AOTS / ENEP-3 / Feb. 2008

Globally Harmonized System of Classification System of Classification and Labelling of Chemicals (GHS)

GHS Update

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1. GHS Amendments

- The 12th session of GHS Sub-Committee of Experts
  December 2006
- The 13th session of GHS Sub-Committee of Experts
  July 2007
- The 14th session of GHS Sub-Committee of Experts
  December 2007

Globally Harmonized System of Classification and Labelling of Chemicals (GHS) First revised edition (2005)
http://www.unece.org/trans/danger/publi/ghs/ghs_rev01/01files_e.html

Amendments to the first revised edition (2005)
http://www.unece.org/trans/danger/publi/ghs/ghs_rev01/01amend_e.html

Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Second revised edition (2007)

Informal documents for 14th session
http://www.unece.org/trans/main/dgdb/dgsubc4/c4inf14.html

Major amendments to GHS (2nd Rev. Ed. July 2007)

- **Acute toxicity (Inhalation – gas) Category 4**

  Upper limit 5000ppm → 20,000ppm

  ATE 3000ppm → 4,500ppm

- **Specific target organ/systemic toxicity → Specific target organ toxicity (No substantial change) (deletion of the word "systemic")**

- **GHS Annex 1,2,3 Codification of hazard statements and precautionary statements.**

  H Code:Hazard statements

  P Code: Precautionary statements

  UNECE ST/SG/AC.10/34/Add.3 26 January 2007

- **Distinction between induction of sensitizing potency and elicitation of allergic reaction in respiratory and skin sensitization.**

Acute Toxicity Estimate(ATE)

Conversion from experimentally obtained acute toxicity range values or acute toxicity hazard categories to acute toxicity point estimates for classification for the respective routes of exposure

	Classification category or experimentally obtained acute toxicity range estimate	Converted Acute Toxicity point estimate
Oral (mg/kg body weight)	0 < Category 1 ≦ 5 5 < Category 2≦ 50 50 < Category 3≦ 300 300 < Category 4 ≦ 2000 2000 < Category 5 ≦ 5000	0.5 5 100 500 2500
Dermal (mg/kg body weight)	0 < Category 1 ≦ 50 50 < Category 2 ≦ 200 200 < Category 3 ≦ 1000 1000 < Category 4≦ 2000 2000 < Category 5 ≦ 5000	5 50 300 1100 2500

Acute Toxicity Estimate(ATE)

(In blue:Estimated from ATE-oral, ATE-dermal)

Conversion from experimentally obtained acute toxicity range estimate or acute toxicity classification category to acute toxicity point estimates for classification for the respective routes of exposure

	Classification category or experimentally obtained acute toxicity range estimate	Converted Acute Toxicity point estimate
Inhalation Gases (ppmV)	0 < Category1 ≦ 100 100 < Category2 ≦ 500 500 < Category3 ≦ 2500 2500 < Category4 ≦ 5000 5000 < Category5 ≦ 12500	10 100 700 3000 (see Note 1) 6250 (see Note 1)
Inhalation Vapours (mg/L)	0 < Category1 ≦ 0.5 0.5 < Category2 ≦ 2.0 2.0 < Category3 ≦ 10.0 10.0 < Category4≦ 20.0 20.0 < Category5 ≦ 50.0	0.05 0.5 3 11 25 (see Note 2)
Inhalation Dust/mist (mg/L)	0 < Category1 ≦ 0.05 0.05 < Category2 ≦ 0.5 0.5 < Category3 ≦ 1.0 1.0 < Category4 ≦ 5.0 5.0 < Category5 ≦ 12.5	0.005 0.05 0.5 1.5 6.25 (see Note 2)

NOTE 1: In its session held at the end of 2006, the UN Sub-Committee of Experts adopted to change the upper range for Inhalation (Gases) Category4 to20,000ppm, and Converted Acute Toxicity point estimate to 4,500ppm. Based on this change, the range for Inhalation (Gases) Categry 5 is estimated to be 20,000ppm < Category5≦ 50,000ppm,and Converted Acute Toxicity point estimate for Category5 is estimated to be 25,000ppm .

NOTE 2: Acute toxicity range estimate for Inhalation (Gases) Category 5 is not established in GHS.The ranges have been estimated from the ranges of oral toxicity/dermal toxicity category 5 based on GHS footnotes.These are for reference only.

Acute Toxicity Estimate(ATE) (In blue:Estimated from ATE-oral, ATE-dermal)

Conversion from experimentally obtained acute toxicity range estimate or acute toxicity classification category to acute toxicity point estimates for classification for the respective routes of exposure

	Classification category or experimentally obtained acute toxicity range estimate	Converted Acute Toxicity point estimate
Inhalation Gases (ppmV)	0 < Category1 ≦ 100 100 < Category2 ≦ 500 500 < Category3 ≦ 2500 2,500 < Category4 ≦ 20,000 20,000< Category5 ≦ 50,000	10 100 700 4,500 (see Note 1) 25,000 (see Note 1)
Inhalation Vapours (mg/L)	0 < Category1 ≦ 0.5 0.5 < Category2 ≦ 2.0 2.0 < Category3 ≦ 10.0 10.0 < Category4≦ 20.0 20.0 < Category5 ≦ 50.0	0.05 0.5 3 11 25 (see Note 2)
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NOTE 1: In its session held at the end of 2006, the UN Sub-Committee of Experts adopted to change the upper range for Inhalation (Gases) Category4 to20,000ppm, and Converted Acute Toxicity point estimate to 4,500ppm. Based on this change, the range for Inhalation (Gases) Categry 5 is estimated to be 20,000ppm < Category5≦ 50,000ppm,and Converted Acute Toxicity point estimate for Category5 is estimated to be 25,000ppm .

NOTE 2: Acute toxicity range estimate for Inhalation (Gases) Category 5 is not established in GHS.The ranges have been estimated from the ranges of oral toxicity/dermal toxicity category 5 based on GHS footnotes.These are for reference only.

GHS Classification of Health Hazard and Codification of Hazard Statements (1)

Hazard class	Hazard category	Pictogram	Signal word	Hazard code	Hazard statements
Acute toxicity -Oral	1		Danger	H300	Fatal if swallowed
Acute toxicity -Oral	2		Danger	H300	Fatal if swallowed
Acute toxicity -Oral	3		Danger	H301	Toxic if swallowed
Acute toxicity -Oral	4		Warning	H302	Harmful if swallowed
Acute toxicity -Oral	5	–	Warning	H303	May be harmful if swallowed

GHS Classification of Health Hazard and Codification of Hazard Statements(2)					
Hazard class	**Hazard category**	**Pictogram**	**Signal word**	**Hazard code**	**Hazard statements**
Acute toxicity -Dermal	**1**		**Danger**	**H310**	**Fatal in contact with skin**
Acute toxicity -Dermal	**2**		**Danger**	**H310**	**Fatal in contact with skin**
Acute toxicity -Dermal	**3**		**Danger**	**H311**	**Toxic in contact with skin**
Acute toxicity -Dermal	**4**		**Warning**	**H312**	**Harmful in contact with skin**
Acute toxicity -Dermal	**5**	**–**	**Warning**	**H313**	**May be harmful in contact with skin**

GHS Classification of Health Hazard and Codification of Hazard Statements (3)					
Hazard class	**Hazard category**	**Pictogram**	**Signal word**	**Hazard code**	**Hazard statements**
Acute toxicity -Inhalation	**1**		**Danger**	**H330**	**Fatal if inhaled**
Acute toxicity -Inhalation	**2**		**Danger**	**H330**	**Fatal if inhaled**
Acute toxicity -Inhalation	**3**		**Danger**	**H331**	**Toxic if inhaled**
Acute toxicity -Inhalation	**4**		**Warning**	**H332**	**Harmful if inhaled**
Acute toxicity -Inhalation	**5**	**–**	**Warning**	**H333**	**May be harmful if inhaled**

