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Sub-Committee of Experts on the Globally
Harmonized System of Classification
and Labelling of Chemicals
(Third session, 10-12 July 2002)

DRAFT GHS /MASTER/Annex 2

Note by the secretariat:

This document contains Annex 2 of the draft GHS with, in a visible mode, all amendments incorporated after the 3rd session of the Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals (July 2002). The corresponding consolidated document is submitted under reference SG/ST/AC.10/C.4/2002/16/Add.5 to the fourth session of the Sub-Committee.

ANNEX 2

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ANNEX 32

**CLASSIFICATION AND LABELLING
SUMMARY TABLES**


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A2 - CLASSIFICATION AND LABELLING SUMMARY TABLES



A2.1 Explosives (see Chapter 2.1 for details)

Hazard category	Criteria	Hazard communication elements	
Division 1.1	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
Division 1.2	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
Division 1.3	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
Division 1.4	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	1.4
		Signal word	Warning
		Hazard statement	Fire or projection hazard
Division 1.5	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	1.5
		Signal word	Warning
		Hazard statement	May explode in fire
Division 1.6	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	1.6
		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	
1	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
2	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	No symbol used
		Signal word	Warning
		Hazard statement	Flammable gas





A2.3 Flammable aerosols (See Chapter 2.3 for details)

Hazard category	Criteria	Hazard communication elements	
1	On the basis of its components, 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 in para. 6.2.3.4.1 para. 6.2.3.4.1 of Chapter 2.3).	Symbol	
		Signal word	Danger
		Hazard statement	Extremely flammable aerosol
2	On the basis of its components, 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 in para. 6.2.3.4.1 para. 6.2.3.4.1 of 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	
Compressed gas	A gas, which when packaged under pressure is entirely gaseous at -50 °C; including all gases with a critical temperature ≤ -50 °C.	Symbol	
		Signal word	Warning
		Hazard statement	Contains gas under pressure; may explode if heated
Liquefied gas	A gas which when packaged under pressure, is partially liquid at temperatures above -50 °C. A distinction is made between: i) <i>High pressure liquefied gas</i> : a gas with a critical temperature between -50 °C and +65 °C; and ii) <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
Refrigerated liquefied gas	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
Dissolved gas	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	<i>Symbol</i>	
		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	No symbol used
		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 other than metal powders: - wetted zone does not stop fire and - burning time < 45 seconds or burning rate > 2.2 mm/s Metal powders: - burning time ≤ 5 minutes	Symbol	
		Signal word	Danger
		Hazard statement	Flammable solid
2	Burning rate test: Substances other than metal powders: - wetted zone stops the fire for at least 4 minutes and - burning time < 45 seconds or burning rate > 2.2 mm/second Metal powders : - burning time > 5 minutes and ≤ 10 minutes	Symbol	
		Signal word	Warning
		Hazard statement	Flammable solid


A2.8 Self-reactive substances (See Chapter 2.8 for details)

Hazard category	Criteria	Hazard communication elements	
Type A	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 para. 2.8.4.1 of Chapter 2.8.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause an explosion
Type 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 para. 2.8.4.1 of Chapter 2.8.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire or explosion
Type C and D	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 para. 2.8.4.1 of Chapter 2.8.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire
Type E and F	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 para. 2.8.4.1 of Chapter 2.8.	Symbol	
		Signal word	Warning
		Hazard statement	Heating may cause a fire
Type G	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 para. 2.8.4.1 of Chapter 2.8.	Signal word	There are no label elements allocated to this hazard category.
		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 minutes of coming into contact with air.	Symbol	
		Signal word	Danger
		Hazard statement	Catches fire spontaneously if exposed to air




A2.11 Self-heating substances (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 is to be packed in packages with a volume of more than 3 m ³ ; 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 is to be packed in packages with a volume of more than 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, which on contact with water, emit flammable gases (See Chapter 2.12 for details)

