2 of 3 tested animals a positive response of corneal opacity $\geq 3$ and/or iritis $> 1.5$ (see Table 3.3.1) 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.3.3.2) 3. <i>If bridging principles do not apply</i> , (a) For mixtures where the concentrations of the ingredients can be added, classify in Category 1: if the sum of concentrations of skin and/or eye Category 1 ingredients is $\geq 3\%$ ; or (b) For mixtures where the concentrations of the ingredients cannot be added: classify in Category 1 if the mixture contains $\geq 1\%$ of a skin and/or eye Category 1 ingredient (see 3.3.3.4)	Symbol	
		Signal word	Danger
		Hazard statement	Causes serious eye damage

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**A2.19**      *Serious eye damage/eye irritation* (see Chapter 3.3 for details) (Cont'd)

Hazard category	Criteria	Hazard communication elements	
<p style="text-align: center;"><b>2A</b></p> <p style="text-align: center;"><b>Irritant</b></p>	<p>1. <i>For substances and tested mixtures</i></p> <p>(a) Classification as severe skin irritant;</p> <p>(b) Human experience or data showing production of changes in the eye which are fully reversible within 21 days;</p> <p>(c) Structure-activity relationship to a substance or mixture already classified as an eye irritant;</p> <p>(d) Positive results in a valid and accepted in vitro eye irritation test; or</p> <p>(e) Animal experience or test data that indicate that the substance/mixture produces a positive response in at least 2 of 3 tested animals of: corneal opacity <math>\geq 1</math>, iritis <math>\geq 1</math>, or conjunctival edema (chemosis) <math>\geq 2</math> (Table 3.3.2)</p> <p>2. <i>If data for the complete mixture are not available, apply bridging principles</i> (see 3.3.3.2)</p> <p>3. <i>If bridging principles do not apply,</i></p> <p>(a) For mixtures where the concentrations of the ingredients can be added, classify in Category 2A:</p> <p>(i) if the sum of the concentrations of skin and/or eye Category 1 ingredients is <math>\geq 1\%</math> but <math>&lt; 3\%</math>; or</p> <p>(ii) if the sum of the concentrations of eye Category 2/2A ingredients is <math>\geq 10\%</math>; or</p> <p>(iii) if <math>[(10 \times \text{sum of concentrations of skin and/or eye Category 1 ingredients}) + (\text{sum of concentrations of eye Category 2A/2B ingredients})]</math> is <math>\geq 10\%</math>;</p> <p>(b) For mixtures where the concentrations of the ingredients cannot be added, classify in Category 2A:</p> <p style="padding-left: 20px;">if the mixture contains <math>\geq 3\%</math> of an eye Category 2 ingredient (see 3.3.3.3.4)</p>	Symbol	
		Signal word	Warning
		Hazard statement	Causes serious eye irritation




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**A2.19**      *Serious eye damage/eye irritation* (see Chapter 3.3 for details) (Cont'd)

Hazard category	Criteria	Hazard communication elements	
<b>2B</b>  <b>Mild Irritant</b>	1. <i>For substances and tested mixtures</i> (a) Human experience or data showing production of mild eye irritation; (b) Animal experience or test data that indicate that the lesions are fully reversible within 7 days (see Table 3.3.2)	Symbol	<i>No symbol</i>
	2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.3.3.2)</i>	Signal word	Warning
	3. <i>If bridging principles do not apply,</i> (a) For mixtures where the concentrations of the ingredients can be added, classify in Category 2B: (i) if the sum of the concentrations of skin and/or eye Category 1 ingredients is $\geq 1\%$ but $< 3\%$ ; or (ii) if the sum of the concentrations of eye Category 2 ingredients is $\geq 10\%$ ; or (iii) if $[(10 \times \text{sum of concentrations of skin and/or eye Category 1 ingredients}) + (\text{sum of concentrations of eye Category 2 ingredients})]$ is $\geq 10\%$ ; (b) For mixtures where the concentrations of the ingredients cannot be added, classify in Category 2B: if mixture contains $\geq 3\%$ of an eye Category 2 ingredient (see 3.3.3.4)	Hazard statement	Causes eye irritation



