

Topic: Exposure Limits to Noise

Nova Scotia

As made under the Health Act, Occupational Health Regulations

OCCUPATIONAL HEALTH STANDARDS

4 (1) The occupational health standards relating to gases, vapours, mists, fumes, smoke, dust, and other chemical substances and physical agents shall be as listed in the Threshold Limit Values for chemical substances and physical agents for 1976, published by the American Conference of Governmental Industrial Hygienists and its subsequent amendments or revisions.

(2) Where there is any conflict between any other regulation made under the Public Health Act and these regulations, the provisions of these regulations shall apply.

(references ACGIH TLVs, as updated annually)

Newfoundland

As made under the Occupational Health and Safety Act, Mines Safety of Workers Regulations

This document has been repealed by N.L.R. 5/12.

Occupational Health and Safety Regulations

NOISE HAZARDS

68 (1) When a worker is required to work in an area in which noise levels exceed the criteria for permissible noise exposure established by the ACGIH Noise Threshold Limit Values (TLVs):

- (a) the employer shall first take appropriate action to implement control measures to reduce noise to acceptable levels; and
- (b) where it is not practicable to reduce the noise to acceptable levels or to isolate workers from the noise, the workers shall wear personal protective equipment in accordance with CSA Z94.2 "Hearing Protection Devices - Performances, Selection, Care and Use".

(2) Where conditions referred to in subsection (1) exist, an employer shall establish and maintain a hearing conservation program.

(3) A hearing conservation program established under subsection (2) shall comply with the following minimum requirements:

- (a) a noise survey of the workplace to identify high noise areas shall be performed in accordance with CSA Z107.56 "Procedures for the Measurement of Occupational Noise Exposure";
- (b) hearing tests for every worker exposed to noise levels in excess of permissible levels to be conducted on an annual basis or where recommended by an audiologist or occupational physician;
- (c) a hearing test, within 3 months of commencement of employment, for each new worker who is exposed to noise in excess of the permissible levels; and
- (d) mandatory training and education for all workers in the health hazards of noise and the fitting, maintenance, care and use of hearing protection.

(4) A hearing conservation program shall be documented and those records shall be kept by the employer or the employer designate while the worker remains employed by the employer.

(5) An employer shall post and maintain signs at entrances to or on the periphery of areas where persons are exposed to high noise levels in excess of the threshold limit.

(6) A sign referred to in subsection (5) shall clearly state that a noise hazard exists and shall describe the personal protective equipment that is required.

(7) Upon termination of employment, a worker may request from the employer a record of noise exposure during the term of employment.

SELECTION, USE AND MAINTENANCE

71 Personal protective equipment shall:

- (a) be selected and used in accordance with recognized standards and provide effective protection;
- (b) not in itself create a hazard to the wearer;
- (c) be compatible so that one item of personal protective equipment does not make another item ineffective; and
- (d) be maintained in good working order and in sanitary condition.

New Brunswick

As made under the Occupational Health and Safety Act, General Regulation

29 (1) Where an employer or an employee has reason to suspect that the noise level in an area where employees work may exceed 80 dBA, an employer shall ensure that:

- (a) the noise level is measured by a competent person using a sound level meter that conforms as a minimum to the requirements of ANSI standard S1.4-1983, "American National Standard Specification for Sound Level Meters", for a Type 2 sound level meter that is set to use the A-weighted network with slow meter response; and
- (b) the amount of time that an employee spends in an area where the noise level exceeds 80 dBA is measured.

(2) An employer shall ensure that the information obtained under subsection (1) is documented and made available to a joint health and safety committee or health and safety representative, if any, and to an officer on request.

(3) Where there is reason to suspect that substantial changes in noise levels documented under subsection (1) have occurred, an employer shall ensure that the noise level and employee exposure is re-measured and documented in accordance with the requirements of subsection (1).

30 (1) An employer shall ensure that the exposure of an employee to noise is kept as low as is practical and does not exceed the following exposures:

Sound level	Duration per day
dBA	Hours
80	24
82	16
85	8
88	4
91	2
94	1
97	½
100	¼

(2) An employer shall ensure that when the daily noise exposure is composed of periods of noise exposure at substantially different levels, their combined effect is considered, rather than the individual effect of each, according to the following formula:

If the sum of the following fractions:

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_n}{T_n}$$

exceeds unity, then the mixed exposure is considered to exceed the relevant exposure prescribed in subsection (1). C1 indicates the total duration of exposure at a specific noise level, and T1 indicates the total duration of exposure permitted at that level. All job noise exposures of 80 dBA or greater shall be used in the above calculations.