Hazard category	Criteria	Hazard communication elements	
1	Any substance 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 equal to or greater than 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 which reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 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 which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 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 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 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 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 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 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 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	
Type A	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 para. 2.15.4.1 of Chapter 2.15.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause an explosion
Type 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 para. 2.15.4.1 of Chapter 2.15.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire or explosion
Type C and D	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 para. 2.15.4.1 of Chapter 2.15.	Symbol	
		Signal word	Danger
		Hazard statement	Heating may cause a fire
Type E and F	According to the results of test series A to H in the <i>UN Recommendations on the Transport of Dangerous Good, Manual of Tests and Criteria</i> , Part II and the application of the decision logic under para. 2.15.4.1 of Chapter 2.15.	Symbol	
		Signal word	Warning
		Hazard statement	Heating may cause a fire
Type G	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 para. 2.15.4.1 of Chapter 2.15.	Signal word	There are no label elements allocated to this hazard category.
		Symbol	
		Hazard statement	


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

Hazard category	Criteria	Hazard communication elements	
1	Corrosion rate on steel or aluminium surfaces exceeding 6.25 mm per year at a test temperature of 55 °C.	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	
1	$LD_{50} \leq 5$ mg/kg bodyweight (oral) $LD_{50} \leq 50$ mg/kg bodyweight (skin/dermal) $LC_{50} \leq 100$ ppm (gas) $LC_{50} \leq 0.5$ (mg/l) (vapour) $LC_{50} \leq 0.05$ (mg/l) (dust,mist)	Symbol	
		Signal word	Danger
		Hazard statement	Fatal if swallowed. (oral) Fatal in contact with skin (dermal) Fatal if inhaled (gas, vapour, dust, mist)
2	LD_{50} between 5 and less than 50 mg/kg bodyweight (oral) LD_{50} between 50 and less than 200 mg/kg bodyweight (skin/dermal) LC_{50} between 100 and less than 500 ppm (gas) LC_{50} between 0.5 and less than 2.0 (mg/l) (vapour) LC_{50} between 0.05 and less than 0.5 (mg/l) (dust, mist)	Symbol	
		Signal word	Danger
		Hazard Statement	Fatal if swallowed. (oral) Fatal in contact with skin (dermal) Fatal if inhaled (gas, vapour, dust, mist)
3	LD_{50} between 50 and less than 300 mg/kg bodyweight (oral) LD_{50} between 200 and less than 1000 mg/kg bodyweight (skin/dermal) LC_{50} between 500 and less than 2500 ppm (gas) LC_{50} between 2.0 and less than 10.0 (mg/l) (vapour) LC_{50} between 0.5 and less than 1.0 (mg/l) (dust, mist)	Symbol	
		Signal word	Danger
		Hazard statement	Toxic if swallowed. (oral) Toxic in contact with skin (dermal) Toxic if inhaled (gas, vapour, dust, mist)


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Hazard category (cont'd)	Criteria	Hazard communication elements	
4	<p>LD₅₀ between 300 and less than 2000 mg/kg bodyweight (oral)</p> <p>LD₅₀ between 1000 and less than 2000 mg/kg bodyweight (skin/dermal)</p> <p>LC₅₀ between 2500 and less than 5000 ppm (gas)</p> <p>LC50 between 10.0 and less than 20.0 (mg/l) (vapour)</p> <p>LC50 between 1.0 and less than 5.0 (mg/l) (dust, mist)</p>	Symbol	
		Signal word	Warning
		Hazard statement	<p>Harmful if swallowed. (oral)</p> <p>Harmful in contact with skin (dermal)</p> <p>Harmful if inhaled (gas, vapour, dust, mist)</p>
5	<p>LD₅₀ between 2000 and 5000 (oral or skin/dermal)</p> <p>For gases, vapours, dusts, mists, LC₅₀ in the equivalent range of the oral and dermal LD₅₀ (i.e., between 2000 and 5000 mg/kg bodyweight)</p> <p>See also the additional criteria</p> <ul style="list-style-type: none"> • Indication of significant effect in humans • Any mortality at Category 4 • Significant clinical signs at Category 4 • Indication from other studies 	Symbol	No symbol
		Signal word	Warning
		Hazard statement	<p>May be harmful if swallowed (oral)</p> <p>May be harmful in contact with skin (dermal)</p> <p>May be harmful if inhaled (gas, vapour, dust, mist)</p>