**A2.20 Respiratory sensitizer** (see Chapter 3.4 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances and tested mixtures</i> (a) If there is evidence in humans that the substance can lead to specific respiratory hypersensitivity, and/or (b) If there are positive results from an appropriate animal test  2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.4.3.2).  3. <i>If bridging principles do not apply</i> , classify the mixture as respiratory sensitizer if it contains at least one ingredient classified as respiratory sensitizer at the following concentrations: (a) Solids or liquids: (i) $\geq 0.1\%$ w/w (see note to Table 3.4.5); or (ii) $\geq 1.0\%$ w/w; (b) Gases: (i) $\geq 0.1\%$ v/v (see note to Table 3.4.5); or (ii) $\geq 0.2\%$ v/v	Symbol	
		Signal word	Danger
		Hazard statement	May cause allergy or asthmatic symptoms or breathing difficulties if inhaled
<b>1A</b> (where data are sufficient and where required by a competent authority)	1. <i>For substances and tested mixtures</i> showing a high frequency of occurrence in humans; or a probability of occurrence of a high sensitization rate in humans based on animal or other tests. Severity of reaction may also be considered.  2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.4.3.2).  3. <i>If bridging principles do not apply</i> , classify the mixture as respiratory sensitizer if it contains at least one ingredient classified as sub-category 1A at the following concentrations: (a) Solids or liquids: $\geq 0.1\%$ w/w (b) Gases: $\geq 0.1\%$ v/v	Symbol	
		Signal word	Danger
		Hazard statement	May cause allergy or asthma symptoms or breathing difficulties if inhaled
<b>1B</b> (where data are sufficient and where required by a competent authority)	1. <i>For substances and tested mixtures</i> showing a low to moderate frequency of occurrence in humans; or a probability of occurrence of a low to moderate sensitization rate in humans based on animal or other tests. Severity of reaction may also be considered.  2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.4.3.2).  3. <i>If bridging principles do not apply</i> , classify the mixture as respiratory sensitizer if it contains at least one ingredient classified as sub-category 1B at the following concentrations: (a) Solids or liquids: $\geq 1\%$ w/w (b) Gases: $\geq 0.2\%$ v/v	Symbol	
		Signal word	Danger
		Hazard statement	May cause allergy or asthma symptoms or breathing difficulties if inhaled



**A2.21 Skin sensitizer** (see Chapter 3.4 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances and tested mixtures</i> (a) If there is evidence in humans that the individual substance can lead to sensitization by skin contact in a substantial number of persons, or (b) If there are positive results from an appropriate animal test	Symbol	
	2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.4.3.2)</i>	Signal word	Warning
	3. <i>If bridging principles do not apply, classify the mixture as skin sensitizer if it contains at least one ingredient classified as skin sensitizer at a concentration:</i> (a) $\geq 0.1\%$ (solid/liquid/gas) see note to Table 3.4.5; or (b) $\geq 1.0\%$ (solid/liquid/gas)	Hazard Statement	May cause an allergic skin reaction
<b>1A</b> (where data are sufficient and where required by a competent authority)	1. <i>For substances and tested mixtures</i> showing a high frequency of occurrence in humans and/or a high potency in animals, which can be presumed to have the potential to produce significant sensitization in humans. Severity of reaction may also be considered.	Symbol	
	2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.4.3.2)</i>	Signal word	Warning
	3. <i>If bridging principles do not apply, classify the mixture as skin sensitizer if it contains at least one ingredient classified as sub-category 1A at a concentration <math>\geq 0.1\%</math>.</i>	Hazard Statement	May cause an allergic skin reaction
<b>1B</b> (where data are sufficient and where required by a competent authority)	1. <i>For substances and tested mixtures</i> showing a low to moderate frequency of occurrence in humans and/or a low to moderate potency in animals, which can be presumed to have the potential to produce sensitization in humans.	Symbol	
	2. <i>If data for the complete mixture are not available, apply bridging principles (see 3.4.3.2)</i>	Signal word	Warning
	3. <i>If bridging principles do not apply, classify the mixture as skin sensitizer if it contains at least one ingredient classified as sub-category 1B at a concentration <math>\geq 1.0\%</math>.</i>	Hazard Statement	May cause an allergic skin reaction