(3) An employer shall ensure that no employee is exposed to continuous, intermittent or impact noise in excess of a peak C-weighted level of 140 dB, using a Type 2 sound level meter that is set to use the A-weighted network with slow meter response.

[N.B. Reg. 2001-33, s. 12]

31 Where the installation of engineering controls is practical, an employer shall install and use appropriate engineering controls to comply with section 30.

32 Where necessary, an employer shall provide, and an employee shall use, adequate hearing protective equipment so that the exposure of an employee to noise is kept within the limits prescribed by section 30.

33 Where the noise level exceeds 85 dBA in an area, an employer shall ensure that the area is clearly marked by a sign that indicates the range of the noise levels measured and warns of the noise hazard.

As made under the Pipeline Act, Pipeline Regulation

STATION DESIGN AND EQUIPMENT

10 A station shall be:

- (a) designed to provide year-round suitable access for personnel;
- (b) designed to prevent unauthorized entry to and unauthorized operation of the station;
- (c) equipped with facilities for the containment, handling and disposal of all material and wastes incidental to the station's operation; and
- (d) designed so that the noise level during operations meets the noise level requirement approved by the Board under section 8.

Prince Edward Island

As made under Occupational Health and Safety Act, Occupational Health and Safety Regulation

NOISE

DEFINITIONS

8.1 (1) In this Part:

- (a) "noise exposure limit" means a noise exposure limit established under section 8.3;
- (b) "practicable" means that which is reasonably capable of being done.

(2) Noise terminology and measurements used or described in this Part have the same meaning that they have in:

- (a) CSA Standard Z107.56-06, Procedures for the Measurement of Occupational Noise Exposure, as amended from time to time; and
- (b) ANSI Standard S1.25-1991, Specification for Personal Noise Dosimeters, as amended from time to time.

[EC2007-652, s. 1]

USE OF PRACTICABLE MEANS TO REDUCE NOISE

8.2 An employer shall ensure that practicable means are used to reduce the noise to which workers are exposed in areas at the workplace where workers may be present.

[EC2007-652, s. 1]

NOISE EXPOSURE LIMITS

8.3 An employer shall ensure that a worker's noise exposure does not exceed any of the following noise exposure limits:

Sound level	Exposure duration
80	24
82	16
85	8
88	4
91	2
94	1
97	30 minutes
100	15 minutes
103	7,50 minutes
106	3,75 minutes
109	1,88 minutes
112	0,94 minutes
115 and greater	0

MEASUREMENT OF NOISE LEVEL

8.4 (1) Unless otherwise provided in this Part, where:

- (a) a worker of an employer is exposed to noise at the workplace of the employer in excess of any noise exposure limit; or
- (b) an employer or worker of an employer has reason to believe that a worker of the employer may be exposed to noise at the workplace of the employer in excess of any noise exposure limit, the employer shall cause the noise exposure of a worker at the workplace to be measured without delay.

(2) Where, in accordance with subsection (1), an employer causes a noise exposure measurement to be made at a workplace of the employer, the employer shall cause the measurement to be repeated without delay after a change in equipment or process affects the exposure level, or the exposure duration, at the workplace.

(3) Where, in accordance with subsection (1) or (2), an employer causes a noise exposure measurement to be made at a workplace of the employer, the employer shall ensure that:

- (a) the noise exposure measurement is performed in accordance with CSA Standard Z107.56-06, Procedures for the Measurement of Occupational Noise Exposure, as amended from time to time; and
- (b) the noise dosimeters and sound level meters used in the noise exposure measurement meet the requirements of ANSI Standard S1.25-1991, Specification for Personal Noise Dosimeters, as amended from time to time.

(4) The employer shall as soon as possible after a noise exposure measurement is conducted at a workplace of the employer inform affected workers of:

- (a) the results of the noise exposure measurement; and
- (b) the significance of the results in terms of their risk of hearing loss at the workplace.

[EC2007-652, s. 1]

EXCEPTION

8.5 Notwithstanding anything to the contrary in section 8.4, an employer is not required to measure the noise exposure of a worker of the employer at the workplace of the employer, if the employer can reasonably determine, without a noise exposure measurement, that the worker is exposed to noise at the workplace in excess of any noise exposure limit.

[EC2007-652, s. 1]

ENGINEERED NOISE CONTROL

8.6 Where a worker of an employer is exposed to noise in the workplace in excess of any noise exposure limit, the employer shall:

- (a) investigate options for engineered noise control; and
- (b) if practicable, implement one or more of those options to reduce noise exposure of workers to or below the noise exposure limit.

