







The Globally Harmonized System for the Classification and Labelling of Chemicals (The GHS)

Implementation of the GHS in Canada

Consumer Chemical Products

TABLE 2 Comparison of Hazard Communication: Consumer Chemicals [Health and Environment; Mixtures]

Acute Toxicity: Oral

CCCR	Very Toxic (Prohibited)		Toxic		Harmful	No criteria
						
			Danger		Caution	
			Poison		Poison	
			Contents Harmful		Contents May be Harmful	
GHS	Category 1	Category 2	Category 3	Category 4		Category 5
						No symbol
	Danger	Danger	Danger	Warning		Warning
	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed		May be harmful if swallowed
LD ₅₀ (mg/kg body weight)	0	5	50	300	500	2000
						5000

Acute Toxicity: Oral

Analysis:

Criteria for both systems is based on the LD50 of the substance or mixture. Under the CCCR, Very Toxic products align with the LD50 cut-off values for Category 1 and 2 of the GHS. Under the CCCR, product in these two categories are prohibited from advertisement, sale or importation. There are no exceptions. This prohibition is based on the policy that these products are too hazardous to be routinely made available to consumers who lack specialized knowledge and training to use such products. Such downstream consequences of product classification such as prohibition are outside the scope of the GHS. Once the GHS is implemented, it is expected that the prohibition of Category 1 and 2 products will continue under the CCCR.

Under the CCCR, Toxic Products do not align with the LD50 cut-off values of the GHS Category 3. Under the CCCR, the cut-off for Toxic Products is 500 mg/kg, whereas the GHS cut-off is at 300 mg/kg. As a result, products with LD50s between 300 and 500 mg/kg will be captured under the GHS Category 4. It is difficult to measure the impact of such a change in terms of the number of products affected, however, it is estimated that less than 10% of consumer products will be affected. (This estimate is based on an assessment done by PMRA whose criteria are the same as the CCCR for this endpoint).

There will be a change to the symbol for Toxic products under the GHS. The skull and crossbones glyph is modified in colour and design and the GHS border shape (red diamond) will replace the octagon. The signal words are the same for both systems. The primary hazard statements of “Toxic if swallowed” will replace “Poison”.

Other downstream consequences of classification such as child-resistant container requirements are outside the scope of the GHS and will continue under the CCCR. However, due to the change in classification of Toxic Products, the cut-off value of 500 mg/kg used as the criteria for child-resistant containers will not coincide with the label requirements under the GHS.

Under the CCCR, Harmful products will be captured under Category 4 of the GHS. As indicated above, Category 4 will now capture some products formerly classified as Toxic under the CCCR. The cut-off at the higher end is the same for both systems. There will be a change to the symbol for Harmful (and Toxic) products under the GHS Category 4. The skull and crossbones in an octagon will be replaced by an exclamation mark in a red diamond border. The signal word will change from “Caution” to “Warning” and the primary hazard statement of “May be toxic if swallowed” will replace “Poison”.

Consumer education of new symbols will be required.

Acute Toxicity: Oral (continued):

For Category 5 there are no equivalent lethality criteria under the CCCR. The Annex or Notes to Category 5, however, are important for consumer products. The CCCR may capture products based on the criteria in the notes to Category 5 as substances of special concern, which is a list based classification of substances causing special concern. In some cases, human data are available that show lethal dose values less than those of animals. This warrants assignment to a more hazardous category. For classification of all consumer products the CCCR has an overlying policy that if human experience data exist, this must first be used to classify the product.

Mixtures:

Hazard Classes	GHS	Consumer Chemicals	
	Criteria	Criteria	
Acute Toxicity - Oral			
1. Test data on mixture	Use test data.	Use test data	
2. Test data available on similar mixtures	Use Bridging Principles	Acceptable data source	
3. Test data available for all ingredients in the mixture	Use formula	Use formula	Formula is similar.
4. Test data available for some ingredients, ≤10% ingredients with unknown toxicity	Use formula in 3.	Estimate toxicity of unknown ingredients or substitute the LD50 of most toxic ingredient for unknown LD50 into formula.	
5. Test data available for some ingredients, >10% ingredients with unknown toxicity	Use modified formula in 3.	Estimate toxicity of unknown ingredients or substitute the LD50 of most toxic ingredient for unknown LD50 into formula.	