GHS Classification of Health Hazard and Codification of Hazard Statements(4)					
Hazard class	**Hazard category**	**Pictogram**	**Signal word**	**Hazard code**	**Hazard statements**
Skin corrosion/ irritation	1A 1B 1C		Danger	H314	Causes severe skin burns and eye damage
Skin corrosion/ irritation	2		Warning	H315	Causes skin irritation
Skin corrosion/ irritation	3	–	Warning	H316	Causes mild skin irritation
Serious eye damage/eye irritation	1		Danger	H318	Causes serious eye damage
Serious eye damage/eye irritation	2A		Warning	H319	Causes serious eye irritation
Serious eye damage/eye irritation	2B	–	Warning	H320	Causes eye irritation

GHS Classification of Health Hazard and Codification of Hazard Statements (5)

Hazard class	Hazard category	Pictogram	Signal word	Hazard code	Hazard statements
Sensitization - respiratory	1		Danger	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Sensitization - skin	1		Warning	H317	May cause an allergic skin reaction
Aspiration hazard	1		Danger	H304	May be fatal if swallowed and enters airways
Aspiration hazard	2		Warning	H305	May be harmful if swallowed and enters airways

GHS Classification of Health Hazard and Codification of Hazard Statements (6)					
Hazard class	**Hazard category**	**Pictogram**	**Signal word**	**Hazard code**	**Hazard statements**
Germ cell mutagenicity	1A 1B		Danger	H340	May cause genetic defects
Germ cell mutagenicity	2		Warning	H341	Suspected of causing genetic defects
Carcinogenicity	1A 1B		Danger	H350	May cause cancer
Carcinogenicity	2		Warning	H351	Suspected of causing cancer
Reproductive toxicity	1A 1B		Danger	H360	May damage fertility or the unborn child
Reproductive toxicity	2		Warning	H361	Suspected of damaging fertility or the unborn child
Reproductive toxicity(effects on or via lactation)	Additional category	–		H362	May cause harm to breast-fed children

GHS Classification of Health Hazard and Codification of Hazard Statements (7)					
Hazard class	**Hazard category**	**Pictogram**	**Signal word**	**Hazard code**	**Hazard statements**
Specific target organ toxicity -single exposure	**1**		**Danger**	**H370**	**Causes damage to organs**
Specific target organ toxicity -single exposure	**2**		**Warning**	**H371**	**May cause damage to organs**
Specific target organ toxicity -single exposure	**3 (respiratory tract irritation)**		**Warning**	**H335**	**May cause respiratory irritation**
Specific target organ toxicity -single exposure	**3 (narcosis)**		**Warning**	**H336**	**May cause drowsiness and dizziness**
Specific target organ toxicity -repeated exposure	**1**		**Danger**	**H372**	**Causes damage to organs through prolonged or repeated exposure**
Specific target organ toxicity -repeated exposure	**2**		**Warning**	**H373**	**May cause damage to organs through prolonged or repeated exposure**

Codification of Precautionary Statements [Prevention]

Code	Precautionary statements	Hazard class	Hazard category
P201	Obtain special instruction before use.	Explosives	Unstable explosive
		Germ cell mutagenicity	1A, 1B, 2
		Carcinogenicity	1A, 1B, 2
		Reproductive toxicity	1A, 1B, 2
		Reproductive toxicity- effects on or via lactation	Additional category
P202	Do not handle until all safety precautions have been read and understood.	Explosives	Unstable explosive
		Germ cell mutagenicity	1A, 1B, 2
		Carcinogenicity	1A, 1B, 2
		Reproductive toxicity	1A, 1B, 2
P210	Keep away from *ignition sources* such as heat/sparks/open flames/hot surfaces - No smoking.	Explosives	Divisions 1.1, 1.2, 1.3, 1.4, 1.5
		Flammable gases	1, 2
		Flammable aerosols	1, 2
		Flammable liquids	1, 2, 3
		Flammable solid	1, 2
		Self-reactive substances and mixtures	Type A, B, C, D, E, F
		Pyrophoric liquids	1
		Pyrophoric solids	1
		Organic peroxides	Type A, B, C, D, E, F
		Flammable liquids	4
		Oxidizing liquids	1, 2, 3
		Oxidizing solids	1, 2, 3

Codification of Precautionary Statements [Response]

Code	Precautionary statements	Hazard class	Hazard category
P301	IF SWALLOWED:	Acute toxicity-oral	1, 2, 3, 4
		Skin corrosion	1A, 1B, 1C
		Aspiration hazard	1, 2
P302	IF ON SKIN:	Pyrophoric liquids	1
		Acute toxicity-dermal	1, 2, 3, 4
		Skin irritation	2
		Skin sensitization	1
P303	IF ON SKIN(or hair):	Flammable liquids	1, 2, 3
		Skin corrosion	1A, 1B, 1C
P304	IF INHALED:	Acute toxicity-inhalation	1, 2, 3, 4, 5
		Skin corrosion	1A, 1B, 1C
		Respiratory sensitization	1
		Specific target organ toxicity-single exposure	3 (respiratory tract irritation)
		Specific target organ toxicity-single exposure	3 (narcosis)
P305	IF IN EYES:	Skin corrosion	1A, 1B, 1C
		Serious eye damage	1
		Eye irritation	2A, 2B
P306	IF ON CLOTHING:	Oxidizing liquids	1
		Oxidizing solids	1
P307	If exposed:	Specific target organ toxicity-single exposure	1

Codification of Precautionary Statements [Storage]

Code	General precautionary statements	Hazard class	Hazard category
P401	Store... in accordance with local/regional/national/international regulations	Explosives	Unstable explosive Divisions 1.1, 1.2, 1.3, 1.4, 1.5
P402	Store in a dry place.	Substances and mixtures which, in contact with water, emit flammable gases	1, 2, 3
P403	Store in a well-ventilated place.	Flammable gases	1, 2
		Oxidizing gases	1
		Gases under pressure	Compressed gas
			Liquefied gas
			Refrigerated liquefied gas
			Dissolved gas
		Flammable liquids	1, 2, 3, 4
		Self-reactive substances and mixtures	Type A, B, C, D, E, F
		Acute toxicity-inhalation	1, 2, 3
		Specific target organ toxicity-single exposure	3 (respiratory tract irritation)
		Specific target organ toxicity-single exposure	3 (narcosis)
P404	Store in a closed container.	Substances and mixtures which, in contact with water, emit flammable gases	1, 2, 3
P405	Store locked up.	Acute toxicity-oral	1, 2, 3
		Acute toxicity-dermal	1, 2, 3
		Acute toxicity-inhalation	1, 2, 3
		Skin corrosion	1A, 1B, 1C

Codification of Precautionary Statements [Disposal]

Code	General precautionary statements	Hazard class	Hazard category
P501	Dispose of contents/container to...	Explosives	Unstable explosive Divisions 1.1, 1.2, 1.3, 1.4, 1.5
	in accordance with	Self-reactive substances and mixtures	Type A, B, C, D, E, F
	local/regional/national/international regulations	Substances and mixtures which, in contact with water, emit flammable gases	1, 2, 3
		Oxidizing liquids	1, 2, 3
		Oxidizing solids	1, 2, 3
		Organic peroxides	Type A, B, C, D, E, F
		Acute toxicity-oral	1, 2, 3, 4
		Acute toxicity-dermal	1, 2, 3, 4
		Acute toxicity-inhalation	1, 2
		Skin corrosion	1A, 1B, 1C
		Respiratory sensitization	1
		Skin sensitization	1
		Germ cell mutagenicity	1A, 1B, 2
		Carcinogenicity	1A, 1B, 2
		Reproductive toxicity	1A, 1B, 2
		Specific target organ toxicity-single exposure	1, 2
		Specific target organ toxicity-single exposure	3 (respiratory tract irritation)
		Specific target organ toxicity-single exposure	3 (narcosis)
		Specific target organ toxicity-repeated exposure	1, 2
		Aspiration hazard	1, 2
		Hazardous to the aquatic environment-acute toxicity	1, 2, 3
		Hazardous to the aquatic environment-chronic toxicity	1, 2, 3, 4