**A2.22 Germ cell mutagenicity** (see Chapter 3.5 for details)



Hazard category	Criteria for classification	Hazard communication elements	
<b>1</b> <b>(Both 1A and 1B)</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.5.2): (a) Known to induce heritable mutations in germ cells of humans; or (b) Regarded as if they induce heritable mutations in the germ cells of humans; 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.5.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 1 if it contains at least one ingredient classified in Category 1 at a concentration $\geq 0.1$ %	Symbol	
		Signal word	Danger
		Hazard statement	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<b>2</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.5.2): Which cause concern for humans owing to the possibility that they may induce heritable mutations in the germ cells of humans 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.5.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 2 if it contains at least one ingredient classified in Category 2 at a concentration $\geq 1.0$ %	Symbol	
		Signal word	Warning
		Hazard statement	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

**A2.23 Carcinogenicity** (see Chapter 3.6 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b> <b>(both 1A and 1B)</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.6.2): (a) Known to have carcinogenic potential for humans; (b) Presumed to have carcinogenic potential for humans; 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.6.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 1 if it contains at least one ingredient classified in Category 1 at a concentration $\geq 0.1\%$	Symbol	
		Signal word	Danger
		Hazard statement	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<b>2</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.6.2): Suspected human carcinogens 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.6.3.2). 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 2 if it contains at least one ingredient classified in Category 2 at a concentration: (a) $\geq 0.1\%$ (see 3.6.3.3 and note 1 to Table 3.6.1); or (b) $\geq 1.0\%$ (see 3.6.3.3 and note 2 to Table 3.6.1)	Symbol	
		Signal word	Warning
		Hazard statement	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) *

\* Some authorities will choose to label according to this provision, others may not.




**A2.24 (a) Toxic to reproduction** (see Chapter 3.7 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b> <b>(Both 1A and 1B)</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.7.2): (a) Known human reproductive toxicant; or (b) Presumed human reproductive toxicant 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.7.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 1 if it contains at least one ingredient classified in Category 1 at a concentration: (a) $\geq 0.1\%$ (see 3.7.3.3 and note 1 to Table 3.7.1); or (b) $\geq 0.3\%$ (see 3.7.3.3 and note 2 to Table 3.7.1)	Symbol	
		Signal word	Danger
		Hazard statement	May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<b>2</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.7.2): Suspected human reproductive toxicants 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.7.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 2 if it contains at least one ingredient classified in Category 2 at a concentration: (a) $\geq 0.1\%$ (see 3.7.3.3 and note 3 to Table 3.7.1); or (b) $\geq 3.0\%$ (see 3.7.3.3 and note 4 to Table 3.7.1)	Symbol	
		Signal word	Warning
		Hazard statement	Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)



**A2.24 (b) Effects on or via lactation** (see Chapter 3.7)

Hazard category	Criteria	Hazard communication elements	
<b>Additional category for effects on or via lactation</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.7.2): Substances or mixtures which cause concern for the health of breast-fed children 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.7.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in this category if it contains at least one ingredient classified in this category at a concentration: (a) $\geq 0.1\%$ (see 3.7.3.3 and note 1 to Table 3.7.1) or; (b) $\geq 0.3\%$ (see 3.7.3.3 and note 2 to Table 3.7.1)	Symbol	<i>No symbol</i>
		Signal word	<i>No signal word</i>
		Hazard statement	May cause harm to breast-fed children

