

2003/07/15-01

THE WORKERS' COMPENSATION BOARD OF BRITISH COLUMBIA

RESOLUTION OF THE BOARD OF DIRECTORS

RE: Amendments to various sections of the *Occupational Health and Safety Regulation* (B.C. Reg. 296/97, as amended), the *Regulations for Agricultural Operations* (B.C. Reg. 146/93, as amended) and the *Industrial Health and Safety Regulation* (B.C. Reg. 585/77, as amended), pertaining to occupational exposure limits

WHEREAS:

Pursuant to section 225(1) of the *Workers Compensation Act*, R.S.B.C. 1996, c. 492 and amendments thereto ("*Act*"), the Workers' Compensation Board ("WCB") may make regulations the WCB considers necessary or advisable in relation to occupational health and safety and occupational environment;

AND WHEREAS:

The *Occupational Health and Safety Regulation* ("*OHSR*"), the *Regulations for Agricultural Operations* ("*RAO*") and the *Industrial Health and Safety Regulation* ("*IHSR*") contain requirements regarding a worker's exposure to chemical substances;

AND WHEREAS:

The American Conference of Governmental Industrial Hygienists ("*ACGIH*") is recognized worldwide as one of the leading bodies for establishing workplace occupational exposure limits;

AND WHEREAS:

The WCB, pursuant to its mandate under the *Act*, has proposed amendments to relevant sections of the *OHSR*, *RAO*, and *IHSR* and has given notice of the proposed amendments and held a public hearing on the proposed amendments in accordance with section 226(1) of the *Act*;

AND WHEREAS:

The Board of Directors has considered the expertise, resources and review processes established by the ACGIH for the development and setting of Threshold Limit Values for chemical substances;

AND WHEREAS:

The Board of Directors, after due consideration of all presentations to the WCB, considers it necessary and advisable in accordance with the WCB's mandate under the *Act* in relation to occupational health and safety and occupational environment to amend sections of the *OHSR*, *RAO*, and *IHSR* pertaining to occupational exposure limits;

AND WHEREAS:

Policy has been developed to provide exposure limits for chemical substances where it is determined that the adoption of the corresponding Threshold Limit Value, as developed by the ACGIH, is not appropriate or where it is determined that an exposure limit is required for a substance in absence of a corresponding Threshold Limit Value;

AND WHEREAS:

An internal review committee is recommended to facilitate an ongoing review of exposure limits provided for in policy and proposed new Threshold Limit Values developed by the ACGIH;

AND WHEREAS:

Pursuant to the Provincial Government's Regulatory Reform Policy, the Board of Directors has evaluated the proposed regulatory amendments according to the established regulatory criteria;

THE BOARD OF DIRECTORS RESOLVES THAT:

1. The regulatory amendments to various sections of the *OHSR*, *RAO*, and *IHSR* as set out in Appendices A, B, and C are approved.
2. The statements under the heading POLICY in Item R5.48-1, as set out in Appendix D, are approved and the Item will be added to the *Prevention Manual*.

3. The Director General of the Policy and Regulation Development Bureau will establish terms of reference for an internal review committee, which will be responsible for facilitating an ongoing review of exposure limits contained in policy and proposed new Threshold Limit Values as developed by the ACGIH.
4. The proposed structure of the internal review committee will be brought forward to the Board of Directors for approval and will be established on an annual basis.
5. The Regulatory Criteria Checklist in Appendix E is approved.
6. The above amendments to the *OHSR*, *RAO*, and *IHSR* will be deposited with the Registrar of Regulations in such form as may be required by the Registrar.
7. The above amendments to the *OHSR*, *RAO*, and *IHSR* come into force 90 days after their deposit under the *Regulations Act*.
8. The amendment to the *Prevention Manual* is effective on the date the above noted regulatory amendments come into force.

DATED at Richmond, British Columbia, July 15, 2003.

By the Workers' Compensation Board

**DOUGLAS J. ENNS, CHAIR
BOARD OF DIRECTORS**

APPENDIX A

THE BOARD OF DIRECTORS RESOLVES THAT:

- 1 Section 1.1 of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended by adding the following definitions:**

“mg/m³” means milligrams of a substance per cubic metre of air;

“ppm” means parts of a vapour or a gas per million parts of contaminated air by volume at a temperature of 25 degrees Celsius and an atmospheric pressure of 760 millimetres of mercury;

- 2 Section 4.42 (4) (a) is amended by striking out “provided in Table 5.4 in Part 5 (Chemical and Biological Substances),” and substituting “established by section 5.48,”.**

- 3 Section 5.1 is amended**

(a) **by striking out “8-hour exposure limit” and substituting “8-hour TWA limit”,**

(b) **by striking out “15-minute exposure limit” and substituting “short-term exposure limit” or “STEL”,**

(c) **by adding the following definitions:**

“ACGIH” means the American Conference of Governmental Industrial Hygienists publication entitled “Threshold Limit Values and Biological Exposure Indices”, dated 2002, as amended from time to time;