Mixtures: Acute Toxicity: Oral (continued):

Analysis:

Under both the CCCR and the GHS, mixtures are classified according to the same criteria as substances when data are available for the complete mixture. Both systems utilize a formula that is similar for estimating the toxicity of untested mixtures, where the toxicity of the ingredients are known. The CCCR is similar to the GHS in that it allows for some bridging principles to be applied including classification using a product or mixture that has properties similar to those of the product or mixture under examination.

Under the GHS, the approach for dealing with untested mixtures having ingredients of unknown toxicity differs from the approach used by the CCCR. The GHS accounts for the concentration of the unknown only when it is present in a concentration greater than 10%, otherwise it is not included in the formula. The CCCR uses the toxicity data of the most toxic ingredient as the unknown and uses it in the formula.

Acute Toxicity: Skin

<p>CCCR</p>	<p>Very Toxic (prohibited)</p>		<p>Toxic</p>  <p>Danger</p> <p>Poison Contents Harmful</p>	<p>Harmful</p>  <p>Caution</p> <p>Poison Contents May be Harmful</p>	<p>No criteria</p>	
<p>GHS</p>	<p>Category 1</p>  <p>Danger</p> <p>Fatal in contact with skin</p>	<p>Category 2</p>  <p>Danger</p> <p>Fatal in contact with skin</p>	<p>Category 3</p>  <p>Danger</p> <p>Toxic in contact with skin</p>	<p>Category 4</p>  <p>Warning</p> <p>Harmful in contact with skin</p>	<p>Category 5</p> <p>No symbol</p> <p>Warning</p> <p>May be harmful in contact with skin</p>	
<p>LD₅₀ (mg/kg body weight)</p>	<p>0</p>	<p>50</p>	<p>200</p>	<p>1000</p>	<p>2000</p>	<p>5000</p>

Acute Toxicity: Skin

Analysis:

Criteria for both systems is based on the LD50 of the substance or mixture. Under the CCCR, Very Toxic products align with the LD50 cut-off values for Category 1 and 2 of the GHS. Similar to acute oral toxicity, Very Toxic products are prohibited, therefore consumer products classified as Category 1 and 2 under the GHS will continue to be prohibited as consumer products.

Toxic products of the CCCR, align with GHS Category 3. There will be a change to the symbol such that the skull and crossbones glyph will be modified in colour and design and the GHS border shape (red diamond) will replace the octagon. The signal word “Danger” are the same for both systems. The primary hazard statements of “Toxic in contact with skin” will replace “Poison”.

Harmful products of the CCCR align with GHS Category 4. There will be a change to the symbol as the skull and crossbones in an octagon will be replaced by an exclamation mark in a red diamond border. The signal word will change from “Caution” to “Warning” and the primary hazard statement of “Harmful in Contact with skin” will replace “Poison”.

As described above, products that fall in Category 5 are not specifically classified under the CCCR. Products with LD50s in this range or even greater can be classified into a higher hazard category if warranted e.g., human evidence. The Annex to Class 5 is important to consumer products.






