

APPENDIX 1

Table A – National classification schemes for human health effects

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
ACUTE ORAL Potency grading	Yes Very toxic: $LD_{50} \leq 25$ mg/kg bw Toxic: $25 < LD_{50} \leq 200$ mg/kg bw Harmful: $200 < LD_{50} \leq 2000$ mg/kg bw	Yes Sch. 7: $LD_{50} \leq 50$ mg/kg bw Sch. 6: $50 < LD_{50} \leq 5000$ mg/kg bw Sch. 5: $2000 < LD_{50} \leq 5000$ mg/kg bw	No Should not be life threatening to a child at doses up to 1500 mg/kg bw - life threatening not defined	Yes Toxic substances Packing group I (Great Danger): $LD_{50} \leq 5$ mg/kg bw Packing group II (Medium Danger): $5 < LD_{50} \leq 50$ mg/kg bw Packing group III (Minor Danger): Solids: $50 < LD_{50} \leq 200$ mg/kg bw Liquids: $50 < LD_{50} \leq 500$ mg/kg bw
Delineation/low hazard definition Qualitative or quantitative	No Quantitative	No Quantitative	No Quantitative with quantitative component	No Quantitative
ACUTE DERMAL Potency grading	Yes Very toxic: $LD_{50} \leq 50$ mg/kg bw Toxic: $50 < LD_{50} \leq 400$ mg/kg bw Harmful: $400 < LD_{50} \leq 2000$ mg/kg bw	Yes Sch. 7: $LD_{50} \leq 200$ mg/kg bw Sch. 6: $200 < LD_{50} \leq 2000$ mg/kg bw Sch. 5: $LD_{50} > 2000$ mg/kg bw	No Should not be life threatening at doses up to 1000 mg/kg bw - life threatening not defined	Yes Toxic substances Packing group I (Great Danger): $LD_{50} \leq 40$ mg/kg bw Packing group II (Medium Danger): $40 < LD_{50} \leq 200$ mg/kg bw Packing group III (Minor Danger): $200 < LD_{50} \leq 1000$ mg/kg bw
Delineation/low hazard definition Qualitative or quantitative	No Quantitative	No Quantitative	No Quantitative with quantitative component	No Quantitative

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
<p>ACUTE INHALATION</p> <p>Potency grading</p> <p>Yes - for aerosols or particulates <u>Very toxic</u>: $LC_{50} \leq 0.25$ mg/L/4hr <u>Toxic</u>: $0.25 < LC_{50} \leq 1$ mg/L/4hr <u>Harmful</u>: $1 < LC_{50} \leq 5$ mg/L/4hr - for gases and vapours <u>Very toxic</u>: $LC_{50} \leq 0.5$ mg/L/4hr <u>Toxic</u>: $0.5 < LC_{50} \leq 2$ mg/L/4hr <u>Harmful</u>: $2 < LC_{50} \leq 20$ mg/L/4hr</p> <p>Delineation/low hazard definition</p> <p>No</p> <p>Qualitative or quantitative</p> <p>Quantitative</p>	<p>Yes - for aerosols or particulates <u>Very toxic</u>: $LC_{50} \leq 0.25$ mg/L/4hr <u>Toxic</u>: $0.25 < LC_{50} \leq 1$ mg/L/4hr <u>Harmful</u>: $1 < LC_{50} \leq 5$ mg/L/4hr - for gases and vapours <u>Very toxic</u>: $LC_{50} \leq 0.5$ mg/L/4hr <u>Toxic</u>: $0.5 < LC_{50} \leq 2$ mg/L/4hr <u>Harmful</u>: $2 < LC_{50} \leq 20$ mg/L/4hr</p> <p>No</p> <p>Quantitative</p>	<p>Yes <u>Sch. 7</u>: $LC_{50} \leq 0.5$ mg/L/4hr <u>Sch. 6</u>: $0.5 < LC_{50} \leq 3$ mg/L/4hr <u>Sch. 5</u>: $LC_{50} > 3$ mg/L/4hr</p> <p>No</p> <p>Quantitative</p>	<p>Not addressed</p>	<p>Yes Toxic substances (dusts and mists) <u>Packing group I (Great Danger)</u>: $LC_{50} \leq 0.5$ mg/L/1hr (equivalent to $LC_{50} \leq 0.25$ mg/L/4hr) <u>Packing group II (Medium Danger)</u>: $0.5 < LC_{50} \leq 2$ mg/L/1hr (equivalent to $0.25 < LC_{50} \leq 1$ mg/L/4hr) <u>Packing group III (Minor Danger)</u>: $2 < LC_{50} \leq 10$ mg/L/1hr (equivalent to $1 < LC_{50} \leq 5$ mg/L/4hr)</p> <p>No</p> <p>Quantitative</p>
<p>NON-LETHAL IRREVERSIBLE EFFECTS</p> <p>Potency grading</p> <p>Yes <u>Very toxic</u>: effects seen generally in the very toxic dose ranges given above for acute oral, dermal or inhalation toxicity <u>Toxic</u>: effects seen generally in the toxic dose ranges given above for acute oral, dermal or inhalation toxicity</p> <p>Delineation/low hazard definition</p> <p>No</p> <p>Qualitative or quantitative</p> <p>Quantitative with qualitative component</p>	<p>Yes <u>Very toxic</u>: effects seen generally in the very toxic dose ranges given above for acute oral, dermal or inhalation toxicity <u>Toxic</u>: effects seen generally in the toxic dose ranges given above for acute oral, dermal or inhalation toxicity</p> <p>No</p> <p>Quantitative with qualitative component</p>	<p>Not specifically addressed</p>	<p>Not addressed</p> <p>Not addressed</p>	<p>Not addressed</p> <p>Not addressed</p>
<p>ASPIRATION HAZARD</p>		<p>Not specifically addressed</p>	<p>Not addressed</p>	<p>Not addressed</p>