**A2.25 Specific target organ toxicity following single exposure** (see Chapter 3.8 for details)



Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.8.2): Reliable evidence on the substance or mixture (including bridging principles) of an adverse effect on specific organs or systems in humans or animals. May use guidance values in Table 3.8.1, Category 1 criteria as part of weight of evidence evaluation. May be named for specific organ/system affected 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.8.3.3) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 1 if it contains at least one ingredient classified in Category 1 at a concentration: (a) $\geq 1.0\%$ (see 3.8.3.4 and note 1 to Table 3.8.2); or (b) $\geq 10\%$ (see 3.8.3.4 and note 2 to Table 3.8.2)	Symbol	
		Signal word	Danger
		Hazard statement	Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<b>2</b>	1. <i>For substances and tested mixtures</i> (see criteria in 3.8.2): Evidence on the substance or mixture (including bridging principles) of an adverse effect on specific organs or systems from animal studies or humans considering weight of evidence and guidance values in Table 3.8.1, Category 2 criteria. May be named for specific organ/system affected 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.8.3.3) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 2: (a) if it contains at least one ingredient classified in Category 1 at a concentration $\geq 1$ but $< 10\%$ ; (see 3.8.3.4 and note 3 to table 3.8.2); or (b) if it contains at least one ingredient classified in Category 2 at a concentration: (i) $\geq 1\%$ (see 3.8.3.4 and note 4 to Table 3.8.2); or (ii) $\geq 10\%$ (see 3.8.3.4 and note 5 to Table 3.8.2)	Symbol	
		Signal word	Warning
		Hazard statement	May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<b>3</b>	(a) (Respiratory tract irritation) Evidence on the substance or mixture of transient irritant effects on respiratory tract in humans; or (b) (Narcotic effects) Evidence on the substance or mixture of transient narcotic effects from animal studies and in humans	Symbol	
		Signal word	Warning
		Hazard statement	Respiratory tract irritation) May cause respiratory irritation or (Narcotic effects) May cause drowsiness or dizziness

**A2.26 Specific target organ toxicity following repeated exposure** (see Chapter 3.9 for details)


Hazard category	Criteria	Hazard communication elements	
<b>1</b>	<p>1. <i>For substances and tested mixtures</i> (see criteria in 3.9.2) Reliable evidence on the substance or mixture (including bridging principles) of an adverse effect on specific organs or systems in humans or animals. May use guidance values in Table 3.9.1 as part of weight of evidence evaluation. May be named for specific organ/system.</p> <p>2. <i>If data for the complete mixture are not available</i>, apply bridging principles (see 3.9.3.3)</p> <p>3. <i>If bridging principles do not apply</i>, classify the mixture in Category 1: if it contains at least one ingredient classified in Category 1 at a concentration: (a) <math>\geq 1.0\%</math> (see 3.9.3.4 and note 1 to Table 3.9.3); or (b) <math>\geq 10\%</math> (see 3.9.3.4 and note 2 to Table 3.9.3)</p>	Symbol	
		Signal word	Danger
		Hazard statement	Causes damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<b>2</b>	<p>1. <i>For substances and tested mixtures</i> (see criteria in 3.9.2) Evidence on the substance or mixture (including bridging principles) of an adverse effect on specific organs or systems from animal studies or humans considering weight of evidence and guidance values in Table 3.9.2. May be named for specific organ/system.</p> <p>2. <i>If data for the complete mixture are not available</i>, apply bridging principles (see 3.9.3.3)</p> <p>3. <i>If bridging principles do not apply</i>, classify the mixture in Category 2: (a) if it contains at least one ingredient classified in Category 1 at a concentration <math>\geq 1.0</math> but <math>&lt; 10\%</math> (see 3.9.3.4 and note 3 to table 3.9.3); or (b) if it contains at least one ingredient classified in Category 2 at a concentration: (i) <math>\geq 1.0\%</math> (see 3.9.3.4 and note 4 to Table 3.9.3); or (ii) <math>\geq 10\%</math> (see 3.9.3.4 and note 5 to Table 3.9.3)</p>	Symbol	
		Signal word	Warning
		Hazard statement	May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)