“IARC” means the International Agency for Research on Cancer publication “Monographs on the Evaluation of Carcinogenic Risks to Humans”, as amended from time to time; **and**

(d) **in the definition of carcinogen, by striking out “Table 5-4” and substituting “section 5.57 (1)”.**

- 4 Section 5.48 is repealed and the following is substituted:**

Exposure limits

5.48 Except as otherwise determined by the board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

- 5 Section 5.49 is repealed and the following substituted:**

Excursion limits

5.49 If a substance referred to under section 5.48 has an 8-hour TWA limit, the employer must, in addition to the requirement of section 5.48, ensure that a worker’s exposure to the substance does not exceed

(a) three times the 8-hour TWA limit for more than a total of 30 minutes during the work period, and

(b) five times the 8-hour TWA limit at any time.

- 6 Section 5.50 (1) is amended by striking out “exposure” wherever it occurs and in each case substituting “TWA”.**

APPENDIX A

7 *Section 5.51 is repealed and the following substituted:*

Additive effects

5.51 If there is exposure to a mixture of 2 or more substances with established exposure limits which exhibit similar toxicological effects, the effects of such exposure must be considered additive unless it is known otherwise, and the additive exposure must not exceed 100% when calculated as follows:

$$AE = \%EL_1 + \%EL_2 + \dots \%EL_n$$

where

- (a) AE is the calculated additive exposure to the mixture,
- (b) % EL₁ is the measured exposure to component 1 of the mixture expressed as a percentage of its exposure limit,
- (c) %EL₂ is the measured exposure to component 2 of the mixture expressed as a percentage of its exposure limit, and
- (d) %EL_n is the measured exposure to any additional components of the mixture expressed as a percentage of their respective exposure limits.

8 *Section 5.55 (1) is amended by striking out “listed in Table 5-4” and substituting “established under section 5.48”.*

9 *Section 5.57 is repealed and the following substituted:*

Designated substances

5.57 (1) If a substance identified in ACGIH or IARC by any of the following notations, abbreviations, or endnotes is present in the workplace, the employer must replace it, if practicable, with a material which reduces the risk to workers:

- (a) ACGIH A1 or A2, or IARC 1, 2A or 2B carcinogen,
- (b) reproductive critical effects,
- (c) sensitization critical effect or SEN notation, or
- (d) L endnote.

(2) If it is not practicable to substitute a material which reduces the risk to workers, in accordance with subsection (1), the employer must implement an exposure control plan to maintain workers' exposure as low as reasonably achievable below the exposure limit established under section 5.48.

(3) The exposure control plan must meet the requirements of section 5.54.

10 *Section 5.58 (1) is repealed and the following substituted.:*

Protective policy

5.58 (1) At any worksite where a worker is exposed to a substance which is identified in section 5.57 (1) as having a reproductive critical effect, a sensitization critical effect or SEN notation, the employer must develop policy and procedures appropriate to the risk, which may include protective reassignment.

APPENDIX A

11 Table 5-1 (Recirculation of discharged air) following section 5.70 is amended

- (a) in the first sentences opposite “Recirculation permitted without written approval” by striking out “exposure” wherever it occurs and in each case substituting “TWA”, and**
- (b) in the third sentence opposite “Recirculation permitted without written approval” by striking out “A welding fume (including its components designated as ALARA under section 5.57 and its associated gases)” and substituting “A welding fume (including its components identified under section 5.57(1))”,**
- (c) in the last sentence opposite “Recirculation permitted without written approval” by striking out “exposure” and substituting “8-hour TWA”, and**
- (d) in the sentence opposite “No recirculation permitted” by striking out “An ALARA substance” and substituting “A substance identified under section 5.57(1)”.**

12 Table 5-4: Exposure limits and Designations, following section 5.102, is repealed.

13 In section 9.1, the definition of “harmful substance” is amended by striking out “listed in Table 5-4 in Part 5 (Chemical and Biological Substances)” and substituting “referred to under section 5.48”.

14 Section 12.135 is amended by striking out “sensitizing agent” and substituting “sensitizing agent referred to in section 5.57 (1),”.

15 Section 30.8 (2) (b) is amended by striking out “listed in Table 5-4 in Part 5 (Chemical and Biological Substances)” and substituting “referred to under section 5.57 (1)”.

16 Section 31.32 is amended by striking out “in Part 5 (Chemical and Biological Substances)” and substituting “established under section 5.48”.

17 The above amendments come into force 90 days after their deposit under the Regulations Act.

DATED at Richmond, British Columbia, July 15, 2003.