Potency grading	No			
Delineation/low hazard definition	No			
Qualitative or quantitative	Quantitative			
CORROSIVITY			Not addressed	
Potency grading	Yes Causes severe burns: ≤ 3 min exposure Causes burns: > 3 min ≤ 4 hr exposure - burns (i.e. corrosivity) defined	No		No
Delineation/low hazard definition	No	No		No
Qualitative or quantitative	Essentially Qualitative	Qualitative		Qualitative

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
<p>SKIN IRRITATION Potency grading</p> <p>Delineation/low hazard definition</p> <p>Qualitative or quantitative</p>	<p>No</p> <p>No</p> <p>Quantitative</p>	<p>Yes Sch. 6: Skin irritation is severe (severe irritation at 72hr) to corrosive Sch. 5: Skin irritation is slight (slight irritation at 72 hrs) to moderate (moderate irritation at 72 hrs)</p> <p>No</p> <p>Qualitative</p>	<p>No Irritancy should be low</p> <p>Yes – but no definition of what constitutes a low irritation (i.e. low hazard). Qualitative</p>	<p>Not addressed</p>
<p>EYE IRRITATION Potency grading</p>	<p>Yes Risk of serious damage to eyes: - mean values: Corneal opacity ≥ 3, or Iris lesions > 1.5 - if 3 animals tested then in 2 or more animals: Corneal opacity > 3, or Iris lesion = 2 Or, in both cases, ocular lesion still present at the end of the observation period (21 days) or irreversible colouration of the eyes seen Irritating to eyes: - mean values: Corneal opacity ≥ 2 and < 3, Iris lesion ≥ 1 and < 1.5, Conjunctival erythema ≥ 2.5, or Conjunctival oedema ≥ 2 - if 3 animals tested then in 2 or more animals: Corneal opacity ≥ 2 and < 3, Iris lesion ≥ 1 and < 2, Conjunctival erythema ≥ 2.5 or Conjunctival oedema ≥ 2</p>	<p>Yes Sch. 6: Eye irritation is severe (corneal opacity, not reversible in 7 days) to corrosive Sch. 5: Eye irritation is slight (no corneal opacity) to moderate (corneal opacity, reversible in 7 days)</p>	<p>No Irritancy should be low</p>	<p>Not addressed</p>