Mixture:

Acute Toxicity - Skin	GHS	CCCR
1. Test data on mixture	Use test data.	Use test data
2. Test data available on similar mixtures	Use Bridging Principles	Acceptable data source
3. Test data available for all ingredients in the mixture	Use formula	Use formula
4. Test data available for some ingredients, $\leq 10\%$ ingredients with unknown toxicity	Use formula in 3.	Estimate toxicity of unknown ingredients or substitute the LD50 of most toxic ingredient for unknown LD50
5. Test data available for some ingredients, $>10\%$ ingredients with unknown toxicity	Use modified formula in 3.	Estimate toxicity of unknown ingredients or substitute the LD50 of most toxic ingredient for unknown LD50

Analysis:

same as for acute oral toxicity

Acute Toxicity: Inhalation - Gases

CCCR	Very Toxic (prohibited)			Harmful  Caution Poison Contents May be Harmful	No criteria	
GHS	Category 1  Danger Fatal if inhaled	Category 2  Danger Fatal if inhaled	Category 3  Danger Toxic if inhaled	Category 4  Warning Harmful if inhaled	Category 5 No symbol Warning May be harmful if inhaled	
LC ₅₀ (ppmV)	0	100	500	2500	5000	12,500

Acute Toxicity: Inhalation - Gases







Analysis:

Criteria for both systems is based on the LC50 of the substance or mixture. Under the CCCR, Very Toxic products align with the LC50 cut-off values for Category 1, 2 and 3 of the GHS. Very Toxic products are prohibited, therefore consumer products classified as Category 1, 2 or 3 under the GHS will continue to be prohibited as consumer products.

The criteria for Harmful products of the CCCR align with Category 4 of the GHS. There will be a change to the symbol as the skull and crossbones in an octagon will be replaced by an exclamation mark in a red diamond border. The signal word will change from “Caution” to “Warning” and the primary hazard statement of “Harmful if inhaled” will replace “Poison”.

Products that fall in Category 5 are not specifically classified under the CCCR. Products with LC50s in this range or even greater can be classified into a higher hazard category (Category 1-4) if warranted e.g., human evidence. The Annex to Class 5 is important to consumer products.

Acute Toxicity: Inhalation - Vapours

CCCR	Very Toxic (prohibited)		Toxic  Danger Poison Fumes Harmful	Harmful  Caution Poison Fumes May be Harmful		No criteria		
GHS	Category 1  Danger Fatal if inhaled	Category 2  Danger Fatal if inhaled	Category 3  Danger Toxic if inhaled	Category 4  Warning Harmful if inhaled	Category 5 No symbol Warning May be harmful if inhaled			
LC ₅₀ (mg/L) (ppmV)	0 0	0.5 100	2.0 500	5.0 1500	10 2500	20 5000	40 10,000	50 12,500

Acute Toxicity: Inhalation - Vapours

Analysis:







Criteria for both systems is based on the LC50 of the substance or mixture. Under the CCCR, criteria for Very Toxic products aligns with the criteria for GHS Category 1 and 2 but also extend partly into GHS Category 3 up to an LC50 of 5.0 mg/L (1500 ppm). Under the CCCR, Very Toxic products are prohibited, therefore consumer products classified as GHS Category 1, 2 or those that fall into Category 3 with a LC50 equal to or less than 5.0 mg/L (1500 ppm) will continue to be prohibited as consumer products. (Prohibition is outside the scope of the GHS).

Under the CCCR, criteria for Toxic products align with the criteria for Category 3 of the GHS. There will be a change to the symbol such that the skull and crossbones glyph will be modified in colour and design and the GHS border shape (red diamond) will replace the octagon. The signal word “Danger” are the same for both systems. The primary hazard statement of “Toxic if inhaled” will replace “Poison”.

Under the CCCR, criteria for Harmful products aligns with the criteria for Category 4 but also extends in Category 5 of the GHS for products with LC50s greater than 20 mg/L (5000 ppm). There will be a change to the symbol as the skull and crossbones in an octagon will be replaced by an exclamation mark in a red diamond border for Category 4 and there will be no symbol for products classified as GHS Category 5. The signal word will change from “Caution” to “Warning” for GHS Category 4 and 5. The primary hazard statement of “Harmful if inhaled” for Category 4 and “May be harmful if inhaled” for Category 5 will replace “Poison”.

The criteria for GHS Category 5 includes LC50 values up to 12, 500 ppm, whereas the CCCR cut-off is at 10, 000 ppm. The GHS will therefore capture more products in this category.