Hazard class	Hazard category	Precautionary statements P Code			
		Prevention	Response	Storage	Disposal
Acute toxicity-oral	1 2 3	P264 P270	P301+P310 P321、P330	P405	P501
Acute toxicity-oral	4	P264、P270	P301+P312、P330	–	P501
Acute toxicity-oral	5	–	P312	–	–
Acute toxicity-dermal	1 2	P262、P264 P270、P280	P302+P350、P310、P322 P361、P363	P405	P501
Acute toxicity-dermal	3	P280	P302+P352、P312、P322 P361、P363	P405	P501
Acute toxicity-dermal	4	P280	P302+P352、P312、P322 P363	–	P501
Acute toxicity-dermal	5	–	P312	–	–
Acute toxicity-inhalation	1 2	P260、P271 P284	P304+P340、P310、P320	P403+P233 P405	P501
Acute toxicity-inhalation	3	P261、P271	P304+P340、P311、P321	P403+P233 P405	P501
Acute toxicity-inhalation	4	P261、P271	P304+P340、P312	–	–
Acute toxicity-inhalation	5	–	P304+P312	–	–
Skin corrosion/irritation	1A 1B 1C	P260 P264 P280	P301+P330+P331 P303+P361+P353 P363、P304+P340 P310、P321 P305+P351+P338	P405	P501

Major amendments to GHS
(14th session of GHS Sub-Committee of Experts, December 2007)

- **Changes to classification scheme for chronic hazard to the aquatic environment …… Revision of Chapter 4.1**
- **Changes to classification criteria for Aspiration hazards ……. "Aspiration hazards is intended to be applied to liquid substances and mixtures only."**

Proposal for revision of Chapter 4.1, in order to accommodate chronic toxicity to aquatic organisms for assigning a chronic hazard category

Table 4.1.1: Categories for substances hazardous to the aquatic environment

A: Acute (short-term) aquatic hazard < not changed>	
Category: Acute 1	
96 hr LC_{50} (for fish)	≤1 mg/l and/or
48 hr EC_{50} (for crustacea)	≤1 mg/l and/or
72 or 96hr ErC_{50} (for algae or other aquatic plants)	≤1 mg/l
Category: Acute 1 may be subdivided for some regulatory systems to include a lower band at $L(E)C_{50}$ ≤0 1 mg/l.	
Category: Acute 2	
96 hr LC_{50} (for fish)	>1 - ≤10 mg/l and/or
48 hr EC_{50} (for crustacea)	>1 - ≤10 mg/l and/or
72 or 96hr ErC_{50} (for algae or other aquatic plants)	>1 - ≤10 mg/l
Category: Acute 3	
96 hr LC_{50} (for fish)	>10 - ≤100 mg/l and/or
48 hr EC_{50} (for crustacea)	>10 - ≤100 mg/l and/or
72 or 96hr ErC_{50} (for algae or other aquatic plants)	>10 - ≤100 mg/l
Some regulatory systems may extend this range beyond an $L(E)C_{50}$ of 100 mg/l through the introduction of another category.	

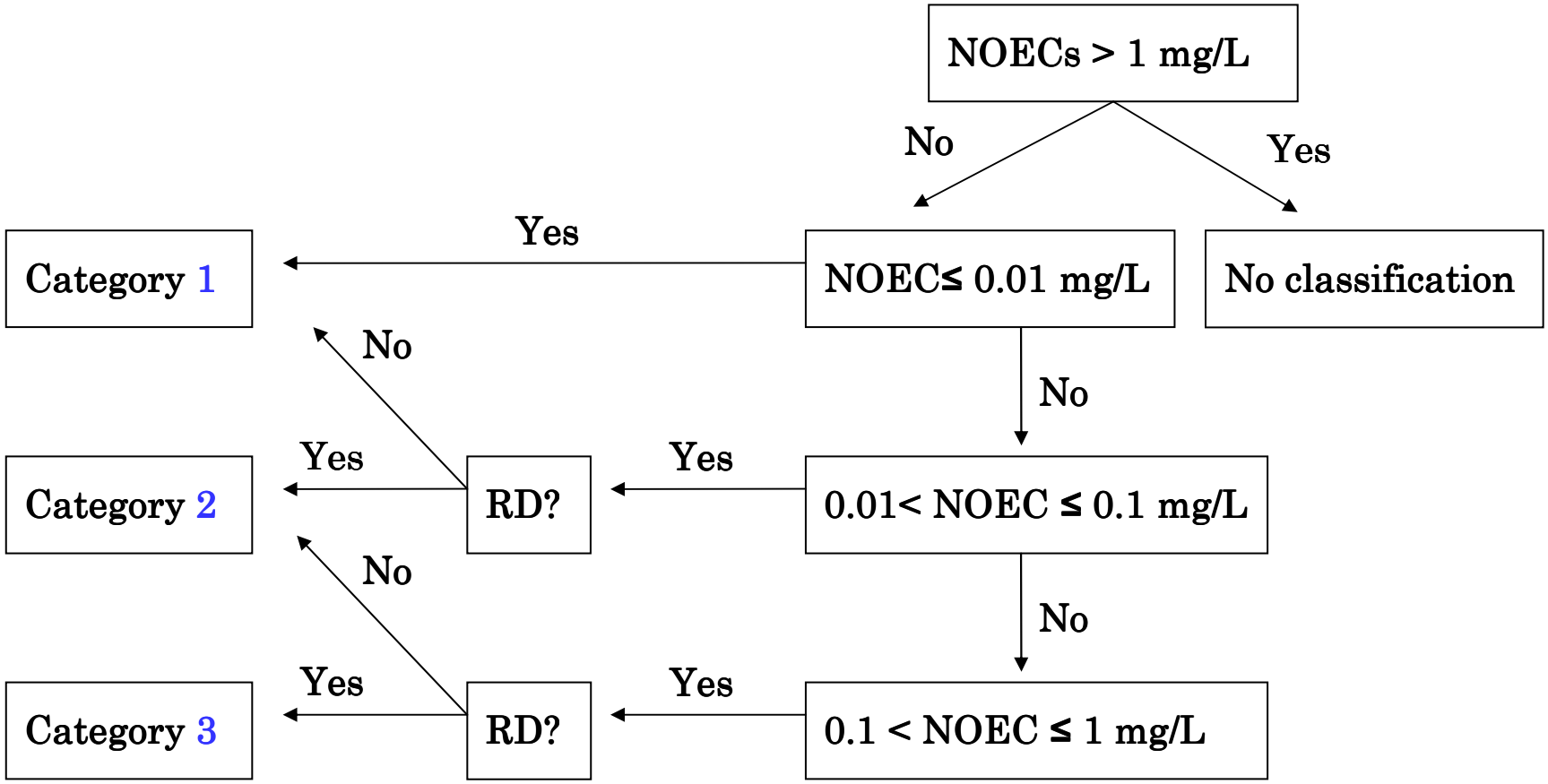
B: Long-term aquatic hazard (see also figure 4.1.1)	
→ a: Non rapidly degradable substances for which there are adequate chronic toxicity data available	
Category: Chronic 1	
Chronic NOEC or EC_x (for fish)	≤ 0.1 mg/l and/or
Chronic NOEC or EC_x (for crustacea)	≤ 0.1 mg/l and/or
Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 0.1 mg/l
Category: Chronic 2	
Chronic NOEC or EC_x (for fish)	≤ 1 mg/l and/or
Chronic NOEC or EC_x (for crustacea)	≤ 1 mg/l and/or
Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 1 mg/l
→ b: Rapidly degradable substances for which there are adequate chronic toxicity data available	
Category: Chronic 1	
Chronic NOEC or EC_x (for fish)	≤ 0.01 mg/l and/or
Chronic NOEC or EC_x (for crustacea)	≤ 0.01 mg/l and/or
Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 0.01 mg/l
Category: Chronic 2	
Chronic NOEC or EC_x (for fish)	≤ 0.1 mg/l and/or
Chronic NOEC or EC_x (for crustacea)	≤ 0.1 mg/l and/or
Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 0.1 mg/l
Category: Chronic 3	
Chronic NOEC or EC_x (for fish)	≤ 1 mg/l and/or
Chronic NOEC or EC_x (for crustacea)	≤ 1 mg/l and/or
Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 1 mg/l