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
Delineation/low hazard definition	No	No	Yes – but no definition of what constitutes a low irritation (i.e. low hazard).	
Qualitative or quantitative	Quantitative	Qualitative	Qualitative	
RESPIRATORY IRRITANT				
Potency grading	No	Not specifically addressed	Not addressed	Not addressed
Delineation/low hazard definition	No			
Qualitative or quantitative	Qualitative			
SKIN SENSITISATION				
Potency grading	No	Yes Sch. 6: Moderate to severe Sch. 5: Slight or nil	Required but no information on classification/maximum levels provided	Not addressed
Delineation/low hazard definition	No	No		
Qualitative or quantitative	Quantitative	Qualitative		
RESPIRATORY SENSITISATION				
Potency grading	No	Not specifically addressed	Not addressed	Not addressed
Delineation/low hazard definition	No			
Qualitative or quantitative	Qualitative			

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
<p>REPEAT DOSE TOXICITY</p> <p>Potency grading</p> <p>Delineation/low hazard definition</p> <p>Qualitative or quantitative</p>	<p>Yes</p> <p><u>Classified as at least toxic:</u></p> <ul style="list-style-type: none"> - oral ≤ 5 mg/kg bw/day - dermal ≤ 10 mg/kg bw/day - inhalation ≤ 0.025 mg/L, 6hr/day <p><u>Classified as at least harmful:</u></p> <ul style="list-style-type: none"> - oral ≤ 50 mg/kg bw/day - dermal ≤ 100 mg/kg bw/day - inhalation ≤ 0.25 mg/L, 6hr/day <p>In both cases guidelines are provided as to what biological effects should and shouldn't attract classification. Furthermore, all these values are based on effects seen in a 90-day repeat study. For a 28-day study these values should be increased approximately 3 fold.</p> <p>No</p> <p>Quantitative with qualitative component</p>	<p>Yes</p> <p>Sch. 7: Severe hazard from repeated use, or significant risk of producing irreversible toxicity</p> <p>Sch. 6: Moderate hazard from repeated use and low risk of producing irreversible toxicity</p> <p>Sch. 5: Low hazard from repeated use and should be unlikely to produce irreversible toxicity</p> <p>Yes – but no definition of what biological effects at what dose level would constitute a low hazard</p> <p>Qualitative</p>	<p>No</p> <p>Low hazard from repeated use, for instance unlikely to induce irreversible toxicity</p> <p>Yes - but no definition of what biological effects at what dose level would constitute a low hazard</p> <p>Qualitative</p>	<p>Not addressed</p>

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
<p>MUTAGENICITY</p> <p>Potency grading</p> <p>Delineation/low hazard definition Qualitative or quantitative</p>	<p>Yes</p> <p><u>Category 1</u>: Known to be mutagenic to humans</p> <p><u>Category 2</u>: Regarded to be mutagenic to humans</p> <p><u>Category 3</u>: Cause concern for humans owing to possible mutagenic effects (somatic cell mutagens - alert for possible carcinogenic activity)</p> <p>No</p> <p>Qualitative</p>	<p>Not specifically addressed</p>	<p>Required but no information on classification/maximum levels provided</p>	<p>Not addressed</p>
<p>CARCINOGENICITY</p> <p>Potency grading</p> <p>Delineation/low hazard definition Qualitative or quantitative</p>	<p>Yes</p> <p><u>Category 1</u>: Known to be carcinogenic to humans</p> <p><u>Category 2</u>: Regarded to be carcinogenic to humans</p> <p><u>Category 3</u>: Cause concern for humans owing to possible carcinogenic effects</p> <p>No</p> <p>Qualitative</p>	<p>Not specifically addressed</p>	<p>Required but no information on classification/maximum levels provided</p>	<p>Not addressed</p>