Acute Toxicity: Inhalation - Dusts & Mists

<p>CCCR</p>	<p>Very Toxic (prohibited)</p>		<p>Toxic</p>  <p>Danger</p> <p>Poison Fumes Harmful</p>	<p>Harmful</p>  <p>Caution</p> <p>Poison Fumes May be Harmful</p>	<p>No criteria</p>		
<p>GHS</p>	<p>Category 1</p>  <p>Danger</p> <p>Fatal if inhaled</p>	<p>Category 2</p>  <p>Danger</p> <p>Fatal if inhaled</p>	<p>Category 3</p>  <p>Danger</p> <p>Toxic if inhaled</p>	<p>Category 4</p>  <p>Warning</p> <p>Harmful if inhaled</p>	<p>Category 5</p> <p>No symbol</p> <p>Warning</p> <p>May be harmful if inhaled</p>		
<p>LC₅₀ (mg/L)</p>	<p>0</p>	<p>0.05</p>	<p>0.5</p>	<p>1.0</p>	<p>2.5</p>	<p>5</p>	<p>10</p>

Acute Toxicity: Inhalation - Dusts & Mists

Analysis:

Criteria for both systems is based on the LC50 of the substance or mixture. Under the CCCR, criteria for Very Toxic products aligns with the criteria for GHS Category 1 and 2. Under the CCCR, Very Toxic products are prohibited, therefore consumer products classified as GHS Category 1 or 2 will continue to be prohibited as consumer products. (Prohibition is outside the scope of the GHS). Under the CCCR, criteria for Toxic products align with the criteria for Category 3 of the GHS but also extend into Category 4. There will be a change to the symbol such that the skull and crossbones glyph will be modified in colour and design and the GHS border shape (red diamond) will replace the octagon for products aligned with Category 3. The signal word “Danger” are the same for both systems. The primary hazard statement of “Toxic if inhaled” will replace “Poison”.

For Toxic products aligned with GHS Category 4, there will be a change to the symbol as the skull and crossbones in an octagon will be replaced by an exclamation mark in a red diamond border. The signal word “Danger” will be replaced with “Warning” and the primary hazard statement of “Harmful if inhaled” will replace “Poison”.

Under the CCCR, criteria for Harmful products aligns with the criteria for Category 4 of the GHS. There will be a change to the symbol as the skull and crossbones in an octagon will be replaced by an exclamation mark in a red diamond border. The signal word will change from “Caution” to “Warning”. The primary hazard statement of “Harmful if inhaled” will replace “Poison”.

Products that fall in Category 5 are not specifically classified under the CCCR. Products with LC50s in this range or even greater can be classified into a higher hazard category (Category 1-4) if warranted e.g., human evidence. The Annex to Class 5 is important to consumer products.

Mixtures:



Acute Toxicity - Inhalation		
1. Test data on mixture	Use test data.	Use test data
2. Test data available on similar mixtures	Use Bridging Principles	Acceptable data source
3. Test data available for all ingredients in the mixture	Use formula	Use formula
4. Test data available for some ingredients, $\leq 10\%$ ingredients with unknown toxicity	Use formula in 3.	Estimate toxicity of unknown ingredients or substitute the LC50 of most toxic ingredient for unknown LC50
5. Test data available for some ingredients, $>10\%$ ingredients with unknown toxicity	Use modified formula in 3.	Estimate toxicity of unknown ingredients or substitute the LC50 of most toxic ingredient for unknown LC50