By the Workers’ Compensation Board

DOUGLAS J. ENNS, CHAIR
BOARD OF DIRECTORS

APPENDIX B

THE BOARD OF DIRECTORS RESOLVES THAT:

1 *Section 57 (b) of the Regulations for Agricultural Operations, B.C. Reg. 146/93, is amended by striking out “18%” and substituting “19.5%”.*

2 *Section 58 is repealed and the following substituted:*

Ventilation and precleaning

58 If tests made under section 57 indicate unsafe conditions, the employer must

- (a) ventilate or clean the confined space, or both, and then retest it to ensure that harmful substances are at or below the exposure limits established under section 5.48 of the Occupational Health and Safety Regulation, and
- (b) ensure that the oxygen concentration in the confined space is greater than 19.5% by volume before a worker enters or re-enters the confined space.

3 *Section 85 is repealed and the following substituted:*

When required

85 (1) If workers are or may be exposed to an atmosphere with less than 19.5% oxygen or to concentrations of air contaminants in excess of the exposure limits established under section 5.48 of the Occupational Health and Safety Regulation, mechanical means or engineering design must be used to prevent or to eliminate the hazardous exposure conditions.

(2) If

- (a) the prevention or elimination of the hazardous exposure conditions is not reasonably practicable, or
 - (b) if the exposure results from temporary or emergency conditions only,
- every worker who may be exposed must wear protective respiratory equipment.

4 *The above amendments come into force 90 days after their deposit under the Regulations Act.*

DATED at Richmond, British Columbia, July 15, 2003.

By the Workers' Compensation Board

DOUGLAS J. ENNS, CHAIR
BOARD OF DIRECTORS

APPENDIX C

THE BOARD OF DIRECTORS RESOLVES THAT:

- 1 Section 8.56 (3) (a) of the Industrial Health and Safety Regulation, B.C. Reg. 585/77, is repealed and the following substituted:**
 - (a) the substances have an exposure limit greater than 1.0 mg/m³ as established under section 5.48 of the Occupational Health and Safety Regulation, and
- 2 Appendices A and B are repealed.**
- 3 The above amendments come into force 90 days after their deposit under the Regulations Act.**

DATED at Richmond, British Columbia, July 15, 2003.

By the Workers' Compensation Board

DOUGLAS J. ENNS, CHAIR
BOARD OF DIRECTORS

**RE: Chemical and Biological Substances -
Exposure Limits and Designations**

ITEM: R5.48-1

BACKGROUND

1. Explanatory Notes

Section 5.48 provides established limits for a worker's exposure to hazardous chemical substances. Generally, these exposure limits are established according to the Threshold Limit Values adopted by the American Conference of Governmental Industrial Hygienists. However, the Board has authority to make exceptions and adopt occupational exposure limits for specific chemical substances that are not consistent with the Threshold Limit Values established by the American Conference of Governmental Industrial Hygienists.

2. The Regulation

Section 5.48:

Except as otherwise determined by the board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Section 5.57:

- (1) If a substance identified in ACGIH or IARC by any of the following notations, abbreviations, or endnotes is present in the workplace, the employer must replace it, if practicable, with a material which reduces the risk to workers:
 - (a) ACGIH A1 or A2, or IARC 1, 2A or 2B carcinogen,
 - (b) reproductive critical effects,
 - (c) sensitization critical effect or SEN notation, or
 - (d) L endnote.

- (2) If it is not practicable to substitute a material which reduces the risk to workers, in accordance with subsection (1), the employer must implement an exposure control plan to maintain workers' exposure as low as reasonably achievable below the exposure limit established under section 5.48.

3. Preamble to Policy

The following is a preamble to be applied to those exposure limits developed by the Board as an exception to the Threshold Limit Values established by the American Conference of Governmental Industrial Hygienists:

An exposure level is a maximum allowed airborne concentration and is not intended to represent a fine line between safe and harmful conditions. In determining an exposure limit, it is not possible to take into account all factors that could influence the effect that exposure to the substance may have on an individual worker. Therefore, for all hazardous substances, regardless of any assigned exposure limit, the guiding principle is elimination of exposure or reduction to the lowest level that is reasonably achievable below the exposure limit.

Due to a wide variation in individual susceptibility, some workers may experience discomfort from some substances at concentrations at or below the exposure level. Others may be affected more seriously by aggravation of a pre-existing condition, or by development of an occupational disease. Furthermore, other workplace contaminants may affect an individual's response. The effects of combined chemical exposures are often unknown or poorly defined.

POLICY

As presented in the table below, the Board has determined exposure limits for specific substances, notwithstanding the Threshold Limit Values established by the American Conference of Governmental Industrial Hygienists.

Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit	Notation, Abbreviation, Endnote	Critical Health Effect
ABATE (TEMEPHOS), RESPIRABLE DUST	3383-96-8	mg/m ³	3				
ABATE (TEMEPHOS) TOTAL DUST	3383-96-8	mg/m ³	10	20			
ACETAMIDE	60-35-5					2B	
ACETONE	67-64-1	ppm	250	500			
ACETONE CYANOHYDRIN	75-86-5	ppm			1	Skin	
ALLYL AMINE	107-11-9	ppm	2				
ALUMINUM HYDROXIDE, RESPIRABLE DUST	21645-51-2	mg/m ³	3				
ALUMINUM OXIDE, RESPIRABLE DUST, as Al ₂ O ₃	1344-28-1	mg/m ³	3				
ALUMINUM, RESPIRABLE DUST, as Al	7429-90-5	mg/m ³	3				
AMMONIUM SULFAMATE, RESPIRABLE DUST	7773-06-0	mg/m ³	3				
BARIUM SULFATE, RESPIRABLE DUST	7727-43-7	mg/m ³	3				
BENOMYL, RESPIRABLE DUST	17804-35-2	mg/m ³	3				Reproductive
BENZIDINE-BASED DYES						2A	

APPENDIX D – REVISED

Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit	Notation, Abbreviation, Endnote	Critical Health Effect
BENZYL CHLORIDE	100-44-7	ppm			1		
BISMUTH TELLURIDE, RESPIRABLE DUST, as Bi ₂ Te ₃	1304-82-1	mg/m ³	3				
BROMOCHLOROMETHANE	74-97-5	ppm	200	250			
n-BUTANE	106-97-8	ppm	600	750			
n-BUTYL ALCOHOL (n-BUTANOL)	71-36-3	ppm	15		30		
n-BUTYL ACETATE	123-86-4	ppm	20				
n-BUTYL METHACRYLATE	97-88-1	ppm	50				
CALCIUM CARBONATE (incl. LIMESTONE, MARBLE), TOTAL DUST	1317-65-3	mg/m ³	10	20			
CALCIUM CARBONATE (incl. LIMESTONE, MARBLE), RESPIRABLE DUST	1317-65-3	mg/m ³	3				
CALCIUM SILICATE, RESPIRABLE DUST	1344-95-2	mg/m ³	3				
CALCIUM SULFATE, RESPIRABLE DUST	7778-18-9	mg/m ³	3				
CARBON DIOXIDE	124-38-9	ppm	5000	15,000			
CARBON DISULFIDE	75-15-0	ppm	4	12		Skin	
CARBON MONOXIDE	630-08-0	ppm	25	100			
CARBON TETRACHLORIDE	56-23-5	ppm	2			Skin, A2, 2B	
CELLULOSE, RESPIRABLE DUST	9004-34-6	mg/m ³	3				
CHLOROACETIC ACID	79-11-8	ppm	0.3				
p-CHLOROANILINE	106-47-8					2B	
CHLOROBROMOMETHANE	74-97-5	ppm	200	250			
1-CHLORO-1,1-DIFLUOROETHANE	75-68-3	ppm	1000				
CHLORODIFLUOROMETHANE	75-45-6	ppm	500	1250			
CHLOROFORM	67-66-3	ppm	2			2B	Reproductive
4-CHLORO-o-TOLUIDINE	95-69-2					2A	
2-CHLORO-6-(TRICHLOROMETHYL)-PYRIDINE, RESPIRABLE DUST (NITRAPYRIN)	1929-82-4	mg/m ³	3				
CHLOROTRIFLUOROMETHANE	75-72-9	ppm	1000				
CLOPIDOL, RESPIRABLE DUST	2971-90-6	mg/m ³	3				
CHROMIUM, WATER SOLUBLE, Cr VI COMPOUNDS	7440-47-3	mg/m ³	0.025		0.1	A1, 1	
CRESOL, ALL ISOMERS	1319-77-3	mg/m ³	10			Skin	
CUMENE	98-82-8	ppm	25	75			
2,4-DIAMINOANISOLE	615-05-4					2B	
2,4-DIAMINOTOLUENE	95-80-7					2B	
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8					2B	
2,6-DI-tert-BUTYL-p-CRESOL	128-37-0	mg/m ³	10	20			
DICHLOROMETHANE	75-09-2	ppm	25			2B	
2,2'-DICHLORODIETHYL SULFIDE (MUSTARD GAS)	505-60-2					1	