Toxicological endpoints	NOHSC Approved Criteria	SUSDP Schedules 7 (Dangerous Poison), 6 (Poison) & 5 (Caution) that are applicable to industrial chemicals	APVMA (household pesticides)	ADG Code
FERTILITY Potency grading Delineation/low hazard definition Qualitative or quantitative	Yes <u>Category 1</u> : Can establish a casual relationship between human exposure and impaired fertility <u>Category 2</u> : Strong presumption that human exposure will result in impaired fertility <u>Category 3</u> : Cause concern for human fertility No Qualitative	Not specifically addressed	Required but no information on classification/maximum levels provided	Not addressed
DEVELOPMENTAL TOXICITY Potency grading Delineation/low hazard definition Qualitative or quantitative	Yes <u>Category 1</u> : Can establish a casual relationship between human exposure and developmental toxicity <u>Category 2</u> : Strong presumption that human exposure will result in developmental toxicity <u>Category 3</u> : Cause concern for humans owing to possible developmental effects No Qualitative	Not specifically addressed	Required but no information on classification/maximum levels provided	Not addressed
EFFECTS DURING LACTATION Potency grading Delineation/low hazard definition Qualitative or quantitative	No No Qualitative	Not specifically addressed	Not addressed	Not addressed
DANGER OF CUMULATIVE EFFECTS Potency grading	No	Not specifically addressed	Not addressed	Not addressed

Delineation/low hazard definition Qualitative or quantitative	No Qualitative			
REPEATED EXPOSURE CAUSE SKIN DRYNESS OR CRACKING Potency grading Delineation/low hazard definition Qualitative or quantitative	No No Qualitative	Not specifically addressed	Not addressed	Not addressed
NARCOTIC EFFECTS Potency grading Delineation/low hazard definition Qualitative or quantitative	No No Quantitative with qualitative component	Not specifically addressed	Not addressed	Not addressed

Table B – International classification schemes for human health effects

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
ACUTE ORAL Potency grading	Yes Very toxic: $LD_{50} \leq 25$ mg/kg bw Toxic: $25 < LD_{50} \leq 200$ mg/kg bw Harmful: $200 < LD_{50} \leq 2000$ mg/kg bw	Yes Cat. 1: $LD_{50} \leq 5$ mg/kg bw Cat. 2: $5 < LD_{50} \leq 50$ mg/kg bw Cat. 3: $50 < LD_{50} \leq 300$ mg/kg bw Cat. 4: $300 < LD_{50} \leq 2000$ mg/kg bw Cat. 5: $2000 < LD_{50} \leq 5000$ mg/kg bw	Yes – as GHS	Only for use <u>Residential and institutional uses:</u> pesticide as diluted for use $LD_{50} > 1500$ mg/kg bw <u>All other uses restricted if:</u> pesticide as formulated $LD_{50} \leq 50$ mg/kg bw
Delineation/low hazard definition	No	Yes – Cat. 5 of relatively low acute toxicity hazard but which under certain circumstances may present a danger to vulnerable populations.	Yes – Cat. 5 in the GHS classification scheme is considered a low hazard	Yes – distinction made for consumer use
Qualitative or quantitative	Quantitative	Quantitative	Quantitative	Quantitative
ACUTE DERMAL Potency grading	Yes Very toxic: $LD_{50} \leq 50$ mg/kg bw Toxic: $50 < LD_{50} \leq 400$ mg/kg bw Harmful: $400 < LD_{50} \leq 2000$ mg/kg bw	Yes Cat. 1: $LD_{50} \leq 50$ mg/kg bw Cat. 2: $50 < LD_{50} \leq 200$ mg/kg bw Cat. 3: $200 < LD_{50} \leq 1000$ mg/kg bw Cat. 4: $1000 < LD_{50} \leq 2000$ mg/kg bw Cat. 5: $2000 < LD_{50} \leq 5000$ mg/kg bw	Yes – as GHS	Only for use <u>Residential and institutional uses:</u> pesticide as formulated $LD_{50} > 2000$ mg/kg bw <u>All other uses restricted if:</u> pesticide as formulated $LD_{50} \geq 200$ mg/kg bw and pesticide as diluted for use $LD_{50} \leq 16000$ mg/kg bw
Delineation/low hazard definition	No	Yes – Cat. 5 of relatively low acute toxicity hazard but which under certain circumstances may present a danger to vulnerable populations.	Yes – Cat. 5 in the GHS classification scheme is considered a low hazard	Yes – distinction made for consumer use
Qualitative or quantitative	Quantitative	Quantitative	Quantitative	Quantitative