Skin Corrosion/Irritation

<p>CCCR (criteria for both skin and eye are together)</p>	<p><i>Very Corrosive</i> Substance of Special Concern (a) ethylbromoacetate - any concentration; (b) fluoride - greater than 0.5% of available fluoride ions.</p> <p>Prohibition for the above</p> <p><i>Corrosive</i> <u>One or more Acids or Bases that are Liquid:</u> (a) a pH of not more than 1.0 or a pH of 13.0 or more; (b) a pH of more than 1.0 but not more than 3.0 and an acid reserve of 5.0 of more or a pH of less than 13.0 but not less than 11.0 and an alkali reserve of 5.0 or more. <u>One or more acids or bases that are Solid, paste or gel:</u> (a) a pH of not more than 1.0 or a pH of more than 13.0; (b) a pH of more than 1.0 but not more than 3.0 and an acid reserve of 10.0 of more or a pH of less than 13.0 but not less than 11.0 and an alkali reserve of 10.0 or more.</p> <p><u>Substance, other than an acid or base, that is cable of inducing necrosis or ulceration of epithelial tissue at the site of application:</u> (c)The total concentration of substances that cause necrosis or ulceration of 5% or more.</p>	<p><i>Irritant</i> <u>One or more Acids or Bases that are Liquid:</u> (a) a pH of more than 1.0 but not more than 3.0 and an acid reserve of 3.0 or more but less than 5.0; (b) a pH of less than 13.0 but not less than 12.0 and an acid reserve of less than 5.0; (c) a pH of less than 12.0 but not less than 11.0 and an acid reserve of less than 5.0 but not less than 3.0. <u>One or more acids or bases that are Solid, paste or gel:</u> (a) a pH of more than 1.0 but not more than 3.0 and an acid reserve of 5.0 or more but less than 10.0 a pH of more than 1.0 but not more than 3.0 and an acid reserve of 3.0 or more but less than 5.0; (b) a pH of less than 13.0 but not less than 12.0 and an acid reserve of less than 10.0; (c) a pH of less than 12.0 but not less than 11.0 and an acid reserve of less than 10.0 but not less than 5.0.</p> <p><u>Substance, other than an acid or base, that is cable of inducing necrosis or ulceration of epithelial tissue at the site of application:</u> a) The total concentration of substances that cause necrosis of ulceration of 1% or more but less than 5%.</p> <p><u>Substances in a total concentration of 5% or more, other than an acid or base, that is capable of causing any of the following:</u> (I) an erythema or edema of the skin graded at 2 or more, (ii) corneal damage graded at 2 or more, (iii) iris damage graded at 1 or more, or (iv) conjunctival swelling or redness graded at 2.5 or more.</p>
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GHS Criteria: Include if possible.

Skin Corrosion/Irritation:

<p>CCCR</p>	<p>Very Corrosive (generally prohibited)</p>  <p>Extreme Danger</p> <p>Very Corrosive Causes Severe Burns</p>	<p>Corrosive</p>  <p>Danger</p> <p>Corrosive Causes Burns</p>	<p>Irritant</p> <p>No Symbol</p> <p>Caution</p> <p>Irritant May Irritate Skin</p>
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<p>GHS</p>	<p>Category 1A Corrosive</p>  <p>Danger</p> <p>Causes severe skin burns and eye damage</p>	<p>Category 1B Corrosive</p>  <p>Danger</p> <p>Causes severe skin burns and eye damage</p>	<p>Category 1C Corrosive</p>  <p>Danger</p> <p>Causes severe skin burns and eye damage</p>	<p>Category 2 Irritant</p>  <p>Warning</p> <p>Causes skin irritation</p>	<p>Category 3 Mild Irritant</p> <p>No symbol</p> <p>Warning</p> <p>Causes mild skin irritation</p>
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Mixture:



Skin Corrosion		
1. Test data on mixture	Use test data.	Use test data
2. Test data available on similar mixtures	Use Bridging Principles	Classify if mixture contains a substance, other than an acid or base capable of inducing necrosis or ulceration of epithelial tissue, or cause erythema, edema >2.
3. Test data available for all or some ingredients in the mixture	Use additivity formula or classify based on irritating ingredients present in concentration of >1%	Classify if mixture contains a substance, other than an acid or base capable of inducing necrosis or ulceration of epithelial tissue, or cause erythema, edema >2.
Skin Irritation		
1. Test data on mixture	Use test data.	Use test data
2. Test data available on similar mixtures	Use Bridging Principles	Acceptable data source
3. Test data available for all or some ingredients in the mixture	Use additivity formula or classify based on irritating ingredients present in concentration of >1%	Total concentration of substances $\geq 5\%$ that cause necrosis or ulceration of 1.0% or more but less than 5.0%