APPENDIX D – REVISED

Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit	Notation, Abbreviation, Endnote	Critical Health Effect
2,2'-DICHLORO-n-METHYLDIETHYLAMINE (NITROGEN MUSTARD)	51-75-2					2A	
DICYCLOPENTADIENYL IRON (FERROCENE), RESPIRABLE DUST	102-54-5	mg/m ³	3				
DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE	5124-30-1	ppm	0.005		0.01		
2,4-DICHLOROPHENOXYACETIC ACID AND ITS ESTERS	94-75-7	mg/m ³	10	20			
DIETHYL SULFATE	64-67-5					2A	
DIISOCYANATES, N.O.S.		ppm	0.005		0.01		
3,3'-DIMETHOXYBENZIDINE	119-90-4					2B	
DIMETHOXYMETHANE	109-87-5	ppm	1000	1250			
3,3'-DIMETHYLBENZIDINE	119-93-7					2B	
DIMETHYL ETHER	115-10-6	ppm	1000				
1,2-DIMETHYLHYDRAZINE	540-73-8					2A	
DIMETHYL SULFATE	77-78-1	ppm			0.1	Skin, 2A	
n-DIOCTYL PHTHALATE	117-84-0	mg/m ³	5				
DIPHENYL ETHER, MIXED WITH DIPHENYL	101-84-8	ppm	1	2			
DIPROPYLENE GLYCOL METHYL ETHER	34590-94-8	ppm	100	150			
DYFONATE	944-22-9	mg/m ³	0.1				
EMERY, RESPIRABLE DUST	12415-34-8	mg/m ³	3				
ENFLURANE	13838-16-9	ppm	2				
EPICHLOROHYDRIN	106-89-8	ppm	0.1			Skin, 2A	
ETHYL ACETATE	141-78-6	ppm	150				
ETHYL METHACRYLATE	97-63-2	ppm	50				
ETHYLENE DIBROMIDE	106-93-4	ppm	0.5			Skin, 2A	
ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)	107-06-2	ppm	1	2		2B	
ETHYLENE GLYCOL, PARTICULATE	107-21-1	mg/m ³	10	20			
ETHYLENE GLYCOL, VAPOUR	107-21-1	ppm			50		
ETHYLENE OXIDE	75-21-8	ppm	0.1	1		A2, 1	Reproductive
FLUORINE	7782-41-4	ppm	0.1				
FLUROXENE	406-90-6	ppm	2				
FORMALDEHYDE	50-00-0	ppm	0.3		1	SEN, A2, 2A	
FURFURYL ALCOHOL	98-00-0	ppm	5	10		Skin	
GLYCERIN MIST, RESPIRABLE	56-81-5	mg/m ³	3				
GYPSON, TOTAL DUST	13397-24-5	mg/m ³	10	20			
GYPSON, RESPIRABLE DUST	13397-24-5	mg/m ³	3				
HALOTHANE	151-67-7	ppm	2				Reproductive
HEXAMETHYL PHOSPHORAMIDE	680-31-9					Skin, 2B	
n-HEXANE	110-54-3	ppm	20			Skin	
HEXANE, ALL ISOMERS except n-HEXANE		ppm	200				
HYDROGEN FLUORIDE, as F	7664-39-3	ppm			2		
HYDROQUINONE	123-31-9	mg/m ³			2		
IRON PENTACARBONYL	13463-40-6	ppm	0.01				

APPENDIX D – REVISED

Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit	Notation, Abbreviation, Endnote	Critical Health Effect
ISOPROPYL GLYCIDYL ETHER (IGE)	4016-14-2	ppm			50		
LIQUIFIED PETROLEUM GAS	68476-85-7	ppm	1000	1250			
LITHIUM HYDROXIDE	1310-65-2	mg/m ³			1		
MAGNESITE (MAGNESIUM CARBONATE), RESPIRABLE DUST	546-93-0	mg/m ³	3				
MAGNESIUM OXIDE, RESPIRABLE DUST AND FUME, as Mg	1309-48-4	mg/m ³	3	10			
MERCURY, ARYL COMPOUNDS	7439-97-6	mg/m ³	0.05		0.1	Skin	
MESITYL OXIDE	141-79-7	ppm	10	25			
METHOXYFLURANE	76-38-0	ppm	2				
1-METHOXY-2-PROPANOL	107-98-2	ppm	50	75			
2-METHOXY-1-PROPANOL	1589-47-5	ppm	20	40			
1-METHOXYPROPYL-2-ACETATE	108-65-6	ppm	50	75			
2-METHOXYPROPYL-1-ACETATE	70657-70-4	ppm	20	40			
4,4'-METHYLENEDIANILINE	101-77-9	ppm	0.01			Skin, 2B	
METHYL ETHYL KETONE (MEK)	78-93-3	ppm	50	100			
METHYL PROPYL KETONE (2-PENTANONE)	107-87-9	ppm	150	250			
alpha-METHYL STYRENE	98-83-9	ppm	50	75	100		
1,5-NAPHTHYLENE DIISOCYANATE	3173-72-6	ppm	0.005		0.01		
NICKEL, SOLUBLE INORGANIC COMPOUNDS (NOS)	7440-02-0	mg/m ³	0.05			A1, 1	
NICKEL, INSOLUBLE INORGANIC COMPOUNDS (NOS)	7440-02-0	mg/m ³	0.05				
NICKEL CARBONYL	13463-39-3	ppm	0.001				
NITROGEN DIOXIDE	10102-44-0	ppm			1		
2-NITROPROPANE	79-46-9	ppm	5			2B	
NITROPYRENE, MONO-, DI-, TRI, TETRA, ISOMERS	5522-43-0 57835-92-4					2B	
n-NITROSODIETHANOLAMINE	1116-54-7					2B	
n-NITROSODIETHYLAMINE	55-18-5					2A	
n-NITROSOMETHYLETHYLAMINE	10595-95-6					2B	
n-NITROSOMORPHOLINE	59-89-2					2B	
n-NITROSOPIPERIDINE	100-75-4					2B	
n-NITROSOPYRROLIDINE	930-55-2					2B	
NITROUS OXIDE	10024-97-2	ppm	25				Reproductive
OIL MIST, MINERAL, MILDLY REFINED		mg/m ³	0.2			1	
OIL MIST, MINERAL, SEVERELY REFINED		mg/m ³	1				
PENTAERYTHRITOL, RESPIRABLE DUST	115-77-5	mg/m ³	3				
PERLITE, RESPIRABLE DUST	93763-70-3	mg/m ³	3				
PHENYL ISOCYANATE	103-71-9	ppm	0.005		0.01		
PHENYL MERCAPTAN	108-98-5	ppm			0.1		
PICLORAM, RESPIRABLE DUST	1918-02-1	mg/m ³	3				
PIPERAZINE AND ITS SALTS, as PIPERAZINE	142-64-3	mg/m ³	0.3	1			