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

Hazard category	Criteria	Hazard communication elements	
<p>1</p> <p>Corrosive Including sub-categories A, B, and C; see Chapter 3.2, Table 3.2.1</p>	<p>1. <i>For Substances and Tested Mixtures:</i></p> <ul style="list-style-type: none"> • Human experience showing irreversible damage to the skin; • Structure/activity or structure property relationship to a substance or mixture already classified as corrosive; • pH extremes of ≤ 2 and ≥ 11.5 including acid/alkali reserve capacity; • Positive results in a valid and accepted <i>in vitro</i> skin corrosion test; or • Animal experience or test data that indicate that the substance/mixture causes irreversible damage to the skin following exposure of up to 4 hours (See Table 3.2.1) <p>2. <i>If data for a mixture are not available, use bridging principles in paragraphs 15–21 sub-section 3.2.3.2.</i></p> <p>3. <i>If bridging principles do not apply,</i></p> <p>(a) For mixtures where substances can be added: Classify as corrosive if the sum of the concentrations of corrosive substances in the mixture is $\geq 5\%$ (for substances with additivity); or</p> <p>(b) For mixtures where substances cannot be added: $\geq 1\%$. See paragraph 25 3.2.3.3.4.</p>	<p>Symbol</p>	
		<p>Signal word</p>	<p>Danger</p>
		<p>Hazard statement</p>	<p>Causes severe skin burns and eye damage</p>


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Hazard category (cont'd)	Criteria	Hazard communication elements	
<p style="text-align: center;">2</p> <p style="text-align: center;">Irritant</p> <p style="text-align: center;">(applies to all authorities)</p>	<p>1. <i>For Substances and Tested Mixtures</i></p> <ul style="list-style-type: none"> • Human experience or data showing reversible damage to the skin following exposure of up to 4 hours; • Structure/activity or structure property relationship to a substance or mixture already classified as an irritant; • Positive results in a valid and accepted <i>in vitro</i> skin irritation test; or • Animal experience or test data that indicate that the substance/mixture causes reversible damage to the skin following exposure of up to 4 hours, mean value of $\geq 2.3 < 4.0$ for erythema/eschar or for oedema, or inflammation that persists to the end of the observation period, in 2 of 3 tested animals (Table 2.3.2.2). <p>2. <i>If data for a mixture are not available, use bridging principles in paragraphs 15-21 sub-section 3.2.3.2.</i></p> <p>3. <i>If bridging principles do not apply, classify as an irritant if:</i></p> <p>(a) For mixtures where substances can be added: the sum of concentrations of corrosive substances in the mixture is $\geq 1\%$ but $\leq 5\%$; the sum of the concentrations of irritant substances is $\geq 10\%$; or the sum of (10 x the concentrations of corrosive ingredients) + (the concentrations of irritant ingredients) is $\geq 10\%$; or</p> <p>(b) For mixtures where substances cannot be added: $\geq 3\%$. (See paragraph 25.3.2.3.4)</p>	Symbol	
		Signal word	Warning
		Hazard statement	Causes skin irritation