Chronic toxicity band based on NOEC or equivalent ECx values in mg/l for fish or crustacea or other recognized measures for long-term toxicity

Table 4.1.1: Categories for substances hazardous to the aquatic environment *(cont'd)*

→ c: If adequate chronic toxicity data is not available
Category: Chronic 1 96 hr LC_{50} (for fish) ≤ 1 mg/l and/or 48 hr EC_{50} (for crustacea) ≤ 1 mg/l and/or 72 or 96hr ErC_{50} (for algae or other aquatic plants) ≤ 1 mg/l and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF <500) experimentally determined BCF ≥ 500 (or, if absent, the log K_{ow} ≥ 4). *(Note 4 and 5)*
Category: Chronic 2 96 hr LC_{50} (for fish) > 1 to ≤ 10 mg/l and/or 48 hr EC_{50} (for crustacea) > 1 to ≤ 10 mg/l and/or 72 or 96hr ErC_{50} (for algae or other aquatic plants) > 1 to ≤ 10 mg/l and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF <500) experimentally determined BCF ≥ 500 (or, if absent, the log K_{ow} ≥ 4).
Category: Chronic 3 96 hr LC_{50} (for fish) > 10 to ≤ 100 mg/l and/or 48 hr EC_{50} (for crustacea) > 10 to ≤ 100 mg/l and/or 72 or 96hr ErC_{50} (for algae or other aquatic plants) > 10 to ≤ 100 mg/l and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF <500) experimentally determined BCF ≥ 500 (or, if absent, the log K_{ow} ≥ 4).
C: "Safety net" classifi-cation
Category: Chronic 4 Poorly soluble substances for which no acute toxicity is recorded at levels up to the water solubility, and which are not rapidly degradable and have a log K_{ow} ≥ 4, indicating a potential to bioaccumulate will be classified in this category unless other scientific evidence exists showing classification to be unnecessary. Such evidence would include an experimentally determined BCF<500, or a chronic toxicity NOECs> 1 mg/l, or evidence of rapid degradation in the environment.

Flowchart for classification when environmental chronic data are available



RD: rapidly degradable

Table 4.1.5: Multiplying factors for highly toxic ingredients of mixtures

Acute toxicity	M factor	Chronic toxicity	M factor	
L(E)C50 value		**NOEC value**	**NRD**	**RD**
$0.1 < L(E)C_{50} \leq 1$	1	0.01<NOEC≤0.1	1	-
$0.01 < L(E)C_{50} \leq 0.1$	10	0.001<NOEC≤0.01	10	1
$0.001 < L(E)C_{50} \leq 0.01$	100	0.0001<NOEC≤0.001	100	10
$0.0001 < L(E)C_{50} \leq 0.001$	1000	0.00001<NOEC≤0.0001	1000	100
$0.00001 < L(E)C_{50} \leq 0.0001$	10000	0.000001<NOEC≤0.00001	10000	1000
(continue in factor 10 intervals)		(continue in factor 10 intervals)		

RD: rapidly degradable

Future amendments to GHS

Issues currently being discussed

- **Distinction of strong and weak allergic reaction in respiratory and skin sensitization.**
- *Guidance on implementation of building block approach*
- **Exception provision for labelling of very small packages and consumer products**
- **Issues to be examined closely**

  Terrestial environmental hazards

  Ozone depleting chemicals

2. GHS Implementation by country

Implementation target year was 2008 in the UN Recommendation 2003.

APEC member countries agreed on implementation by the end of 2006.(Japan was the only country that actually achieved this goal)

Implementation status of UN member countries

GHS Implementation by country (based on status reports of 65 countries submitted to the UN)

http://www.unece.org/trans/danger/publi/ghs/implementation_e.html

1) EU

- **GHS to be implemented within the scope of REACH (implementation: June 2007)**

  RIP3 Technical guidance document for industry

  RIP3.6 Guidance on Classification and Labelling under GHS (on hold)

- **GHS Implementation Proposal (27 Jun 2007)**

  IMPLEMENTATION OF THE GLOBALLY HARMONISED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) IN COMMUNITY LEGISLATION

  (http://ec.europa.eu/enterprise/reach/ghs_en.htm)

The proposal established EU's policy to adopt classification using "Building block approach" and "cut-off value/concentration limit" for classification of mixtures.

European Commission

Enterprise & Industry

27 Jun 2007

GHS Proposal

Enterprise and Industry

Important legal notice

English

European Commission > Enterprise & Industry > Industry Sectors > REACH > GHS

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GHS

Activities:

Preparations for REACH

REACH Proposal

GHS - Globally Harmonised System of Classification and Labelling of Chemicals

Information:

EUROPEAN COMMISSION ADOPTED PROPOSAL

On 27th of June 2007, the European Commission has adopted the "Proposal for a Regulation of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, and amending Directive 67/548/EEC and Regulation (EC) No 1907/2006" (COM(2007) 355 final). The proposed act aligns the EU system of classification, labelling and packaging substances and mixtures to the United Nations Globally Harmonised System (GHS). It is expected to facilitate global trade and harmonised communication of hazard information of chemicals and to promote regulatory efficiency. It will complement the new REACH Regulation on the registration, evaluation, authorisation and restriction of chemicals. The proposed Regulation will be discussed by the European Parliament and the Council under the co-decision procedure.

The proposal incorporates the classification criteria and labelling rules agreed at UN level, the so called Globally Harmonised System of classification and labelling of chemicals (GHS). It will introduce new classification criteria, hazard symbols (pictograms) and labelling phrases, while taking account of elements which are part of the current EU legislation.

The proposed regulation requires companies to classify, label and package appropriately their substances and mixtures before placing them on the market. It aims to protect workers, consumers and the environment by means of labelling which reflects possible hazardous effects of a particular chemical.

The proposed regulation also takes over provisions of the REACH Regulation regarding the notification of classifications, the establishment of a list of harmonised classifications and the creation of a classification and labelling inventory.

The proposal will undergo co-decision, seeking agreement of the European Parliament and the Council. After entry into force the deadline for substance reclassification is proposed to be 1 December 2010 and for mixtures 1 June 2015.

There are further acts related to the proposed Regulation which are foreseen for Commission adoption this summer. The purpose of these acts will be to adapt classification based provisions in existing EU legislation ("downstream legislation") to the new rules.

The EN, FR and DE language versions of the "Proposal for a Regulation of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, and amending Directive 67/548/EEC and Regulation (EC) No 1907/2006" and of the executive summary of the Commission impact assessment (SEC(2007) 853) can be found below; the full Commission impact assessment (SEC(2007) 854) is available in English.

All language versions of the proposed Regulation and of the executive summary of the Commission impact assessment will be made available in Eur-Lex in the coming weeks.

English version

Volume I - EN

Volume II - EN

Volume III - EN

Volume IIIa - EN

Volume IIIb - EN

Executive summary of the Commission Impact Assessment – EN

Adoption of classification based on “Building block” approach

“Acute toxicity Category5”, “Skin irritation Category3”, “Aspiration hazard Category2” are not to be adopted.

"Ozone depleting chemicals" is added.