Analysis:

- tiered approach
- acid/alkali reserve considered
- physical parameter (pH and a/ar for acids and bases only)
- scoring is at any time rather than the mean score (see WHMIS paper)
- mixture

Serious Eye Damage/Irritation

<p>CCCR</p>	<p>Very Corrosive (generally prohibited)</p>  <p>Extreme Danger</p> <p>Very Corrosive Causes Severe Burns</p>	<p>Corrosive</p>  <p>Danger</p> <p>Corrosive Causes Burns</p>	<p>Irritant</p> <p>No Symbol</p> <p>Caution</p> <p>Irritant May Irritate Eyes</p>
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<p>GHS</p>	<p>Category 1 Irreversible eye effects</p>  <p>Danger</p> <p>Causes serious eye damage</p>	<p>Category 2A Reversible eye effects in 21days</p>  <p>Warning</p> <p>Causes serious eye irritation</p>	<p>Category 2B Reversible eye effects in 7 days</p> <p>No symbol</p> <p>Warning</p> <p>Causes eye irritation</p>
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Mixtures:

Serious Damage to Eyes		
1. Test data on mixture	Use test data.	
2. Test data available on similar mixtures	Use Bridging Principles	Classify if mixture contains a substance, other than an acid or base capable of inducing necrosis or ulceration of epithelial tissue, or cause erythema, edema >2, corneal damage >1m or conjunctival swelling or redness graded ≥ 2.5
3. Test data available for all or some ingredients in the mixture	Use additivity formula or classify based on irritating ingredients present in concentration of >1%	Classify if mixture contains a substance $\geq 5\%$, other than an acid or base capable of inducing necrosis or ulceration of epithelial tissue, or cause erythema, edema > 2, corneal damage > 1m or conjunctival swelling or redness graded ≥ 2.5

Eye Irritation		
1. Test data on mixture	Use test data.	Use test data
2. Test data available on similar mixtures	Use Bridging Principles	<p>Classify if mixture contains a substance $\geq 5\%$, other than an acid or base capable of inducing necrosis or ulceration of epithelial tissue, or corneal damage $>1\text{m}$ or conjunctival swelling or redness graded ≥ 2.5</p> <p>Total concentration of Substances that causes necrosis or ulceration of 1.0% or more but less than 5.0%</p>
3. Test data available for all or some ingredients in the mixture	Use additivity formula or classify based on irritating ingredients present in concentration of $>1\%$	<p>Classify if mixture contains a substance $\geq 5\%$, other than an acid or base capable of inducing necrosis or ulceration of epithelial tissue, or corneal damage $>1\text{m}$ or conjunctival swelling or redness graded ≥ 2.5</p> <p>Total concentration of Substances that causes necrosis or ulceration of 1.0% or more but less than 5.0%</p>

Respiratory Sensitization

CCCR	No criteria
GHS	<p style="text-align: center;">Category 1 Evidence of Respiratory Sensitization</p> <p style="text-align: center;"></p> <p style="text-align: center;">Danger May cause allergy or asthma symptoms or breathing difficulties if inhaled</p>


Analysis:

The CCCR currently do not have criteria or labelling requirements for respiratory sensitizers. If this endpoint is applicable to consumer products, it is anticipated that such criteria will be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain respiratory sensitizers will need to be determined. Preliminary research on some products has shown that one class of potential skin and respiratory sensitizers (isocyanates) may be present in some spray-in foam products as an unreacted monomer (polyurethane prepolymer) that reacts (within the spray can) to form the polymer (spray in foam insulation) product.