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
ACUTE INHALATION Potency grading	Yes - for aerosols or particulates <u>Very toxic:</u> $LC_{50} \leq 0.25$ mg/L/4hr <u>Toxic:</u> $0.25 < LC_{50} \leq 1$ mg/L/4hr <u>Harmful:</u> $1 < LC_{50} \leq 5$ mg/L/4hr - for gases and vapours <u>Very toxic:</u> $LC_{50} \leq 0.5$ mg/L/4hr <u>Toxic:</u> $0.5 < LC_{50} \leq 2$ mg/L/4hr <u>Harmful:</u> $2 < LC_{50} \leq 20$ mg/L/4hr	Yes - for dusts and mists <u>Cat. 1:</u> $LC_{50} \leq 0.05$ mg/L/4hr <u>Cat. 2:</u> $0.05 < LC_{50} \leq 0.5$ mg/L/4hr <u>Cat. 3:</u> $0.5 < LC_{50} \leq 1$ mg/L/4hr <u>Cat. 4:</u> $1 < LD_{50} \leq 5$ mg/L/4hr <u>Cat. 5*</u> - for gases <u>Cat. 1:</u> $LC_{50} \leq 100$ ppm <u>Cat. 2:</u> $100 < LC_{50} \leq 500$ ppm <u>Cat. 3:</u> $500 < LC_{50} \leq 2500$ ppm <u>Cat. 4:</u> $2500 < LC_{50} \leq 5000$ ppm <u>Cat. 5*</u> -for vapours <u>Cat. 1:</u> $LC_{50} \leq 0.5$ mg/L/4hr <u>Cat. 2:</u> $0.5 < LC_{50} \leq 2$ mg/L/4hr <u>Cat. 3:</u> $2 < LC_{50} \leq 10$ mg/L/4hr <u>Cat. 4:</u> $10 < LC_{50} \leq 20$ mg/L/4hr <u>Cat. 5*</u> *LC50 in the equivalent range of the oral and dermal Cat 5 LD50 (i.e. between 2000 and 5000 mg/kg bodyweight).	Yes – as GHS	Only for use <u>Residential and institutional uses:</u> pesticide as formulated $LC_{50} \leq 0.5$ mg/L/4hr <u>All other uses restricted if:</u> pesticide as formulated $LC_{50} \leq 0.05$ mg/L/4hr
Delineation/low hazard definition	No	Yes – Cat. 5 of relatively low acute toxicity hazard but which under certain circumstances may present a danger to vulnerable populations.	Yes – Cat. 5 in the GHS classification scheme is considered a low hazard	Yes – distinction made for consumer use
Qualitative or quantitative	Quantitative	Quantitative	Quantitative	Quantitative
Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
NON-LETHAL IRREVERSIBLE EFFECTS Potency grading	Yes <u>Very toxic:</u> effects seen generally in the very toxic dose ranges given above for acute oral, dermal or inhalation toxicity <u>Toxic:</u> effects seen generally in the toxic dose ranges given above for acute oral, dermal or inhalation toxicity	Yes <u>Cat. 1:</u> Oral $LD_{50} \leq 300$ mg/kg bw, Dermal $LD_{50} \leq 1000$ mg/kg bw, Gas $LC_{50} \leq 2500$ ppm, Vapour $LC_{50} \leq 10$ mg/L or Dust/Mist/Fume $LC_{50} \leq 1.0$ mg/L/4hr <u>Cat. 2:</u> $300 < Oral LD_{50} \leq 2000$ mg/kg	Yes – as GHS	No

Delineation/low hazard definition Qualitative or quantitative	No Quantitative with qualitative component	bw, Dermal $1000 < LD_{50} \leq 2000$ mg/kg bw, $2500 < Gas LC_{50} \leq 5000$ ppm, $10 < Vapour LC_{50} \leq 20$ mg/L or Dust/Mist/Fume $1.0 < LC_{50} \leq 5.0$ mg/L/4hr <u>Cat. 3</u> : transient irritant effects on the respiratory tract or transient narcotic effects No Quantitative with qualitative component for Cat. 1 & 2. Qualitative for Cat. 3	No Quantitative with qualitative component for Cat. 1 & 2. Qualitative for Cat. 3	No Qualitative
ASPIRATION HAZARD				Not addressed