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Hazard category (cont'd)	Criteria	Hazard communication elements	
<p style="text-align: center;">3</p> <p style="text-align: center;">Mild Irritant</p> <p style="text-align: center;">(applies to some authorities)</p>	<p>1. <i>For Substances and Tested Mixtures</i></p> <ul style="list-style-type: none"> • Animal experience or test data that indicates that the substance/mixture causes reversible damage to the skin following exposure of up to 4 hours, mean value of $\geq 1.5 < 2.3$ for erythema/eschar in 2 of 3 tested animals (See Table 23.2.2) <p>2. <i>If data for a mixture are not available and the bridging principles in paragraphs 15–21 sub-section 3.2.3.2.</i></p> <p>3. <i>If bridging principles do not apply, classify as mild irritant if:</i></p> <ul style="list-style-type: none"> • For mixtures where substances can be added the sum of the concentrations of irritant substances in the mixture is $\geq 1\%$ but $\leq 10\%$; • For mixtures where substances cannot be added: the sum of the concentrations of mild irritant substances is $\geq 10\%$; • the sum of (10 x the concentrations of corrosive substances) + (the concentrations of irritant substances) is $\geq 1\%$ but $\leq 10\%$; or • the sum of (10 x the concentrations of corrosive substances) + (the concentrations of irritant substances) + (the concentrations of mild irritant substances) is $\geq 10\%$. 	Symbol	None
		Signal word	Warning
		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	
1 Irreversible Effects	<p>1. <i>For Substances and Tested Mixtures</i></p> <ul style="list-style-type: none"> • Classification as corrosive to skin; • Human experience or data showing damage to the eye which is not fully reversible within 21 days; • Structure/activity or structure property relationship to a substance or mixture already classified as corrosive; • pH extremes of < 2 and > 11.5 including buffering capacity; • Positive results in a valid and accepted in vitro test to assess serious damage to eyes; or • Animal experience or test data that the substance or mixture produces either (1) in at least one animal, effects on the cornea, iris or conjunctiva that are not expected to reverse or have not reversed; or (2) in at least 2 of 3 tested animals a positive response of corneal opacity ≥ 3 and/or iritis >1.5. (See Table 3.3.1) <p>2. <i>If data for a mixture are not available, use bridging principles in paragraphs 17-23 sub-section 3.3.3.2.</i></p> <p>3. <i>If bridging principles do not apply,</i></p> <p>(a) For mixtures where substances can be added: Classify as Category 1 if the sum of the concentrations of substances classified as corrosive to the skin and/or eye Category 1 substances in the mixture is $\geq 3\%$ or</p> <p>(b) For mixtures where substances cannot be added: ≥ 1 See paragraph 27 3.3.3.4.</p>	Symbol	
		Signal word	Danger
		Hazard statement	Causes serious eye damage


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Hazard category (cont'd)	Criteria	Hazard communication elements	
2A Irritant	1. <i>Substances and tested mixtures</i> <ul style="list-style-type: none"> • Classification as severe skin irritant; • Human experience or data showing production of changes in the eye which are fully reversible within 21 days; • Structure/activity or structure property relationship to a substance or mixture already classified as an eye irritant; • Positive results in a valid and accepted in vitro eye irritation test; or • 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 ≥ 1, iritis ≥ 1, or conjunctival edema (chemosis) ≥ 2 (Table 23.3.2). 2. <i>If data for a mixture are not available, use bridging principles in paragraphs 17-23 sub-section 3.3.3.2.</i> 3. <i>If bridging does not apply, classify as an irritant (2A) if:</i> <p>(a) For mixtures where substances can be added: the sum of the concentrations of skin and/or eye Category 1 substances in the mixture is $\geq 1\%$ but $\leq 3\%$; the sum of the concentrations of eye irritant substances is $\geq 10\%$; or the sum of (10 x the concentrations of of skin and/or eye category 1 substances) + (the concentrations of eye irritants) is $\geq 10\%$</p> <p>(b) For mixtures where substances cannot be added: the sum of the concentrations of eye irritant ingredients is $\geq 3\%$ (See paragraph 27.3.3.3.4)</p>	Symbol	
		Signal word	Warning
		Hazard statement	Causes serious eye irritation
2B Mild Irritant	1. <i>For Substances and tested mixtures</i> <ul style="list-style-type: none"> • Human experience or data showing production of mild eye irritation; • Animal experience or test data that indicate that the lesions are fully reversible within 7 days. (See Table 23.3.2) 2. <i>If data for a mixture are not available, use bridging principles in paragraphs 17-23 sub-section 3.3.3.2.</i> 3. <i>If bridging does not apply, classify as an irritant (2A/B) if:</i> <p>(a) For mixtures where substances can be added: the sum of the concentrations of skin and/or eye Category 1 substances in the mixture is $\geq 1\%$ but $\leq 3\%$; the sum of the concentrations of eye irritant substances is $\geq 10\%$; or the sum of (10 x the concentrations of of skin and/or eye category 1 substances) + (the concentrations of eye irritants) is $\geq 10\%$</p> <p>(b) For mixtures where substances cannot be added: the sum of the concentrations of eye irritant ingredients is $\geq 3\%$ (See paragraph 27.3.3.3.4)</p>	Symbol	No symbol
		Signal word	Warning
		Hazard statement	Causes eye irritation