[EC2007-652, s. 1]

REDUCTION OF NOISE EXPOSURE, SIGNS

8.7 (1) If it is not practicable for an employer to reduce the noise exposure of a worker of the employer at the workplace to or below any noise exposure limit, the employer shall:

- (a) reduce the noise exposure of the worker to the lowest level practicable;
- (b) establish a noise control and hearing conservation program that complies with the requirements of section 8.8;
- (c) post warning signs in the noise hazard areas;
- (d) give to affected workers hearing protection that meets the requirements of CSA Standard Z94.2-02, Hearing Protection Devices - Performance, Selection, Care, and Use, as amended from time to time, provide training to the affected workers in the use and care of the hearing protection and maintain the hearing protection so that it continues to meet those requirements; and
- (e) ensure that hearing protection required by clause (d), is worn properly by workers of the employer in noise hazard areas.

(2) Every worker in a posted noise hazard area shall wear hearing protection.

[EC2007-652, s. 1]

PROGRAM - REQUIREMENT

8.8 A noise control and hearing conservation program required under subsection 8.7(1) shall include provisions on:

- (i) noise measurement,
- (ii) education and training,
- (iii) engineered noise control,
- (iv) hearing protection,
- (v) posting of noise hazard areas,
- (vi) hearing tests, and
- (vii) annual program review.

[EC2007-652, s. 1]

HEARING TEST

8.9 (1) An employer shall ensure that workers of the employer who are exposed to noise in the workplace that exceeds a noise exposure limit are given:

- (a) an initial hearing test without delay after employment starts, but not later than 6 months after the start of employment; and
- (b) a hearing test at least once every 12 months after the initial test if the worker

continues to be employed with the employer.

(2) An employer shall ensure that hearing tests required under subsection (1) shall be administered by:

- (a) an audiologist; or
- (b) a person who is certified to conduct audiometric testing.

(3) The employer shall be responsible for paying for hearing tests administered under this section.

[EC2007-652, s. 1]

Quebec

Act respecting occupational health and safety

REGULATIONS

223 The Commission may make regulations:

1. establishing categories of establishments, according to the activities carried on, the number of employees, the dangers to the health and safety of workers or the frequency and seriousness of accidents and occupational diseases;
2. determining what other works may be included in the definition of the words "construction site" in section 1;
3. listing contaminants or dangerous substances, classifying them, identifying the biological or chemical agents and determining for each class or each contaminant a maximum permissible quantity or concentration of emission, deposit, issuance or discharge at a workplace, prohibiting or restricting the use of a contaminant or prohibiting any emission, deposit, issuance or discharge of a contaminant;
4. defining the properties of a substance that make it a dangerous substance;
5. determining the cases where a student is deemed to be a worker or a construction worker within the meaning of this act;
6. identifying the contaminants in respect of which a worker may exercise his rights under section 32, determining the criteria of deterioration of health associated with each contaminant warranting the exercise of that right, specifying the conditions of the protective re-assignment of a worker and his return to his duties, and determining the form and tenor of the certificate contemplated in sections 32, 40 and 46;
7. prescribing measures for the supervision of the quality of the work environment and standards applicable to every establishment or construction site in view of ensuring the health, safety and physical well-being of workers, particularly with regard to work organization, lighting, heating, sanitary installations, quality of food, noise, ventilation, variations in temperature, quality of air, access to the

establishment, means of transportation used by workers, eating rooms and cleanliness of a workplace, and determining the hygienic and safety standards to be complied with by the employer where he makes premises available to workers for lodging, meal service or leisure activities;

8. determining the safety measures against fire that must be taken by an employer or principal contractor;
9. determining, by category of establishments or construction sites, the individual and common protective devices and equipment that the employer must put at the disposal of the workers, free of charge;
10. determining the content of the registers that the employer must keep and update in conformity with section 52;
11. fixing the minimum age at which a worker may carry out particular work it specifies;
12. fixing, in such cases or circumstances as it may indicate, the maximum daily or weekly number of hours that may be devoted to particular work, according to the nature of the work, the place where it is carried out and the physical capacity of the worker, and prescribing the distribution of these hours and a minimum rest period or meal period;
13. requiring, in such circumstances as it may indicate, a pre-employment medical check-up or medical examinations during employment, determining the content and standards of the examinations, their time or frequency and the form and tenor of the related medical certificate, and requiring a medical certificate for any work it specifies and prescribing its form and tenor;
14. indicating the cases or circumstances in which new construction or alterations to existing installations must not be undertaken without prior transmission to the Commission of the architect's or engineer's plans and specifications, and indicating the time, terms and conditions of their transmission; prescribing standards of construction, development, maintenance and demolition;
15. specifying the content and the time, terms and conditions of transmission of a notice of opening or closing of an establishment or construction site;
16. determining the cases and circumstances where an establishment or construction site must be considered remote, and the living conditions to be maintained there by the employer for the benefit of the workers;
17. determining the categories of establishments for which a prevention programme must be implemented, the minimum compulsory content of a prevention programme for each category of establishments or construction sites, and the time, terms and conditions of transmission of a prevention programme and its updating to the Commission;
18. determining the form and content of the report that an employer must make under section 62;
19. prescribing standards respecting the safety of such products, processes, equipment, materials, contaminants or dangerous substances as it specifies, indicating the directions for their use, maintenance and repair, and prohibiting or restricting their use;
20. determining the time, terms and conditions of transmission of a notice contemplated in section 64, and its form and content;