Adoption of “Cut-off value/concentration limit” for classification of mixtures

- **Adoption of identical cut-off value/concentration limit for SDS physical hazard classification and labelling.**
- **Sensitization, Carcinogenicity Category 2, Reproductive toxicity, STOT-single exposure, repeated exposure will use higher standard.**
- **When two different sets of cut-off standards exist in a hazard category, and when a substance that falls under that category is present in a mixture at the concentration level that goes in-between the two cut-off standards, a note of caution stating the presence of hazardous substance should be added in the SDS.**

Transition period

	Proposed transition period	Substances	Mixtures
Phase I	3.5 yrs after REACH entering into force	Current EU System:Mandatory GHS System:Voluntary	Current EU System:Mandatory GHS System:Voluntary
Phasell	3.5 yrs + 4.5yrs after REACH entering into force	Current EU System:Mandatory description on SDS GHS System:Mandatory	Current EU System:Mandatory GHS System: Voluntary

“Building block approach” in E U

	GHS Recommendation					EU (Draft)				
Acute toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat.5	Cat.1	Cat.2	Cat.3	Cat.4	
Skin Corrosive / Irritant	Cat. 1	Cat. 2	Cat.3			Cat.1	Cat.2			
Serious Eye Damage / Irritant	Cat. 1	Cat.2A	Cat.2B			Cat.1	Cat.2			
Respiratory Sensitizer	Cat.1					Cat.1				
Skin Sensitizer	Cat.1					Cat.1				
Germ Cell Mutagen	Cat.1A	Cat.1B	Cat.2			Cat.1A	Cat.1B	Cat.2		
Carcinogen	Cat.1A	Cat.1B	Cat.2			Cat.1A	Cat.1B	Cat.2		
Reproductive Toxicant	Cat.1A	Cat.1B	Cat.2	Adit. Cat.		Cat.1A	Cat.1B	Cat.2	Adit. Cat.	
TOST (Single exposure)	Cat.1	Cat.2	Cat.3			Cat.1	Cat.2	Cat.3		
TOST (Repeated exposure)	Cat.1	Cat.2				Cat.1	Cat.2			
Aspiration Hazard	Cat.1	Cat.2				Cat.1				
Environmental Hazard (Acute)	Cat.1	Cat.2	Cat.3			Cat.1				
Environmental Hazard (Chronic)	Cat.1	Cat.2	Cat.3	Cat.4		Cat.1	Cat.2	Cat.3	Cat.4	
Hazardous for the Ozone Layer						Cat.1				

EU GHS Proposal Table 3.6.2 Label elements for carcinogenicity

Classification	Category 1A/1B	Category 2
GHS Pictograms		
Signal Word	Danger	Warning
Hazard Statement	H350: May cause cancer (state route of exposure if it Is conclusively proven that no other routes of exposure cause the hazard)	H351: Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
Precautionary Statement Prevention	P201 P202 P281	P201 P202 P281
Precautionary Statement Response	P308 + P313	P308 + P313
Precautionary Statement Storage	P405	P405
Precautionary Statment Disposal	P501	P501

ANNEX VI Table 3.1 List of harmonised classification and labelling of hazardous substances

Index No	International Chemical Identification	EC No	CAS No	Classification		Suppl. Hazard Inform. Code(s)	Label-ling Codes	Specific Conc. Limits. M-factors	Notes	Classification Annex I Dir 67/548/EEC
				Hazard Class Code(s)	Hazard statement Code(s)					
603-026-00-6	1-chloro-2,3-epoxypropane; epichlorhydrin	203-439-8	106-89-8	Flam. Liq. 3 Carc. 1B Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 * Skin Corr. 1B Skin Sens. 1	H226 H350 H331 H311 H301 H314 H317					R10 Carc. Cat. 2; R45 T; R23/24/25 C; R34 R43
601-020-00-8	benzene	200-753-7	71-43-2	Flam. Liq. 2 Carc. 1A Muta. 1B STOT Rep. Asp. Tox. 1 Eye Irrit. 2 Skin Irrit. 2	H225 H350 H340 H372 ** H304 H319 H315				E	F; R11 Carc. Cat. 1; R45 Muta. Cat. 2; R46 T; R48/23/24/25 Xn; R65 Xi; R36/38
601-021-00-3	toluene	203-625-9	108-88-3	Flam. Liq. 2 Repr. 2 Asp. Tox. 1 STOT Rep. 2 * Skin Irrit. 2 STOT Single 3	H225 H361d *** H304 H373 ** H315 H336					F; R11 Repr. Cat. 3; R63 Xn; R48/20-65 Xi; R38 R67
601-022-00-9	*o*-xylene; [1] *p*-xylene; [2] *m*-xylene; [3] xylene [4]	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	Flam. Liq. 3 Acute Tox. 4 * Acute Tox. 4 * Skin Irrit. 2	H226 H332 H312 H315				C	R10 Xn; R20/21 Xi; R38
016-022-00-9	ethanethiol; Ethyl-mercaptan	200-837-3	75-08-1	Flam. Liq. 2 Acute Tox. 4 * Aquatic Acute 1 Aquatic Chronic 1	H225 H332 H400 H410					F; R11 Xn; R20 N; R50-53
604-001-00-2	phenol; carbolic acid; phenylalcohol	203-632-7	108-95-2	Muta. 2 Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 * STOT Rep. 2 * Skin Corr. 1B	H341 H331 H311 H301 H373 ** H314					Muta. Cat. 3; R68 T; R23/24/25 Xn; R48/20/21/22 C; R34

ANNEX VI Table 3.1 List of harmonised classification and labelling of hazardous substances (2)

International Chemical Identification	CAS No	GHS Classification		Classification Annex I Dir 67/548/EEC
		Hazard Class Code(s)	Hazard statement Code(s)	
1-chloro-2,3-epoxypropane; epichlorhydrin	106-89-8	Flam. Liq. 3 Carc. 1B Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Skin Corr. 1B Skin Sens. 1	H226 H350 H331 H311 H301 H314 H317	R10 Carc. Cat. 2; R45 T; R23/24/25 C; R34 R43
benzene	71-43-2	Flam. Liq. 2 Carc. 1A Muta. 1B STOT Rep. 1 Asp. Tox. 1 Eye Irrit. 2 Skin Irrit. 2	H225 H350 H340 H372 H304 H319 H315	F; R11 Carc. Cat. 1; R45 Muta. Cat. 2; R46 T; R48/23/24/25 Xn; R65 Xi; R36/38
toluene	108-88-3	Flam. Liq. 2 Skin Irrit. 2 Repr. 2 Asp. Tox. 1 STOT Rep. 2 STOT Single 3	H225 H361 H304 H373 H315 H336	F; R11 Repr. Cat. 3; R63 Xn; R48/20-65 Xi; R38 R67

2) USA

- **OSHA solicited public comment on GHS implementation (Sep.7 ~ Nov. 13, 2006)**

  Essentially, GHS System will be incorporated into the Agency's "Hazard Communication Standard"(HCS). OSHA, however, does not believe every category of GHS is required to protect workers. (Building block approach will be applied)

  Implementation timeline is not released.

(http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=12417)

(FYI) Proposal of the American Chemistry Council(ACC) to OSHA (April 2007)

--- see succeeding slides for details

- **EPA(environment), DOT(transport), CPSC(consumer products) need to take appropriate measures for GHS implementation, but no implementation policies have been released.**

(http://www.unece.org/trans/danger/publi/ghs/implementation_e.html)

“Building block approach” in USA

	GHS Recommendation					US ACC Proposal to OSHA				
Acute toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat.5	Cat. 1	Cat. 2	Cat. 3	Cat. 4	
Skin Corrosive / Irritant	Cat. 1	Cat. 2	Cat.3			Cat.1	Cat.2			
Serious Eye Damage / Irritant	Cat. 1	Cat.2A	Cat.2B			Cat. 1	Cat.2A	Cat.2B		
Respiratory Sensitizer	Cat.1					Cat.1				
Skin Sensitizer	Cat.1					Cat.1				
Germ Cell Mutagen	Cat.1A	Cat.1B	Cat.2			Cat.1A	Cat.1B	Cat.2		
Carcinogen	Cat.1A	Cat.1B	Cat.2			Cat.1		Cat.2		
Reproductive Toxicant	Cat.1A	Cat.1B	Cat.2	Adit. Cat.		Cat.1A	Cat.1B	Cat.2	Adit. Cat.	
TOST (Single exposure)	Cat.1	Cat.2	Cat.3			Cat.1	Cat.2	Cat.3		
TOST (Repeated exposure)	Cat.1	Cat.2				Cat.1	Cat.2			
Aspiration Hazard	Cat.1	Cat.2				Not considered at workplace				
Environmental Hazard (Acute)	Cat.1	Cat.2	Cat.3			Not considered at workplace				
Environmental Hazard (Chronic)	Cat.1	Cat.2	Cat.3	Cat. 4		Not considered at workplace				

Cut-off value/concentration limit
<Skin Sensitizer/Respiratory Sensitizer>

	Skin sensitizer	Respiratory sensitizer	
	All physical states	Solid/Liquid	Gas
GHS Recommendation			
Skin Sensitizer	≧0.1%	---	---
	≧1.0%	---	---
Respiratory Sensitizer	---	≧0.1%	≧0.1%
	---	≧1.0%	≧0.2%
EU Draft			
Skin Sensitizer	≧0.1% *1	---	---
	≧1.0% *2	---	---
Respiratory Sensitizer	---	≧0.1% *1	≧0.1% *1
	---	≧1.0% *3	≧0.2% *3
US ACC Proposal			
Skin Sensitizer	≧1.0%	---	---
Respiratory Sensitizer	---	≧0.1%	---

*1:This cut-off value/concentration limit is generally used for the application of the special labeling requirements of Annex II 2.10 to protect already sensitised individuals.
A SDS would be required for the mixture containing an ingredient above this cut off limit.
*2:This cut-off limit is used to trigger classification of a mixture as a skin sensitizer.
*3:This cut-off limit is used to trigger classification of a mixture as a respiratory sensitizer.