APPENDIX D – REVISED

Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit	Notation, Abbreviation, Endnote	Critical Health Effect
PIPERIDINE	110-89-4	ppm	1				
PLASTER OF PARIS, RESPIRABLE DUST	26499-65-0	mg/m ³	3				
PLASTER OF PARIS, TOTAL DUST	26499-65-0	mg/m ³	10	20			
POLYVINYL CHLORIDE, TOTAL DUST	9002-86-2	mg/m ³	5				
PORTLAND CEMENT, RESPIRABLE DUST	65997-15-1	mg/m ³	3				
RHODIUM, METAL AND INSOLUBLE COMPOUNDS, as Rh	7440-16-6	mg/m ³	0.1	0.3			
RHODIUM, SOLUBLE COMPOUNDS, as Rh	7440-16-6	mg/m ³	0.001	0.003			
ROUGE, RESPIRABLE DUST		mg/m ³	3				
SELENIUM AND COMPOUNDS, as Se	7782-49-2	mg/m ³	0.1				
SESONE, RESPIRABLE DUST	136-78-7	mg/m ³	3				
SILICA, AMORPHOUS:							
DIATOMACEOUS EARTH, UNCALCINED, TOTAL DUST	61790-53-2	mg/m ³	4				
DIATOMACEOUS EARTH, UNCALCINED, RESPIRABLE DUST	61790-53-2	mg/m ³	1.5				
PRECIPITATED SILICA and SILICA GEL, TOTAL DUST	112926-00-8	mg/m ³	4				
PRECIPITATED SILICA and SILICA GEL, RESPIRABLE DUST	112926-00-8	mg/m ³	1.5				
SILICA FUME, TOTAL DUST	69012-64-2	mg/m ³	4				
SILICA FUME, RESPIRABLE DUST	69012-64-2	mg/m ³	1.5				
SILICON, RESPIRABLE DUST	7440-21-3	mg/m ³	3				
SILICON TETRAHYDRIDE (SILANE)	7803-62-5	ppm	0.5	1			
SILVER AND COMPOUNDS, as Ag	7440-22-4	mg/m ³	0.01	0.03			
STARCH, RESPIRABLE DUST	9005-25-8	mg/m ³	3				
STODDARD SOLVENT (MINERAL SPIRITS)	8052-41-3	mg/m ³	290	580			
STYRENE	100-42-5	ppm	50	75		2B	
SUCROSE, RESPIRABLE DUST	57-50-1	mg/m ³	3				
TEREPHTHALIC ACID, RESPIRABLE DUST	100-21-0	mg/m ³	3				
1,1,2,2-TETRACHLORO-1,2-DIFLUOROETHANE	76-12-0	ppm	200				
TETRAETHYL LEAD, as Pb	78-00-2	mg/m ³	0.075			Skin	
TETRAMETHYL LEAD, as Pb	75-74-1	mg/m ³	0.075			Skin	
4,4'-THIOBis(6-tert-BUTYL-m-CRESOL), RESPIRABLE DUST	96-69-5	mg/m ³	3				
TITANIUM DIOXIDE, RESPIRABLE DUST	13463-67-7	mg/m ³	3				
2,4-TOLUENE DIISOCYANATE (TDI)	584-84-9	ppm	0.005		0.01	2B	Sensitization
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	ppm	500	1250			
TRIMETHYL HEXAMETHYLENE DIISOCYANATE		ppm	0.005		0.01		
TRI-n-BUTYLTIN COMPOUNDS		mg/m ³	0.05				