Potency grading	No	Yes <u>Cat. 1 Known to cause human aspiration toxicity:</u> hydrocarbons with a kinematic viscosity of 20.5 mm ² /s or less, measured at 40 °C <u>Cat. 2 Presumed to cause human aspiration toxicity:</u> hydrocarbons with a kinematic viscosity of 14 mm ² /s or less (measured at 40° C) taking into account surface tension, water solubility, boiling point, and volatility.	Yes – as GHS	
Delineation/low hazard definition	No	No	No	
Qualitative or quantitative	Quantitative	Quantitative	Quantitative	
CORROSIVITY			Not addressed – see skin and eye irritation	
Potency grading	Yes <u>Causes severe burns:</u> ≤ 3 min exposure <u>Causes burns:</u> > 3 min ≤ 4hr exposure - burns (i.e. corrosivity) defined	Yes <u>Cat. 1A:</u> corrosive ≤ 3 min exposure <u>Cat. 1B:</u> corrosive > 3min and ≥ 1hr exposure <u>Cat 1C:</u> corrosive > 1hr and ≥ 4hr exposure - corrosivity defined		Only for use <u>Residential and institutional uses:</u> pesticide as formulated is not corrosive to the skin or causes severe irritation (severe erythema or oedema) at 72 hrs or results in corneal involvement or irritation persisting for more than 7 days <u>All other uses:</u> pesticide as formulated is corrosive to the skin or eyes or causes corneal involvement or irritation persisting for more than 21 days
Delineation/low hazard definition	No	No		Yes – distinction made for consumer use
Qualitative or quantitative	Essentially qualitative	Essentially qualitative		Qualitative

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
SKIN IRRITATION Potency grading	No	Yes <u>Cat. 2 (Irritant):</u> - in 2 or more of 3 animals tested: erythema/eschar or oedema ≥ 2.3 and < 4 Or if inflammation persists to the end of the observation period (normally 14 days) in at least 2 animals, particularly taking into account alopecia (limited area), hyperkeratosis, hyperplasia, and scaling. Also in some cases where there is pronounced variability of response among animals, with very definite positive effects related to chemical exposure in a single animal but less than the criteria above. <u>Cat. 3 (Mild irritant):</u> - in 2 or more of 3 animals tested: erythema/eschar or oedema ≥ 1.5 and < 2.3	Yes – as GHS	-see corrosivity
Delineation/low hazard definition	No	No	Yes – Cat. 3 (Mild irritant) in the GHS classification scheme is considered a low hazard	
Qualitative or quantitative	Quantitative	Quantitative	Quantitative	

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
EYE IRRITATION				
Potency grading	<p>Yes</p> <p><u>Risk of serious damage to eyes:</u></p> <p>- mean values:</p> <p>Corneal opacity ≥ 3, or</p> <p>Iris lesions > 1.5</p> <p>- if 3 animals tested then in 2 or more animals:</p> <p>Corneal opacity > 3, or</p> <p>Iris lesion = 2</p> <p>Or, in both cases, ocular lesion still present at the end of the observation period (21 days) or irreversible colouration of the eyes seen</p> <p><u>Irritating to eyes:</u></p> <p>- mean values:</p> <p>Corneal opacity ≥ 2 and < 3, Iris lesion ≥ 1 and < 1.5, Conjunctival erythema ≥ 2.5, or Conjunctival oedema ≥ 2</p> <p>- if 3 animals tested then in 2 or more animals:</p> <p>Corneal opacity ≥ 2 and < 3, Iris lesion ≥ 1 and < 2, Conjunctival erythema ≥ 2.5 or Conjunctival oedema ≥ 2</p>	<p>Yes</p> <p><u>Cat. 1 (Irreversible effects on the eye):</u> in at least one animal, effects on the cornea, iris or conjunctiva that are not expected to reverse at the end of the observation period (normally 21 days) or have not reversed; or in at least 2 of 3 tested animals:</p> <p>Corneal opacity ≥ 3, or Iritis > 1.5</p> <p><u>Cat. 2A (reversible effects on the eye)</u></p> <p><u>Irritating to eyes:</u></p> <p>- in at least 2 of 3 animals tested:</p> <p>Corneal opacity ≥ 1, Iritis ≥ 1, Conjunctival erythema ≥ 2, or Conjunctival oedema ≥ 2 and fully reverses within the observation period (normally 21 days).</p> <p><u>Cat 2B (reversible effects on the eye)</u></p> <p><u>Mildly irritating to eyes:</u></p> <p>- in at least 2 of 3 animals tested:</p> <p>Corneal opacity ≥ 1, Iritis ≥ 1, Conjunctival erythema ≥ 2, or Conjunctival oedema ≥ 2 and fully reverses within 7 days of observation.</p>	<p>Yes – as GHS</p>	-see corrosivity
Delineation/low hazard definition	No	No	Yes – Cat. 2A or 2B in the GHS classification scheme (both have the same trigger values for ocular effects) are considered a low hazard as they relate to reversible damage.	
Qualitative or quantitative	Quantitative	Quantitative	Quantitative	