A2.20 Respiratory sensitizser (See Chapter 3.4 for details)

Hazard category	Criteria	Hazard communication element	
1	<p>1. <i>For Substances and Tested Mixture</i> If there is human evidence that the individual substance induces specific respiratory hypersensitivity, and/or Where there are positive results from an appropriate animal test</p> <p>2. <i>If these mixture meets the criteria set forth in the “Bridging Principles” through one of the following:</i> (a) Dilution (b) Batching (c) Substantially Similar Mixture</p> <p>3. <i>If bridging principles do not apply</i>, classify if any individual respiratory sensitizser in the mixture has a concentration of: \geq 1.0% Solid/Liquid \geq 0.2% Gas</p>	Symbol	New health hazard symbol
		Signal word	Danger
		Hazard statement	May cause allergic or asthmatic symptoms or breathing difficulties if inhaled

A2.21 Skin sensitiser (See Chapter 3.4 for details)

Hazard category	Criteria	Hazard communication element	
1	1. <i>For Substances and tested mixture</i> If there is evidence in humans that the individual substance can induce sensitisation by skin contact in a substantial number of persons, or Where there are positive results from an appropriate animal test 2. <i>If the mixture meets the criteria set forth in the “Bridging Principles” through one of the following:</i> (a) Dilution (b) Batching (c) Substantially similar mixture 3. <i>If bridging principles do not apply, Classify if any individual skin sensitiser in the mixture has a concentration of: $\geq 1.0\%$ Solid/Liquid/Gas</i>	Symbol	
		Signal word	Warning
		Hazard Statement	May cause allergic skin reaction

A2.22 Mutagenicity (See Chapter 3.5 for details)

Hazard Category	Criteria for classification	Hazard communication elements	
1 (Both 1A and 1B)	Known to induce heritable mutations or regarded as if it induces heritable mutations in the germ cells of humans (see criteria in paragraphs 5-15 section 3.5.2) or mixtures containing ≥ 0.1 % of such a substance	Symbol	New health hazard 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)
2	Causes concern for man owing to the possibility that it may induce heritable mutations in the germ cells of humans (see criteria in paragraphs 5-15 section 3.5.2) or mixtures containing ≥ 1.0 % of such a substance	Symbol	New health hazard 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	
1 (both 1A and 1B)	Known or Presumed Human Carcinogen including mixtures containing $\geq 0.1\%$ of such a substance	Symbol	New health hazard 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.
2	Suspected human carcinogen Including mixtures containing more than ≥ 0.1 or $\geq 1.0\%$ of such a substance (See Notes 1 and 2 in Table 3.6.1 of Chapter 3.6)	Symbol	New health hazard 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	
<p>1 (Both 1A and 1B)</p>	<p>Known or presumed human reproductive toxicants (see criteria in paragraphs 3.7.2.2.1 to 3.7.2.6.0 of Chapter 3.7) or mixtures containing $\geq 0.1\%$ or $\geq 0.3\%$ of such a substance (See notes 1 and 2 of Table 3.7.1, Chapter 3.7)</p>	Symbol	New health hazard symbol
		Signal word	Danger
		Hazard statement	May damage fertility or the unborn child (state specific effect if known) or (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
<p>2</p>	<p>Suspected human reproductive toxicants (see criteria in paragraphs 3.7.2.2.1 to 3.7.2.6.0 of Chapter 3.7) or mixtures containing $\geq 0.1\%$ or $\geq 3.0\%$ of such a substance (See Notes 3 and 4 of Table 3.7.1, Chapter 3.7)</p>	Symbol	New health hazard symbol
		Signal word	Warning
		Hazard statement	Suspected of damaging fertility or the unborn child (state specific effect if known) or (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