APPENDIX D – REVISED

Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit	Notation, Abbreviation, Endnote	Critical Health Effect
URANIUM COMPOUNDS, NATURAL, SOLUBLE, as U	7440-61-1	mg/m ³	0.05			A1	
VANADIUM PENTOXIDE, RESPIRABLE DUST and FUME, as V ₂ O ₅	1314-62-1	mg/m ³			0.05		
VANADIUM PENTOXIDE, TOTAL DUST, as V ₂ O ₅	1314-62-1	mg/m ³	0.2				
VEGETABLE OIL MIST, RESPIRABLE FRACTION, EXCEPT CASTOR, CASHEW NUT, OR SIMILAR IRRITATING OILS	8008-89-7	mg/m ³	3				
VINYLDENE CHLORIDE	75-35-4	ppm	1				
VINYL TOLUENE, ALL ISOMERS	25013-15-4	ppm	25	75			
WOOD DUST:							
ALLERGENIC		mg/m ³	1			1	
NON-ALLERGENIC, HARDWOOD		mg/m ³	1			A1, 1	
NON-ALLERGENIC, SOFTWOOD		mg/m ³	2.5			1	
ZINC STEARATE, TOTAL DUST	557-05-1	mg/m ³	10	20			
ZINC STEARATE, RESPIRABLE DUST	557-05-1	mg/m ³	3				

PRACTICE

For any relevant PRACTICE information, readers should consult the Prevention Division's Guidelines available on the WCB website.

EFFECTIVE DATE: (TBD)
AUTHORITY: s. 5.48, *Occupational Health and Safety Regulation*
CROSS REFERENCES:
HISTORY:
APPLICATION:

REGULATORY CRITERIA CHECKLIST

A. BACKGROUND

On March 11, 2002 the provincial government introduced a new Regulatory Reform Policy ("Policy"). The Policy is intended to "support the government's commitment to reducing the regulatory burden in British Columbia by one-third over three years." The Policy applies to all proposed legislation and regulations.

The Policy requires the Chair of the Board of Directors to ensure that proposed regulations are evaluated according to regulatory criteria set out in the Policy, and to sign and make public the "Regulatory Criteria Checklist" ("Checklist") when regulations are enacted. The criteria are designed to ensure that all new regulations are results-based and contribute to a more competitive regulatory environment.

The Policy provides for exemptions from the Checklist if the head of the regulatory agency certifies that, in his or her opinion, the regulation satisfies one or more of the following conditions:

- Is non-regulatory in nature;
- Changes fees in respect of a financial year by an annual rate that has been approved by Treasury Board;
- Relates only to the procedures or practices of a court or tribunal;
- Is required under a national uniform legislation or regulatory scheme or by federal legislation that has already been assessed against criteria similar to that provided in the Checklist;
- Is fundamentally declaratory or machinery in nature such as housekeeping changes that clarify or correct a provision without changing procedural requirements;
- Provides for the commencement of an *Act* or regulation or the commencement of a provision of an *Act* or regulation;
- Is consolidated and reviewed under the reversion powers in Part 2 of the *Regulations Act*;
- Is transitional in nature;
- The special circumstances of the case, as identified by the responsible minister or head of the regulatory authority, make it impracticable to comply with the Regulatory Criteria.

The regulatory amendments regarding occupational exposure limits do not meet the criteria for an exemption from the Checklist.

B. REGULATORY AMENDMENTS

Prior to the effective date of the regulatory amendments, the *Occupational Health and Safety Regulation* contained a table (Table 5-4) of occupational exposure limits for 860 chemical substances. This table served to restrict the exposure of workers to hazardous chemical substances in the workplace. The exposure limits were set at levels where, it was generally accepted, that repeated daily exposure would not cause health problems in most workers.

Appendices A and B of the *Industrial Health and Safety Regulation* also contained a list of exposure limits, which was referenced in the *Regulations for Agricultural Operations*.

The regulatory amendments replaced the existing occupational exposure limits for chemical substances with the 2002¹ Threshold Limit Values (“TLVs”) as established by the American Conference of Governmental Industrial Hygienists (“ACGIH”).

The regulatory amendments are intended to provide:

- A mechanism for ongoing review of the WCB’s regulation of exposure to chemical substances. The TLVs are subject to continual expert reviews by professionals in the field of study. The expertise, resources, and review processes established by the ACGIH provide considerable credibility to the TLVs, which cannot be easily and reasonably duplicated within the WCB. The regulatory and policy amendments enable the WCB to achieve its mandate to ensure that adopted exposure limits are consistent with workplace practices, technological advances and other changes affecting occupational health and safety.
- Greater harmonization with the regulatory approach taken in other Canadian jurisdictions. Each of the other Canadian jurisdictions has adopted the ACGIH TLVs in whole or in part.²
- An improved level of safety in the workplace. The scientific documentation supporting each TLV is significantly more comprehensive and defensible than the documentation supporting the current exposure limits. Further, for a number of substances, the adoption of the TLV will result in lower exposure limits.³

C. EXPLANATORY NOTES

1. Reverse Onus: Need for Regulation is Justified

Regulatory requirements are necessary to protect workers from harmful exposure to hazardous chemical substances. Many of these substances are known carcinogens.

¹ The amendments specifically adopt the 2002 TLVs, “as amended from time to time”, in order to ensure that the standard adopted by the WCB remains current.

² Alberta, Saskatchewan, Ontario, and Quebec have established review procedures to provide for exceptions where it is determined that a specific TLV is inappropriate given a particular industrial context.