Skin Sensitization

CCCR	No criteria
GHS	<p style="text-align: center;">Category 1 Evidence of skin sensitization</p> <p style="text-align: center;"></p> <p style="text-align: center;">Warning May cause an allergic skin reaction</p>




Analysis:

The CCCR currently do not have criteria or labelling requirements for respiratory sensitizers. If this endpoint is applicable to consumer products, it is anticipated that such criteria will be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain skin sensitizers will need to be determined. Preliminary research on some products has shown that one class of potential skin and respiratory sensitizers (isocyanates) may be present in some spray in foam products as an unreacted monomer (polyurethane prepolymer) that reacts (within the spray can) to form the polymer (spray in foam insulation) product. Other products such as latex and formaldehyde are known skin sensitizers.

Germ Cell Mutagenicity

CCCR	No criteria		
GHS	<p>Category 1A Known to induce heritable mutations in germ cells of humans</p>  <p>Danger</p> <p>May cause genetic defects (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>)</p>	<p>Category 1B Should be regarded as if they induce heritable mutations in germ cells of humans</p>  <p>Danger</p> <p>May cause genetic defects (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>)</p>	<p>Category 2 May induce heritable mutations in germ cells of humans</p>  <p>Warning</p> <p>Suspected of causing genetic defects (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>)</p>




Analysis:

The CCCR currently do not have criteria or labelling requirements for germ cell mutagenicity. If this endpoint is applicable to consumer products, it is anticipated that such criteria will be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain germ cell mutagens will need to be determined.

Carcinogenicity

CCCR	No criteria		
GHS	<p>Category 1A: Known Human Carcinogen</p>  <p>Danger</p> <p>May cause cancer <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>	<p>Category 1B: Presumed Human Carcinogen</p>  <p>Danger</p> <p>May cause cancer <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>	<p>Category 2: Suspected Human Carcinogen</p>  <p>Warning</p> <p>Suspected of causing cancer <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>




Analysis:

The CCCR currently do not have criteria or labelling requirements for carcinogenicity. This endpoint may be applicable to consumer products, it is anticipated that such criteria will be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain carcinogens will need to be determined. A Working Group will need to be developed to determine how the GHS can be applied to consumer products for this endpoint.

Toxic to Reproduction

CCCR	No criteria		
GHS	<p align="center">Category 1A:</p> <p align="center">Known human reproductive or developmental toxicant</p>  <p align="center">Danger</p> <p align="center">May damage fertility or the unborn child <i>(state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>	<p align="center">Category 1B:</p> <p align="center">Presumed human reproductive or developmental toxicant</p>  <p align="center">Danger</p> <p align="center">May damage fertility or the unborn child <i>(state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>	<p align="center">Category 2:</p> <p align="center">Suspected human reproductive or developmental toxicant</p>  <p align="center">Warning</p> <p align="center">Suspected of May damaging fertility or the unborn child <i>(state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>

Analysis:

The CCCR currently do not have criteria or labelling requirements for this endpoint. If applicable to consumer products, it is anticipated that such criteria will be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain ingredients toxic to reproduction will need to be determined. A Working Group will need to be developed to determine how the GHS can be applied to consumer products for this endpoint.

Effects on or via Lactation

CCCR	No criteria
GHS	Category 1 May cause harm to breast-fed children



Analysis:

The CCCR currently do not have criteria or labelling requirements for this endpoint. If applicable to consumer products, it is anticipated that such criteria will be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain ingredients that have effects on or via lactation will need to be determined. A Working Group will need to be developed to determine how the GHS can be applied to consumer products for this endpoint.