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

Hazard category (cont'd)	Criteria	Hazard communication elements	
Special category	Substances which cause concern for the health of breastfed children (see criteria in paragraphs 3.7.2.2.1 to 3.7.2.6.0 and 3.7.3.4 of Chapter 3.7)	Symbol	No symbol
		Signal word	No signal word
		Hazard Statement	May cause harm to breast-fed children.


A2.25 Target organ systemic toxicity following single exposure (See Chapter 3.8 for details)

Hazard category	Criteria	Hazard communication elements	
1	<p>Reliable evidence on the substance or mixture (including bridging) of an adverse effect on specific organ/systems or systemic toxicity 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.]</p> <p>Mixture that lacks sufficient data, but contains Category 1 ingredient at a concentration of ≥ 1.0 to $\leq 10.0\%$ for some authorities; and $\geq 10.0\%$ for all authorities.</p>	Symbol	New health hazard 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)
2	<p>Evidence on the substance or mixture (including bridging) of an adverse effect on specific organ/systems or systemic toxicity 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.</p> <p>Mixture that lacks sufficient data, but contains Category 1 ingredient: ≥ 1 but $\leq 10\%$ for some authorities; and /or contains Category 2 ingredient: ≥ 1 to $\leq 10\%$ for some authorities; and $\geq 10\%$ for all authorities</p>	Symbol	New health hazard symbol
		Signal word	Warning
		Hazard statement	May 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)

A2.26 Target organ systemic toxicity following repeat exposure (See Chapter 3.9 for details)

Hazard category	Criteria	Hazard communication elements	
1	<p>Reliable evidence on the substance or mixture (including bridging) of an adverse effect on specific organ/systems or systemic toxicity in humans or animals. May use guidance values in Table 4-3.9.1 as part of weight of evidence evaluation. May be named for specific organ/system</p> <p>Mixture that lacks sufficient data, but contains Category 1 ingredient: ≥ 1 to $\leq 10\%$ for some authorities; and $\geq 10\%$ for all authorities.</p>	Symbol	New health hazard 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)
2	<p>Evidence on the substance or mixture (including bridging) of an adverse effect on specific organ/systems or systemic toxicity from animal studies or humans considering weight of evidence and guidance values in Table 2-3.9.2 criteria. May be named for specific organ/system.</p> <p>Mixture that lacks sufficient data, but contains Category 1 ingredient: ≥ 1.0 but $\leq 10\%$ for some authorities (See Note 3 of Table 3.9.3)</p> <p>and /or</p> <p>contains Category 2 ingredient: ≥ 1.0 or $\geq 10\%$</p>	Symbol	New health hazard 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 Acute hazards to the aquatic environment (See Chapter 3.10 for details)

Hazard category	Criteria	Hazard communication elements	
1	<p><i>1. For Substances and Tested Mixtures:</i></p> <ul style="list-style-type: none"> • $L(E)C_{50} \leq 1\text{mg/L}$ where $L(E)C_{50}$ is either fish 96hr LC_{50}, crustacea 48hr EC LC_{50} or aquatic plant 72 or 96hr ErC_{50} <p><i>2. If data for a mixture are not available, use bridging principles (see 3.10.3.4 paragraphs 33-39)</i></p> <p><i>3. If bridging principles do not apply,</i></p> <p>(a) For mixtures with classified ingredients: The <u>summation</u> method (see 3.10.3.10.3.5.5 paragraph 44-50) reveals:</p> <ul style="list-style-type: none"> • $[\text{Concentration of Acute 1}] \times M > 25\%$ where M is a multiplying factor (see 3.10.3.5.5.5 paragraph 56). <p>(b) For mixtures with tested ingredients: The <u>additivity</u> formula (see 3.10.3.5.2 and 3.10.3.5.3 paragraph 41-42) reveals:</p> <ul style="list-style-type: none"> • $L(E)C_{50} \leq 1\text{mg/L}$ <p>(c) For mixtures with both classified and tested ingredients: The combined <u>additivity</u> formula and <u>summation</u> method (see paragraphs 3.10.3.5.2 to 3.10.3.5.5.3 41-50) reveal:</p> <ul style="list-style-type: none"> • $[\text{Concentration of Acute 1}] \times M > 25\%$ <p><i>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</i></p>	Symbol	
		Signal word	Warning
		Hazard statement	Very toxic to aquatic life