³ WCB policy has been developed to maintain the status quo where the adoption of a TLV would result in an increase in exposure limits and where no TLV is provided for a substance that is currently regulated by the WCB.

2. Regulatory Design is Results-Based

The regulatory amendments are prescriptive in nature due to the level of risk associated with exposure to hazardous chemical substances.

3. Transparent Development of Regulatory Requirements

Section 226 of the *Workers Compensation Act* (“Act”) requires that before making a regulation under Part 3, the WCB must give notice of the proposed regulation in the *BC Gazette* and at least three newspapers and must hold at least one public hearing on the proposed regulation.

On February 21, 2003 notice of the public hearing was published in the *Vancouver Sun*, *Vancouver Province*, *Prince George Citizen*, *Victoria Times Colonist*, and in Part 1 of the *BC Gazette*. Notice was also provided on the WCB’s website.

The public hearings were held in Prince George on March 25, 2003 and in Richmond on March 27, 2003. In addition to the oral hearing process, written submissions were accepted until April 10, 2003.

A total of 52 submissions were received providing specific comment on the proposal to adopt the ACGIH TLVs. 60% of the total number of submissions expressed support for the regulatory amendments. Generally, the submissions provided in opposition to the amendments expressed concern over the differences between the previous occupational exposure limits in the regulations and the TLVs developed by the ACGIH.

The concerns raised during the public hearing process were represented in the options presented to the Board of Directors for decision.

4. Cost-Benefit Analysis Completed

A formal cost-benefit analysis was not considered necessary due to the similarities between the WCB’s occupational exposure limits and the TLVs. For the vast majority of substances, the amendments do not result in a change in acceptable level of exposure.

The public hearing process provided stakeholders with an opportunity to identify any implementation issues, which may be associated with a proposed TLV due to a reduction in exposure limits.

Policy has been developed to provide exposure limits for chemical substances where it is determined that a specific TLV is not appropriate in British Columbia due to health and safety factors or economic feasibility. An internal review process will be established to provide an ongoing review of excluded substances and proposed new TLVs. This process will ensure meaningful stakeholder participation.

5. Competitive Analysis Completed

The regulatory amendments to adopt the ACGIH TLVs for chemical substances is consistent with the approach taken in each of the other Canadian workers' compensation jurisdictions. As a result, the amendments are anticipated to result in positive implications for British Columbia's economic competitiveness.

6. Avoid or Eliminate Duplication with Other Jurisdictions

The amendments do not duplicate requirements imposed by other regulatory jurisdictions.

7. Timeliness of Regulatory Response

Notice of changes to regulations must be deposited with the Registrar of Regulations and, pursuant to section 227 of the *Act*, may only come into force at least 90 days after their deposit under the *Regulations Act*.

The 90-day time period is considered sufficient to ensure successful implementation of the new requirements.

The amended regulation will be made available on the WCB's website and notice of the changes will also appear in the *Worksafe Magazine*. The Prevention Division has drafted guidelines for workplace parties to provide additional clarity on the new requirements and assist with compliance.

8. Plain Language

The amendments are drafted in plain language.

9. Sunset Review and Expiry Provisions

A sunset review and expiry provision is not required. Section 228 of the *Act* requires the WCB to undertake a process of ongoing review of and consultation on its regulations to ensure that they are consistent with current workplace practices, technological advances and other changes affecting occupational health and safety and occupational environment.

10. Replacement Principle Applied

The amendments will result in a reduction of 1,261 regulatory requirements.

**GOVERNMENT OF BRITISH COLUMBIA REGULATORY REFORM POLICY
REGULATORY CRITERIA CHECKLIST**

Title of Legislation/Regulation* *Occupational Health and Safety Regulation*

**If Regulation, Title of Authorizing Legislation: Workers Compensation Act*

Purpose of Proposal (One-Line Summary): Amendments to adopt the Threshold Limit Values established by the American Conference of Governmental Industrial Hygienists for determining occupational exposure limits.

If the answer is “No” for any of the criteria, please attach explanation.

Regulatory Criteria	CRITERIA MET	
1. Reverse Onus: Need for Regulation is Justified	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
2. Regulatory Design is Results-Based	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
3. Transparent Development of Regulatory Requirements	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
4. Cost- Benefit Analysis	Formal Cost-Benefit Analysis Completed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required If <i>Not Required</i> , Impacts have been Analyzed <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Competitive Analysis Completed	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6. Regulatory Requirements Avoid or Eliminate Duplication with Other Jurisdictions	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
7. Timeliness of Regulatory Response	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
8. Plain Language	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
9. Sunset Review and Expiry Provisions	Sunset Review provision <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Sunset Expiry provision <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
10. Replacement Principle Applied	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Number of Regulatory Requirements to be added:
 Number of Regulatory Requirements to be eliminated:
NET CHANGE: 1261

Douglas J. Enns, Chair
Board of Directors

Date

Contact: David Young, Policy Director
Policy & Regulation Development Bureau
Workers' Compensation Board