**A2.27 Aspiration hazard** (See chapter 3.10 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances and tested mixtures</i> (a) Practical experience from reliable and good quality human evidence showing human aspiration toxicity including chemical pneumonia, varying degree of pulmonary injury or death following aspiration; (b) Hydrocarbons with a kinematic viscosity $\leq 20.5$ mm <sup>2</sup> /s, measured at 40 °C; 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.10.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 1: (a) if it contains at least one ingredient classified in Category 1 and having a kinematic viscosity $\leq 20.5$ mm <sup>2</sup> /s measured at 40 °C, at a concentration $\geq 10\%$ ; or (b) For mixtures which separate into two or more distinct layers, if at least one layer contains one ingredient classified in Category 1 and having a kinematic viscosity $\leq 20.5$ mm <sup>2</sup> /s measured at 40 °C, at a concentration $\geq 10\%$	Symbol	
		Signal word	Danger
		Hazard statement	May be fatal if swallowed and enters airways
<b>2</b>	1. <i>For substances and tested mixtures:</i> Substances and mixtures other than those classified in Category 1 which, on the basis of animal studies and expert judgment are presumed to cause human aspiration toxicity and have a kinematic viscosity $\leq 14$ mm <sup>2</sup> /s, measured at 40 °C 2. <i>If data for the complete mixture are not available</i> , apply bridging principles (see 3.10.3.2) 3. <i>If bridging principles do not apply</i> , classify the mixture in Category 2: (a) if it contains at least one ingredient classified in Category 2 and having a kinematic viscosity $\leq 14$ mm <sup>2</sup> /s measured at 40 °C, at a concentration $\geq 10\%$ ; or (b) For mixtures which separate into two or more distinct layers, if at least one layer contains one ingredient classified in Category 2 and having a kinematic viscosity $\leq 14$ mm <sup>2</sup> /s measured at 40 °C, at a concentration $\geq 10\%$	Symbol	
		Signal word	Warning
		Hazard statement	May be harmful if swallowed and enters airways

**A2.28 (a) Acute hazards to the aquatic environment** (see Chapter 4.1 for details)



Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances and tested mixtures:</i> $L(E)C_{50} \leq 1 \text{ mg/l}$ where $L(E)C_{50}$ is either 96hr $LC_{50}$ (for fish), 48hr EC $LC_{50}$ (for crustacea) or 72 or 96hr $ErC_{50}$ (for algae or other aquatic plants) 2. <i>If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)</i> 3. <i>If bridging principles do not apply,</i> (a) For mixtures with classified ingredients, apply the <u>summation</u> method (see 4.1.3.5.5) and classify in Acute 1 if: $[(\text{Sum of concentrations of Acute 1 ingredients}) \times M] \geq 25\%$ where M is a multiplying factor (see 4.1.3.5.5.5). (b) For mixtures with tested ingredients, apply the <u>additivity</u> formula (see 4.1.3.5.2 and 4.1.3.5.3) and classify in Acute 1 if: $L(E)C_{50} \leq 1 \text{ mg/l}$ (c) For mixtures with both classified and tested ingredients, apply the <u>combined additivity</u> formula and <u>summation</u> method (see 4.1.3.5.2 to 4.1.3.5.3) and classify in Acute 1 if: $[(\text{Sum of concentrations of Acute 1 ingredients}) \times M] \geq 25\%$ 4. <i>For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “x% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”</i>	Symbol	
		Signal word	Warning
		Hazard statement	Very toxic to aquatic life
<b>2</b>	1. <i>For substances and tested mixtures:</i> $L(E)C_{50} > 1 \text{ mg/l}$ but $\leq 10 \text{ mg/l}$ where $L(E)C_{50}$ is either 96hr $LC_{50}$ (for fish), 48hr EC $LC_{50}$ (for crustacea) or 72 or 96hr $ErC_{50}$ (for algae or other aquatic plants) 2. <i>If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)</i> 3. <i>If bridging principles do not apply,</i> (a) For mixtures with classified ingredients, apply the <u>summation</u> method (see 4.1.3.5.5) and classify in Acute 2 if: $[(\text{Sum of concentrations of Acute 1 ingredients}) \times M \times 10] + (\text{Sum of concentrations of Acute 2 ingredients}) \geq 25\%$ where M is a multiplying factor (see 4.1.3.5.5.5). (b) For mixtures with tested ingredients, apply the <u>additivity</u> formula (see 4.1.3.5.2 and 4.1.3.5.3) and classify in Acute 2 if: $L(E)C_{50} > 1 \text{ mg/l}$ but $\leq 10 \text{ mg/l}$ (c) For mixtures with both classified and tested ingredients, apply the <u>combined additivity</u> formula and <u>summation</u> method (see 4.1.3.5.2 to 4.1.3.5.3) and classify in Acute 2 if: $[(\text{Sum of concentrations of Acute 1 ingredients}) \times M \times 10] + (\text{Sum of concentrations of Acute 2 ingredients}) \geq 25\%$ 4. <i>For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “x% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”</i>	Symbol	No symbol
		Signal word	No signal word
		Hazard statement	Toxic to aquatic life