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Hazard category (cont'd)	Criteria	Hazard communication elements	
2	<p>1. For Substances and Tested Mixtures:</p> <ul style="list-style-type: none"> • $1\text{mg/L} < L(E)C_{50} \leq 10\text{mg/L}$ where $L(E)C_{50}$ is either fish 96hr LC_{50}, crustacea 48hr EC LC_{50} or aquatic plant 72 or 96hr ErC_{50} <p>2. If data for a mixture are not available, use bridging principles (see 3.10.3.4 paragraphs 33-39)</p> <p>3. If bridging principles do not apply,</p> <p>(a) For mixtures with classified ingredients: The <u>summation</u> method (see paragraph 3.10.3.5.5.1 to 3.10.3.5.5.344-50) reveals: <ul style="list-style-type: none"> • $[\text{Concentration of Acute 1}] \times M \times 10 + [\text{Concentration of Acute 2}] > 25\%$ where M is a multiplying factor (see paragraph 3.10.3.5.5.56). </p> <p>(b) For mixtures with tested ingredients: The <u>additivity</u> formula (see paragraph 3.10.3.5.2-3.10.3.5.341-42) reveals: <ul style="list-style-type: none"> • $1\text{mg/L} < L(E)C_{50} \leq 10\text{mg/L}$ </p> <p>(c) For mixtures with both classified and tested ingredients: The combined <u>additivity</u> formula and <u>summation</u> method (see paragraphs 3.10.3.5.2-3.10.3.5.5.341-50) reveal: <ul style="list-style-type: none"> • $[\text{Concentration of Acute 1}] \times M \times 10 + [\text{Concentration of Acute 2}] > 25\%$ </p> <p>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</p>	Symbol	No symbol used
		Signal word	No signal word
		Hazard statement	Toxic to aquatic life

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Hazard category (cont'd)	Criteria	Hazard communication elements	
3	<p><i>1. For Substances and Tested Mixtures:</i></p> <ul style="list-style-type: none"> • 10mg/L < L(E)C₅₀ ≤ 100mg/L where L(E)C₅₀ is either fish 96hr LC₅₀, crustacea 48hr EC LC₅₀ or aquatic plant 72 or 96hr ErC₅₀ <p><i>2. If data for a mixture are not available, use bridging principles (see 3.10.3.4 paragraphs 33-39)</i></p> <p><i>3. If bridging principles do not apply,</i></p> <p>(d) For mixtures with classified ingredients: The <u>summation</u> method (see 3.10.3.5.1 to 3.10.3.5.3 paragraph 44-50) reveals: <ul style="list-style-type: none"> • [Concentration of Acute 1] x M x 100 + [Concentration of Acute 2] x 10 + [Concentration of Acute 3] > 25% where M is a multiplying factor (see 3.10.3.5.5 paragraph 56).</p> <p>(e) For mixtures with tested ingredients: The <u>additivity</u> formula (see 3.10.3.5.2-3.10.3.5.3 paragraph 41-42) reveals: <ul style="list-style-type: none"> • 10mg/L < L(E)C₅₀ ≤ 100mg/L </p> <p>(f) For mixtures with both classified and tested ingredients: The combined <u>additivity</u> formula and <u>summation</u> method (see 3.10.3.5.2 to 3.10.3.5.3 paragraphs 41-50) reveal: <ul style="list-style-type: none"> • [Concentration of Acute 1] x M x 100 + [Concentration of Acute 2] x 10 + [Concentration of Acute 3] > 25% </p> <p><i>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</i></p>	Symbol	No symbol used
		Signal word	No signal word
		Hazard statement	Harmful to aquatic life

| **A2.28** **Chronic hazards to the aquatic environment** (See Chapter 3.10 for details)