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
RESPIRATORY IRRITANT		See Cat 3 under Non-lethal Irreversible Effects'		Not addressed
Potency grading	No	No	No – as GHS	
Delineation/low hazard definition	No	No	No	
Qualitative or quantitative	Qualitative	Qualitative	Qualitative	
SKIN SENSITISATION				Not addressed
Potency grading	No	No	No – as GHS	
Delineation/low hazard definition	No	No	Yes – but is not based solely on the intrinsic hazard: exposure is a condition for consideration as a low hazard (see note 1 below)	
Qualitative or quantitative	Qualitative	Qualitative	Qualitative	
RESPIRATORY SENSITISATION				Not addressed
Potency grading	No	No	No – as GHS	
Delineation/low hazard definition	No	No	Yes – but is not based solely on the intrinsic hazard: exposure is a condition for consideration as a low hazard (see note 1 below)	
Qualitative or quantitative	Qualitative	Qualitative	Qualitative	

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
<p>REPEAT DOSE TOXICITY</p> <p>Potency grading</p>	<p>Yes</p> <p><u>Classified as at least toxic:</u></p> <ul style="list-style-type: none"> - oral ≤ 5 mg/kg bw/day - dermal ≤ 10 mg/kg bw/day - inhalation ≤ 0.025 mg/L, 6hr/day <p><u>Classified as at least harmful:</u></p> <ul style="list-style-type: none"> - oral ≤ 50 mg/kg bw/day - dermal ≤ 100 mg/kg bw/day - inhalation ≤ 0.25 mg/L, 6hr/day <p>In both cases guidelines are provided as to what biological effects should and shouldn't attract classification.</p> <p>Furthermore, all these values are based on effects seen in a 90-day repeat study. For a 28-day study these values should be increased approximately 3 fold.</p>	<p>Yes</p> <p><u>Cat. 1 Produce significant toxicity in humans:</u></p> <ul style="list-style-type: none"> -oral ≤ 10 mg/kg bw/day - dermal ≤ 20 mg/kg bw/day - inhalation ≤ 50 ppm, 6hr/day (gas) ≤ 0.2 mg/L, 6hr/day (vapour) ≤ 0.02 mg/L, 6hr/day (dust/mist/fume) <p><u>Cat. 2 Potential to be harmful to human health:</u></p> <ul style="list-style-type: none"> - oral > 10 to ≤ 100 mg/kg bw/day - dermal > 20 to ≤ 200 mg/kg bw/day - inhalation > 50 to ≤ 250 ppm, 6hr/day (gas) > 0.2 to ≤ 1.0 mg/L, 6hr/day (vapour) > 0.02 to ≤ 0.2 mg/L, 6hr/day (dust/mist/fume) <p>In both cases guidelines are provided as to what biological effects should and shouldn't attract classification.</p> <p>Furthermore, all these values are based on effects seen in a 90-day repeat study and can be used as a basis to extrapolate equivalent values for toxicity studies of greater or lesser duration, using dose/exposure time extrapolation similar to Haber's rule for inhalation e.g. for a 28-day study these values below would be increased by a factor of three.</p>	<p>Yes – as GHS</p>	<p>No</p>
<p>Delineation/low hazard definition</p>	<p>No</p>	<p>No</p>	<p>Yes – Cat. 2 in the GHS classification scheme is considered a low hazard</p>	<p>No</p>
<p>Qualitative or quantitative</p>	<p>Quantitative with qualitative component</p>	<p>Quantitative with qualitative component</p>	<p>Quantitative with qualitative component</p>	<p>Qualitative</p>