Cut-off value/concentration limit <Carcinogen>

GHS Recommendation		
	Category 1	Category 2
Carcinogen Category 1	≧0.1%	
Carcinogen Category 2	–	≧0.1%
		≧1.0%

EU Draft			
	Category 1A	Category 1B	Category 2
Carcinogen Category 1A	≧0.1%		
Carcinogen Category 1B		≧0.1%	
Carcinogen Category 2			≧1.0% *1

US ACC Proposal		
	Category 1	Category 2
Carcinogen Category 1	≧0.1%	
Carcinogen Category 2		≧0.1%

*If a Category 2 carcinogen is present in the mixture as an ingredient at a concentration ≧0.1% a SDS would be required for the mixture.

Cut-off value/concentration limit <Reproductive Toxicant>

GHS Recommendation			
	Category 1	Category 2	Additional Category for Effects on or via Lactation
Reproductive Toxicant Category 1	≧0.1%		
	≧0.3%		
Reproductive Toxicant Category 2		≧0.1%	
		≧3.0%	
Additional Category Toxicants for effects on or via Lactation			≧0.1%
			≧0.3%
EU Draft			
Reproductive Toxicant Category 1	≧0.3% *1		
Reproductive Toxicant Category 2		≧5,0%→ ≧3.0% *1	
Additional Category Toxicants for effects on or via Lactation			≧0.3% *1
US ACC Proposal			
Reproductive Toxicant Category 1	≧0.3%		
Reproductive Toxicant Category 2		≧3.0%	
Additional Category Toxicants for Effects on or via Lactation			≧0.1%

*1: If a Category 1 reproductive toxicant is present in the mixture as an ingredient at a concentration above 0.1%, a SDS would be required for the mixture. If a Category 2 reproductive toxicant is present in the mixture as an ingredient at a concentration above 0.1%, a SDS would be required for

Cut-off value/concentration limit <Aspiration Hazard>

GHS Recommendation		
	Category 1	Category 2
Aspiration Hazard Substance Category 1	≧10%	---
Aspiration Hazard Substance Category 2	---	≧10%

EU Draft		
	Category 1	Category 2
Aspiration Hazard Substance Category 1	≧10%	---
Aspiration Hazard Substance Category 2	---	---

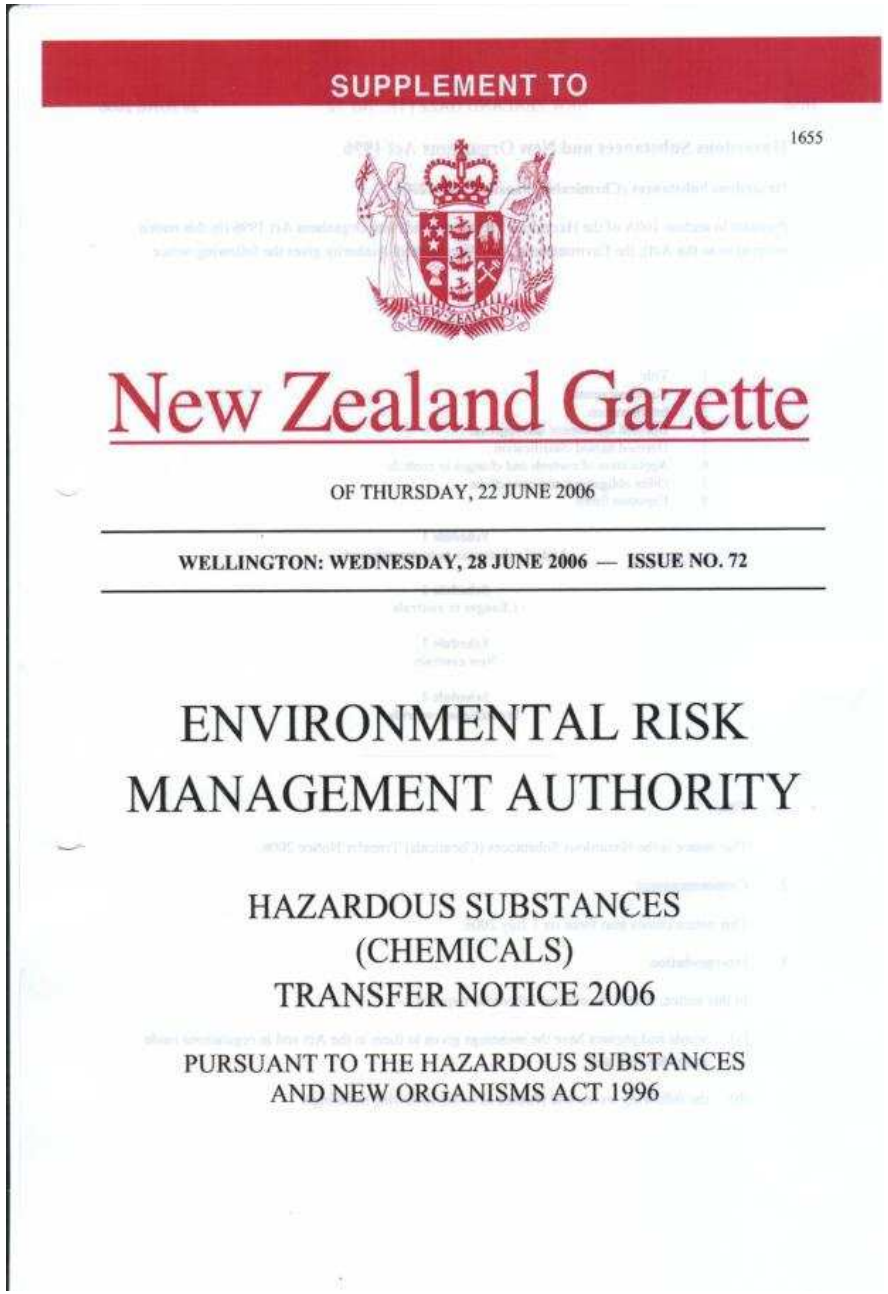
US ACC Proposal		
	Category 1	Category 2
Aspiration Hazard Substance Category 1	---	---
Aspiration Hazard Substance Category 2	---	---

- EU makes no distinction between Aspiration Hazard Category 1 and Category 2.
- US ACC does not consider aspiration hazard a workplace hazard.