Hazard category	Criteria	Hazard communication elements	
1	<p><i>1. For Substances:</i></p> <ul style="list-style-type: none"> • L(E)C₅₀ ≤ 1mg/L; and • Lack the potential to rapidly biodegrade and/or have the potential to bioaccumulate (BCF ≥ 500 or if absent log K_{ow} ≥ 4). <p>where L(E)C₅₀ is either fish 96hr LC₅₀, crustacea 48hr EC LC₅₀ or aquatic plant 72 or 96hr ErC₅₀</p> <p><i>2. For Mixtures, use bridging principles (see paragraphs 3.10.3.4-39).</i></p> <p><i>3. If bridging principles do not apply,</i></p> <ul style="list-style-type: none"> • [Concentration of Chronic 1] x M > 25% where M is a multiplying factor (see paragraph 3.10.3.5.5-56). <p><i>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</i></p>	Symbol	
		Signal word	Warning
		Hazard statement	Very toxic to aquatic life with long lasting effects
2	<p><i>1. For Substances:</i></p> <ul style="list-style-type: none"> • 1 mg/L < L(E)C₅₀ ≤ 10 mg/L; and • Lack the potential to rapidly biodegrade and/or have the potential to bioaccumulate (BCF ≥ 500 or if absent log K_{ow} ≥ 4); unless • Chronic NOECs > 1mg/L <p><i>2. For Mixtures, use bridging (see paragraphs 33-39 3.10.3.4).</i></p> <p><i>3. If bridging principles do not apply,</i></p> <ul style="list-style-type: none"> • [Concentration of Chronic 1] x M x 10 + [Concentration of Chronic 2] > 25% where M is a multiplying factor (see paragraph 3.10.3.5.5-56). <p><i>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</i></p>	Symbol	
		Signal word	No signal word
		Hazard statement	Toxic to aquatic life with long lasting effects

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Hazard category (Cont'd)	Criteria	Hazard communication elements	
3	<p>1. For Substances:</p> <ul style="list-style-type: none"> • 10 mg/L < L(E)C₅₀ ≤ 100 mg/L; and • Lack the potential to rapidly biodegrade and/or have the potential to bioaccumulate (BCF ≥ 500 or if absent log Kow ≥ 4); unless • Chronic NOECs > 1mg/L <p>2. For Mixtures, use bridging principles (see paragraphs 3.10.3.433-39).</p> <p>3. If bridging principles do not apply,</p> <ul style="list-style-type: none"> • [Concentration of Chronic 1] x M x 100 + [Concentration of Chronic 2] x 10 + [Concentration of Chronic 3] > 25% where M is a multiplying factor (see paragraph 3.10.3.5.556). <p>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</p>	Symbol	No symbol used
		Signal word	No signal word
		Hazard statement	Harmful to aquatic life with long lasting effects
4	<p>1. For Substances:</p> <ul style="list-style-type: none"> • poorly soluble and no acute toxicity is observed up the water solubility • Lack the potential to rapidly biodegrade and/or have the potential to bioaccumulate (BCF ≥ 500 or if absent log Kow ≥ 4); unless • Chronic NOECs > 1mg/L <p>2. For Mixtures, use bridging principles (see paragraphs 3.10.3.433-39).</p> <p>3. If bridging principles do not apply,</p> <ul style="list-style-type: none"> • Sum of concentrations of components classified as Chronic 1, 2, 3 or 4 > 25% <p>4. For mixtures with no usable information for one or more relevant ingredients, classify using the available information and add the statement: "x percent of the mixture consists of component(s) of unknown hazards to the aquatic environment".</p>	Symbol	No symbol used
		Signal word	No signal word
		Hazard statement	May cause long lasting harmful effects to aquatic life