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
MUTAGENICITY				
Potency grading	Yes <u>Category 1</u> : Known to be mutagenic to humans <u>Category 2</u> : Regarded to be mutagenic to humans <u>Category 3</u> : Cause concern for humans owing to possible mutagenic effects (somatic cell mutagens - alert for possible carcinogenic activity)	Yes <u>Cat 1 A</u> : Known to induce inheritable mutations in human germ cells <u>Cat 1 B</u> : Regarded to induce inheritable mutations in human germ cells <u>Cat 2</u> : Cause concern owing to the possibility it may induce inheritable mutation in human germ cells (positive results in somatic cells)	Yes – as GHS	Not addressed
Delineation/low hazard definition	No	No	Yes – Cat. 2 in the GHS classification scheme is considered a low hazard	
Qualitative or quantitative	Qualitative	Qualitative	Qualitative	
CARCINOGENICITY				
Potency grading	Yes <u>Category 1</u> : Known to be carcinogenic to humans <u>Category 2</u> : Regarded to be carcinogenic to humans <u>Category 3</u> : Cause concern for human owing to possible carcinogenic effects	Yes <u>Cat 1 A</u> : Known to have carcinogenic potential for humans <u>Cat 1 B</u> : Presumed to have carcinogenic potential for humans <u>Cat 2</u> : Suspected human carcinogens	Yes – as GHS	Not addressed
Delineation/low hazard definition	No	No	No	
Qualitative or quantitative	Qualitative	Qualitative	Qualitative	
FERTILITY				
Potency grading	Yes <u>Category 1</u> : Can establish a casual relationship between human exposure and impaired fertility <u>Category 2</u> : Strong presumption that human exposure will result in impaired fertility <u>Category 3</u> : Cause concern for human fertility	Yes <u>Cat 1 A</u> : Known human reproductive toxicant <u>Cat 1 B</u> : Presumed human reproductive toxicant <u>Cat 2</u> : Suspected human reproductive toxicant	Yes – as GHS	Not addressed
Delineation/low hazard definition	No	No	No	
Qualitative or quantitative	Qualitative	Qualitative	Qualitative	

Toxicological endpoints	EU	GHS	NZ	US EPA Pesticide Guidelines
DEVELOPMENTAL TOXICITY Potency grading	Yes Category 1: Can establish a casual relationship between human exposure and developmental toxicity Category 2: Strong presumption that human exposure will result in developmental toxicity Category 3: Cause concern for humans owing to possible developmental effects	Yes Cat 1 A: Known human reproductive toxicant Cat 1 B: Presumed human reproductive toxicant Cat 2: Suspected human reproductive toxicant	Yes – as GHS	Not addressed
Delineation/low hazard definition Qualitative or quantitative	No Qualitative	No Qualitative	No Qualitative	
EFFECTS DURING LACTATION Potency grading	No	No	No – as GHS	Not addressed
Delineation/low hazard definition Qualitative or quantitative	No Qualitative	No Qualitative	No Qualitative	
DANGER OF CUMULATIVE EFFECTS Potency grading	No	Not addressed	Not addressed	Not addressed
Delineation/low hazard definition Qualitative or quantitative	No Qualitative			
REPEATED EXPOSURE CAUSE SKIN DRYNESS OR CRACKING Potency grading	No	Not addressed	Not addressed	Not addressed
Delineation/low hazard definition Qualitative or quantitative	No Qualitative			
NARCOTIC EFFECTS Potency grading	No	See Cat 3 under Non-lethal Irreversible Effects ¹ No	No – as GHS	Not addressed
Delineation/low hazard definition Qualitative or quantitative	No Quantitative with qualitative component	No Qualitative	No Qualitative	

NOTE 1: NZ has adopted the GHS cut-off levels of 0.1 % for both respiratory and contact sensitizers, and will consider for rapid assessment under the least degrees of hazard criteria substances containing sensitizers provided the following conditions are met:

- (1) (a) there is a low frequency or severity of occurrence within an exposed population; or
- (1) (b) there is a probability of occurrence of a low sensitisation rate in humans based on animal or other tests; and
- (2) the sensitizer is not 'released' from the substance during use