3) New Zealand

New Zealand - Hazardous Substances and New Organisms (HSNO) Act 1996
HAZARDOUS SUBSTANCES (CHEMICALS) TRANSFER NOTICE 2006

Released classification results of approx.4,500 substances



SUPPLEMENT TO

1655

New Zealand Gazette

OF THURSDAY, 22 JUNE 2006

WELLINGTON: WEDNESDAY, 28 JUNE 2006 — ISSUE NO. 72

ENVIRONMENTAL RISK MANAGEMENT AUTHORITY

HAZARDOUS SUBSTANCES (CHEMICALS) TRANSFER NOTICE 2006

PURSUANT TO THE HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT 1996

http://www.ermanz.govt.nz/resources/publications/pdfs/gn72june06.pdf

Table 4

Chemicals

Substance Name	CAS Number	Hazard Classification(s)	Variation Code(s)
(-)-Brucine	5892-11-5	6.1A, 9.1C, 9.3A	5, 9, 11
(-)-N,N-Dimethylephedrinium bromide	55380-59-1	6.1D, 9.3C	11
(1,3-dioxolan-2-yl)-methyltriphenylphosphonium bromide	52509-14-5	6.1D, 9.3C	11
(1R)-(-)-Camphor-10-sulphonic acid chloride	39262-22-1	8.2C, 8.3A	
(1R)-(+)-a-pinene	7785-70-8	3.1C, 6.1D, 6.3A, 6.4A, 6.5B, 9.1B, 9.3C	11, 17
(1R)-6,6-Dimethylbicyclo(3.1.1)hept-2-en-2-ethanol	35836-73-8	6.1D, 9.3C	11, 17, 18
(1R)-Camphor	464-49-3	4.1.1B, 6.3A, 6.4A	
(1S)-(-)-Camphor	464-48-2	4.1.1B, 6.3A, 6.4A	
(1S)-(+)-Camphor-10-sulphonic acid	3144-16-9	8.2C, 8.3A	
(1S,2R,5R)-(+)-Isomenthol	23283-97-8	6.4A	
(2-Bromoethyl) trimethylammonium bromide	2758-06-7	6.3A, 6.4A	
(2-Chloro-1,1-dimethylethyl) benzene	515-40-2	6.3A	
(2-Methoxyethyl) acrylate	3121-61-7	3.1C, 6.1C, 6.3A, 6.4A, 6.8A, 9.3B	8, 11, 17, 19
(3-(2,3-Epoxypropoxy)propyl) trimethoxysilane	2530-83-8	6.3B, 6.4A	
(3-Hydroxyphenyl)-acetic acid	621-37-4	6.3A, 6.4A	
(4-Ammonio-m-tolyl)ethyl(2-hydroxyethyl)ammonium sulphate 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulphate	25646-77-9	6.1B, 6.5B, 6.9A, 9.1A, 9.3A	5, 9, 11
(4-Hydroxyphenyl)-acetic acid	156-38-7	6.3A, 6.4A	
(4-Methoxyphenyl) acetonitrile	104-47-2	6.1C, 9.1C, 9.3B	8, 11, 17, 18, 19
(4-Nitrophenyl)hydrazine	100-16-3	4.1.1B	
(4-Pyridylthio) acetic acid	10351-19-6	6.3A, 6.4A	

GHS and NZ HSNO HAZARD CLASSES AND CATEGORIES (1)

«PHYSICAL HAZARDS»

Class	GHS Category	HSNO Category
Explosives	Unstable explosives	a
	Division 1.1	1.1
	Division 1.2	1.2
	Division 1.3	1.3
	Division 1.4	1.4
	Division 1.5	1.5
	Division 1.6	1.6
Flammable gases	Category 1	2.1.1A
	Category 2	2.1.1B
Flammable aerosols	Category 1	2.1.2A b
	Category 2	b
Oxidizing gases	Category 1	1 5.1.2A
Gases under pressure	Compressed gases	c
	Liquefied gas	c
	Refrigerated liquefied gas	c
	Dissolved gas	c
Flammable liquids	Category 1	3.1A
	Category 2	3.1B
	Category 3	3.1C
	Category 4	3.1D
Liquid desensitized explosives	—	3.2A d
	—	3.2B d
	—	3.2C d

Class	GHS Category	HSNO Category
Flammable solids	Category 1	4.1.1A
	Category 2	4.1.1B
Self-reactive substances and mixtures	Type A	4.1.2A
	Type B	4.1.2B
	Type C	4.1.2C
	Type D	4.1.2D
	Type E	4.1.2E
	Type F	4.1.2F
	Type G	4.1.2G
Solid desensitized explosives	—	4.1.3A d
	—	4.1.3B d
	—	4.1.3C d
Self-heating substances and mixtures	Category 1	4.2B
	Category 2	4.2C
Organic peroxides	Type A	5.2A
	Type B	5.2B
	Type C	5.2C
	Type D	5.2D
	Type E	5.2E
	Type F	5.2F
	Type G	5.2G
Corrosive to metals	Category 1	8.1A

GHS and NZ HSNO HAZARD CLASSES AND CATEGORIES (2)

《HEALTH HAZARDS》

Class	GHS Category	HSNO Category	Class	GHS Category	HSNO Category
Acute toxicity: Oral	Category 1	6.1A	Serious eye damage/eye irritation	Category 1	8.3A
	Category 2	6.1B		Category 2A	6.4A
	Category 3	6.1C		Category 2B	c
	Category 4	6.1D	Respiratory sensitization	Category 1	6.5A
	Category 5	6.1E	Skin sensitization	Category 1	6.5B
Acute toxicity: Skin	Category 1	6.1A	Germ cell mutagenicity	Category 1A	6.6A
	Category 2	6.1B		Category 1B	6.6A
	Category 3	6.1C		Category 2	6.6B
	Category 4	6.1D	Carcinogenicity	Category 1A	6.7A
	Category 5	6.1E		Category 1B	6.7A
Acute toxicity: Inhalation	Category 1	6.1A		Category 2	6.7B
	Category 2	6.1B	Toxic to reproduction	Category 1A	6.8A
	Category 3	6.1C		Category 1B	6.8A
	Category 4	6.1D		Category 2	6.8B
	Category 5	6.1E		Effects on lactation	6.8C
Skin corrosion/irritation	Category 1A	8.2A	Specific Target Organ Systemic Toxicity (Single Exposure)	Category 1	6.9A
	Category 1B	8.2B		Category 2	6.9B
	Category 1C	8.2C		Category 3	f
	Category 2	6.3A	Specific Target Organ Systemic Toxicity (Repeated exposure)	Category 1	6.9A
	Category 3	6.3B		Category 2	6.9B
			Aspiration hazard	Category 1	6.1E g
				Category 2	6.1E g

GHS and NZ HSNO HAZARD CLASSES AND CATEGORIES (3)

《ENVIRONMENTAL HAZARDS》

Class	GHS Category	HSNO Category	Class	GHS Category	HSNO Category
Aquatic toxicity (Acute)	Category 1	9.1A	Ecotoxic to soil environment	—	9.2A – 9.2D
	Category 2	9.1D			
	Category 3	9.1D	Ecotoxic to terrestrial vertebrates	—	9.3A – 9.3C
Aquatic toxicity (Chronic)	Category 1	9.1A			
	Category 2	9.1B	Ecotoxic to terrestrial invertebrates	—	9.4A – 9.4C
	Category 3	9.1C			
	Category 4	9.1D			

Notes: a Not currently covered under HSNO classification scheme b HSNO criteria taken from UN Model Regulations 11 th Edition c Covered under local transport law adoption of UN Model Regulations d HSNO criteria taken from UN Model Regulations 11 th Edition e HSNO does not separate reversible eye effects into two sub-categories f HSNO does not specifically address the new GHS category of transient target organ effects g Aspiration hazard is currently captured under HSNO as an acute toxic hazard where there is evidence in humans of significant acute toxic effects as a result of acute exposure to the substance, where the substance has not already been assigned to a more hazardous category.

4) Republic of Korea

Inter-ministerial Committee (Ministry of Environment[MOE], Ministry of Labor[MOL], National Emergency Management Agency[NEMA])has been created.

Translation of GHS Recommendation into Korean by Experts WG (Completed in 2005)

Development of GHS Guideline and Training Program.

MOE revised "Toxic Chemicals Control Act" to reflect GHS regarding classification and labelling.

MOL to reflect GHS classification and labelling in its "Industrial Safety and Health Act".

Revised in 2006/12 1.5 years transition period

Mandatory from 2008/7

Different "Building block" approaches used by MOE and MOL.

Will adopt EU approach for "Cut-off value/concentration limit" for the mixtures.