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**A2.28 (a) Acute hazards to the aquatic environment (see Chapter 4.1 for details) (Cont'd)**

Hazard category	Criteria	Hazard communication elements	
3	1. For substances and tested mixtures: $L(E)C_{50} > 10 \text{ mg/l}$ but $\leq 100 \text{ mg/l}$ where $L(E)C_{50}$ is either 96hr $LC_{50}$ (for fish), 48hr EC $LC_{50}$ (for crustacea) or 72 or 96hr $ErC_{50}$ (for algae or other aquatic plants)	Symbol	No symbol
	2. If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)	Signal word	No signal word
	3. If bridging principles do not apply, (a) For mixtures with classified ingredients, apply the <u>summation</u> method (see 4.1.3.5.5) and classify in Acute 3 if: $[(\text{Sum of concentrations of Acute 1 ingredients} \times M \times 100) + (\text{Sum of concentrations of Acute 2 ingredients} \times 10) + (\text{Sum of concentrations of Acute 3 ingredients})] \geq 25\%$ where M is a multiplying factor (see 4.1.3.5.5.5) (b) For mixtures with tested ingredients, apply the <u>additivity</u> formula (see 4.1.3.5.2 and 4.1.3.5.3) and classify in Acute 3 if: $L(E)C_{50} > 10 \text{ mg/l}$ but $\leq 100 \text{ mg/l}$ (c) For mixtures with both classified and tested ingredients, apply the <u>combined additivity</u> formula and <u>summation</u> method (see 4.1.3.5.2 to 4.1.3.5.5.3) and classify in Acute 3 if: $[(\text{Sum of concentrations of Acute 1 ingredients} \times M \times 100) + (\text{Sum of concentrations of Acute 2 ingredients} \times 10) + (\text{Sum of concentrations of Acute 3 ingredients})] \geq 25\%$ 4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “×% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”	Hazard statement	Harmful to aquatic life