Target Organ Systemic Toxicity (Single Exposure)

<p>CCCR</p>	<p>No specific criteria, however, the CCCR lists some products as substances of special concern that may fall within these categories.</p> <p>The CCCR define “toxic product” which may include products within this category and includes a chemical product that:</p> <p>a) is capable of causing a lethal effect on a human; b) is capable of causing a serious and irreversible but non-lethal effect on a human, such as depressed level of consciousness, muscular weakness or paralysis, acute renal or hepatic failure, arrhythmia, hypotension, dyspnea, respiratory depression, pulmonary edema or optic neuritis.</p> <p>Labelling is similar to the Acute Toxicity category and is labelled based on classification as Toxic or Harmful depending on how a substances is classified in the list.</p>	
<p>GHS</p>	<p style="text-align: center;">Category 1 Produces significant toxicity in humans</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Danger</p> <p style="text-align: center;"><i>Causes damage to (state all organs affected, or use a general statement where there is no definite evidence that other organs are not affected) if (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>	<p style="text-align: center;">Category 2 May be harmful to human health</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Warning</p> <p style="text-align: center;"><i>Causes damage to (state all organs affected, or use a general statement where there is no definite evidence that other organs are not affected) if (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>



Target Organ Systemic Toxicity (Single Exposure)

Analysis:

Under the CCCR, 2001, the list of substances of special concern was developed as an extension of the human experience criterion. The substances listed are of special concern because standard animal tests may not reflect the actual hazard posed by these substances to humans. The GHS criteria for this endpoint are intended to capture such products. As the GHS is criteria based, the development and maintenance of lists of chemicals have not been promoted by the system.

Future Work: There is the need to determine how each substance of special concern will be classified under the GHS. It may be determined that some products may be captured under Category 5 of the Acute Toxicity criteria and be subsequently reclassified based on the criteria of Annex 1 to Category 5 or products could be classified based on human experience in general and may be classified into a lower Category. Therefore, the substances of special concern that are currently classified as Very Toxic and therefore prohibited may be captured in Category 1 and 2 of Acute Toxicity and will continue to be prohibited as consumer products. (Although prohibition is outside the scope of the GHS, the classification of products will determine whether products are prohibited as consumer products.)

Target Organ Systemic Toxicity (Repeated Exposure)

CCCR	No criteria	
GHS	<p style="text-align: center;">Category 1</p> <p style="text-align: center;">Produces significant toxicity in humans</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Danger</p> <p style="text-align: center;"><i>Causes damage to (state all organs affected, or use a general statement where there is no definite evidence that other organs are not affected) if (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>	<p style="text-align: center;">Category 2</p> <p style="text-align: center;">May be harmful to human health</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Warning</p> <p style="text-align: center;"><i>Causes damage to (state all organs affected, or use a general statement where there is no definite evidence that other organs are not affected) if (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)</i></p>


Analysis:

The CCCR currently do not have criteria or labelling requirements for this endpoint. If found to be applicable to consumer products, it is anticipated that such criteria would be adopted by the CCCR when the GHS is implemented.

Future Work:

Research regarding whether consumer products contain substances that pose target organ systemic toxicity with repeated exposure, will need to be determined. A Working Group will need to be developed to determine how the GHS can be applied to consumer products for this endpoint.



Aquatic Toxicity (Acute)

CCCR	No criteria		
GHS	Category 1  Warning Very toxic to aquatic life	Category 2 No symbol No signal word Toxic to aquatic life	Category 3 No symbol No signal word Harmful to aquatic life

Analysis:

It is anticipated that this endpoint is not applicable to consumer products.

Aquatic Toxicity: Chronic

CCCR	No criteria			
GHS	<p>Category 1</p>  <p>Warning</p> <p>Very toxic to aquatic life with long lasting effects</p>	<p>Category 2</p>  <p>Toxic to aquatic life with long lasting effects</p>	<p>Category 3</p> <p>No symbol</p> <p>No signal word</p> <p>Harmful to aquatic life with long lasting effects</p>	<p>Category 4</p> <p>No symbol</p> <p>No signal word</p> <p>May cause long lasting harmful effects to aquatic life</p>

Analysis:

It is anticipated that this endpoint is not applicable to consumer products.