“Building block approach” in Korea MOL

	GHS Recommendation					Industrial Safety & Health Law				
Acute toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat.5	Cat. 1	Cat. 2	Cat. 3	Cat. 4	
Skin Corrosive / Irritant	Cat. 1	Cat. 2	Cat.3			Cat.1	Cat.2			
Serious Eye Damage / Irritant	Cat. 1	Cat.2A	Cat.2B			Cat.1	Cat.2			
Respiratory Sensitizer	Cat.1					Cat.1				
Skin Sensitizer	Cat.1					Cat.1				
Germ Cell Mutagen	Cat.1A	Cat.1B	Cat.2			Cat.1		Cat.2		
Carcinogen	Cat.1A	Cat.1B	Cat.2			Cat.1				
Reproductive Toxicant	Cat.1A	Cat.1B	Cat.2	Adit. Cat.		Cat.1		Cat.2		
TOST (Single exposure)	Cat.1	Cat.2	Cat.3			Cat.1	Cat.2	Cat.3		
TOST (Repeated exposure)	Cat.1	Cat.2				Cat.1	Cat.2			
Aspiration Hazard	Cat.1	Cat.2								
Environmental Hazard (Acute)	Cat.1	Cat.2	Cat.3			Cat.1				
Environmental Hazard (Chronic)	Cat.1	Cat.2	Cat.3	Cat. 4		Cat.1	Cat.2			

“Building block approach” in Korea MOE

	GHS Recommendation					Toxic Chemicals Control Law				
Acute toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat.5	Cat. 1	Cat. 2	Cat. 3	Cat. 4	
Skin Corrosive / Irritant	Cat. 1	Cat. 2	Cat.3			Cat.1	Cat.2			
Serious Eye Damage / Irritant	Cat. 1	Cat.2A	Cat.2B			Cat.1	Cat.2			
Respiratory Sensitizer	Cat.1					Cat.1				
Skin Sensitizer	Cat.1					Cat.1				
Germ Cell Mutagen	Cat.1A	Cat.1B	Cat.2			Cat.1		Cat.2		
Carcinogen	Cat.1A	Cat.1B	Cat.2			Cat.1		Cat.2		
Reproductive Toxicant	Cat.1A	Cat.1B	Cat.2	Adit. Cat.		Cat.1		Cat.2	Adit. Cat.	
TOST (Single exposure)	Cat.1	Cat.2	Cat.3			Cat.1	Cat.2			
TOST (Repeated exposure)	Cat.1	Cat.2				Cat.1	Cat.2			
Aspiration Hazard	Cat.1	Cat.2				Cat.1				
Environmental Hazard (Acute)	Cat.1	Cat.2	Cat.3			Cat.1				
Environmental Hazard (Chronic)	Cat.1	Cat.2	Cat.3	Cat. 4		Cat.1	Cat.2	Cat.3	Cat. 4	

5) China

The General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)
China National Standard(GB)

"Safety Regulation on Chemicals Classification and Labelling"

"Compilation Regulation on Chemicals Label Elements and Hazard Statements"

The contents are essentially direct translation of GHS Recommendation.

Implementation: January 2008

("ChemCon Asia 2007 " at Singapore. Apr. 2007)

6) Malaysia

Ministry of International Trade and Industry (MITI) to lead the National Coordinating Committee to examine implementation of GHS.

Department of Occupational Safety and Health (DOSH) is working on adoption of GHS classification and labelling by amending its "Occupational Safety and Health Regulations" - Presented to government and Industry in August 2007, and to put the amended regulations in force in 2008.

SIRIM(Standard and Industrial Research Institute of Malaysia) initiated the task of industrial standardization of GHS, will be ready by early 2008.

7) Thailand

In 2005, National GHS Implementation Sub-Committee was formed participated by the representatives of relevant Government agencies.

Under the support of UNITAR, completed Comprehensibility Testing and Gap Analysis.

Now conducting GHS awareness raising activities through workshops etc.

Department of Industrial Works (DIW), Ministry of Industry, took the central role to complete the translation of the first revised edition of the GHS into Thai.

Preparation is in progress to promulgate the translation as Government notice and to use it in the classification and labelling under Hazardous Substance Act.

Draft of Notification of hazardous substances committee Re: Classification and Labelling follow the Hazardous Substances Act B. E. 2535

Phased-in implementation is being considered:

- **2007: For Substances**
  - **Physical Hazards**
  - **Part of Health Hazards (Acute toxicity, Skin corrosion/irritation, Serious eye damage/eye irritation, Carcinogenicity)**
- **2008: For Substances and Mixtures**
  - **Physical Hazards**
  - **All of Health Hazards**
  - **Environmental Hazards**

8) Philippines

A National GHS Implementation Committee was created in 2004 through the initiative of the Board of Investment (BOI), participated by relevant bodies.

Under the support of UNITAR, completed Comprehensibility Testing

and Gap Analysis.

Now conducting GHS awareness raising activities through workshops etc.

BOI, in cooperation with Environmental Management Bureau(EMB), is working on GHS implementation by amending RA6969 which is governed by EMB. Implementation date yet to be determined.

Joint Administrative Order (JAO), to be signed be concerned government agencies involved in the implementation of GHS.

9) Indonesia

- **In 2005 the National Agency for Drug and Food Control (NADFC) took the lead to establish the National GHS Implementation Committee involving relevant bodies.**

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- **Under the support of UNITAR, completed Comprehensibility Testing and Gap Analysis.**
- **Now conducting GHS awareness raising activities through workshops etc.**
- **Translation of GHS Recommendation into Indonesian and preparation of guidance document are underway.**
- **Aims to make amendments to the relevant regulations by 2008.**
- **Ministry of Trade preparing Decree number 24/M-IND/PER/5/2006 concerning Hazardous Materials Production and usage Control for the Industry, and Decree number 04/M-DAG/PER/5/2006 concerning Distribution Control of Hazardous Substances.**

10) Vietnam

Ministry of Industry is in charge of GHS implementation.

"Government Decree No.68/2005/ND-CP" was issued in 2005.

The decree defines the Goverment's basic stance towards safety of chemicals.

Specific details will be covered in a "Notice" to be issued by the Ministry of Industry. The Notice is expected to specify the details of GHS implementation.

"Chemical Law (draft) " Drafting since 2005 and expecting for the National Assembly7s approval by the end of 2007.

11) Cambodia

During 2006-2008, Cambodia is participating as a pilot country in the UNITAR/ILO Global GHS Capacity Building Programme.
A capacity building programme has been established for the development of a draft GHS implementing legislation/regulation for four sectors (industrial workplace, agriculture, transport, and consumer products) and the development of a strategic plan for national GHS implementation.
The existing Inter-Ministerial Technical Working Group, responsible for advising and facilitating the implementation of International Conventions on chemicals in Cambodia, has been designated as the coordination/ steering body for the implementation of the GHS National implementation plan. **(UNECE GHS: status of Implementation)**

12) Lao People's Democratic Republic

Lao People's Democratic Republic has recently drafted the Hazardous Chemical Strategic Plan for 2006-2020 and the Hazardous Chemical Action Plan for 2006-2010. These Plans are designed to provide a framework for the safe and effective management of chemicals.
In terms of the GHS, Lao People's Democratic Republic has begun to draft a project proposal and has set up a National Steering Committee.

During 2006-2008, Lao PDR is participating as a pilot country in the UNITAR/ILO Global GHS Capacity Building Programme.
The results of the comprehensibility training (held in October 2006) as well as those of the situation and gap analysis will be used for the development of GHS implementation activities during 2007.
(UNECE GHS: status of Implementation)

13) Myanmer

There is no specific institution assigned to the task of overall management of chemicals and waste, but there are a number of existing frameworks in legislation, classification and labelling standards that could accommodate the GHS.
Myanmar is currently preparing to revise existing legislation and administrative procedures to implement the GHS.
(UNECE GHS: status of Implementation)
Occupational Health Department (OHD) is currentry focal point for GHS Implementation in relation with UNITAR and ILO

Globally Harmonized System of Classification System of Classification and Labelling of Chemicals (GHS)

GHS Update

Thank you