**A2.28 (b) Long-term hazards to the aquatic environment** (see Chapter 4.1 for details)


Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances rapidly degradable:</i> (a) $\text{NOEC} \leq 0.01 \text{ mg/l}$ ; or, if absent (b) $\text{L(E)C}_{50} \leq 1 \text{ mg/l}$ , and $\text{BCF} \geq 500$ (or if absent $\log K_{ow} \geq 4$ )	Symbol	
	2. <i>For substances non-rapidly degradable:</i> (a) $\text{NOEC} \leq 0.1 \text{ mg/l}$ ; or if absent (b) $\text{L(E)C}_{50} \leq 1 \text{ mg/l}$	Signal word	Warning
	3. <i>If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)</i> 4. <i>If bridging principles do not apply, classify in Chronic 1 if:</i> $[(\text{Sum of concentrations of Chronic 1 ingredients}) \times M] \text{ is } \geq 25\%$ where M is a multiplying factor (see 4.1.3.5.5) 5. <i>For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “x% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”</i>	Hazard statement	Very toxic to aquatic life with long lasting effects
<b>2</b>	1. <i>For substances rapidly degradable:</i> (a) $0.01 < \text{NOEC} \leq 0.1 \text{ mg/l}$ ; or, if absent (b) $1 \text{ mg/l} < \text{L(E)C}_{50} \leq 10 \text{ mg/l}$ and $\text{BCF} \geq 500$ (or if absent $\log K_{ow} \geq 4$ )	Symbol	
	2. <i>For substances non-rapidly degradable:</i> (a) $0.1 < \text{NOEC} \leq 1 \text{ mg/l}$ ; or if absent (b) $1 \text{ mg/l} < \text{L(E)C}_{50} \leq 10 \text{ mg/l}$	Signal word	No signal word
	3. <i>If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)</i> 4. <i>If bridging principles do not apply, classify in Chronic 2 if:</i> $[(\text{Sum of concentrations of Chronic 1 ingredients}) \times M \times 10] +$ $(\text{Sum of concentrations of Chronic 2 ingredients}) \text{ is } \geq 25\%$ where M is a multiplying factor (see 4.1.3.5.5) 5. <i>For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “x% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”</i>	Hazard statement	Toxic to aquatic life with long lasting effects

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**A2.28 (b) Long-term hazards to the aquatic environment (see Chapter 4.1 for details)(Cont'd)**

Hazard category	Criteria	Hazard communication elements	
<b>3</b>	1. <i>For substances rapidly degradable:</i> (a) $0.1 \text{ mg/l} < \text{NOEC} \leq 1 \text{ mg/l}$ ; or, if absent (b) $10 \text{ mg/l} < \text{L(E)C}_{50} \leq 100 \text{ mg/l}$ and $\text{BCF} \geq 500$ (or, if absent, $\log K_{ow} \geq 4$ )	Symbol	<i>No symbol</i>
	2. <i>For substances non-rapidly degradable:</i> $10 \text{ mg/l} < \text{L(E)C}_{50} \leq 100 \text{ mg/l}$	Signal word	<i>No signal word</i>
	3. <i>If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)</i> 4. <i>If bridging principles do not apply, classify in Chronic 3 if:</i> [(Sum of concentrations of Chronic 1 ingredients $\times$ M $\times$ 100) + (Sum of concentrations of Chronic 2 ingredients $\times$ 10) + (Sum of concentrations of Chronic 3 ingredients)] is $\geq 25\%$ where M is a multiplying factor (see 4.1.3.5.5) 5. <i>For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “x% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”</i>	Hazard statement	Harmful to aquatic life with long lasting effects
<b>4</b>	1. <i>For substances and tested mixtures:</i> (a) poorly soluble and no acute toxicity is observed up the water solubility; (b) Lack the potential to rapidly biodegrade and have the potential to bioaccumulate ( $\text{BCF} \geq 500$ or, if absent, $\log K_{ow} \geq 4$ ); unless Chronic NOECs $> 1 \text{ mg/l}$ ;	Symbol	<i>No symbol</i>
	2. <i>If data for the complete mixture are not available, apply bridging principles (see 4.1.3.4)</i>	Signal word	<i>No signal word</i>
	3. <i>If bridging principles do not apply, classify in Chronic 4 if:</i> [(Sum of concentrations of Chronic 1 ingredients) + (Sum of concentrations of Chronic 2 ingredients) + (Sum of concentrations of Chronic 3 ingredients) + (Sum of concentrations of Chronic 4 ingredients)] is $\geq 25\%$ 4. <i>For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: “x% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment”</i>	Hazard statement	May cause long lasting harmful effects to aquatic life

**A2.29 Hazard to the ozone layer** (see Chapter 4.2 for details)

Hazard category	Criteria	Hazard communication elements	
<b>1</b>	1. <i>For substances</i> Any of the controlled substances listed in the Annexes to the Montreal Protocol  2. <i>For mixtures</i> Any mixture containing at least one ingredient listed in the Annexes to the Montreal Protocol, at a concentration $\geq 0.1\%$	Symbol	
		Signal word	Warning
		Hazard Statement	Harms public health and the environment by destroying ozone in the upper atmosphere