21. determining the cases and circumstances where a label or a notice must indicate the dangers inherent in a dangerous substance and indicate the safety measures to be taken in handling or using the substance;
 - (21.1) identifying the controlled products, establishing a classification of the controlled products and specifying the criteria or methods of classification used to classify the products listed in the classification;
 - (21.2) excluding products from the application of subdivision 5 of Division II of Chapter III or certain of its provisions;
 - (21.3) establishing an ingredient disclosure list with respect to ingredients contemplated by paragraph 2 of section 62.3;
 - (21.4) prescribing labelling and posting standards applicable to controlled products present or manufactured in a workplace and prescribing, in particular:
 - (a) the information that a label or sign must contain;
 - (b) the form of labels or signs;
 - (c) measures for the up-dating and renewal of labels and signs and for their replacement in case of loss, destruction or deterioration;
 - (d) circumstances in which a label may be replaced by a sign or another means of information specified in the regulation.
 - (21.5) prescribing standards applicable to the material safety data sheets concerning the controlled products present or manufactured in a workplace and prescribing, in particular:
 - (a) the information that a material safety data sheet must contain;
 - (b) the form of material safety data sheets and the methods of reproduction permitted to facilitate access thereto;
 - (c) measures for the up-dating, distribution and conservation of material safety data sheets.
 - (21.6) prescribing the minimum content of a training and information programme contemplated by section 62.5;
 - (21.7) defining the word "label" and the expression "information on hazards" for the purposes of subdivision 5 of Division II of Chapter III;
22. determining the categories of establishments in which a safety committee may be formed and fixing, by category, the minimum and maximum number of members of a committee; establishing rules of operation for committees and determining the procedure, terms and conditions of appointment of the members representing the workers in the cases provided in section 72;
23. fixing, for health and safety committees in establishments of such categories as it identifies, a minimum number of meetings different from that provided by this act; indicating what information a committee must transmit to it, and the procedure, terms and conditions of its transmission and of the transmission of the annual report of activities;
24. determining, by category of establishments, the amount of time that a safety representative may devote to his functions, determining, by category of establishments or construction sites, the instruments or apparatus a safety representative needs to exercise his functions and determining the registration, travel and accommodation expenses borne by it under sections 91 and 211;
25. delimiting sectors of activities, and indicating which establishments, employers,

- workers, unions, or categories of any of these, form part of a particular sector of activities within the meaning of section 98;
26. prescribing the minimum compulsory content of agreements contemplated in sections 98 and 99;
 27. establishing the conditions and criteria according to which subsidies may be granted to sector-based associations in application of section 100, and indicating what information must be transmitted to it by a sector-based association and the procedure, terms and conditions of transmission of the information and annual report of activities;
 28. determining, by category of establishments or construction sites, the cases in which health services must be supplied to workers;
 29. establishing categories of construction sites, according to the foreseen duration of work on a site, how many construction workers it is foreseen will be working on a site at one time and the risks of work accident or occupational disease;
 30. defining what constitutes a high risk construction site;
 31. establishing the rules of operation of job-site committees and fixing, for committees instituted on construction sites of such categories as it identifies, a minimum number of meetings different from that prescribed by this act; indicating what information a committee must transmit to it, and the procedure, terms and conditions of its transmission;
 32. determining, by category of construction sites, the amount of time that a safety representative may devote to the exercise of his functions and determining the content and the duration of the training programmes in which the safety representative contemplated in section 211 must participate;
 33. establishing the conditions and the terms on which inspectors are to perform their duties on a construction site and determining, by category of construction sites, the cases where one or more inspectors must be present full time;
 34. determining what constitutes a major construction site;
 35. determining the cases where a measuring device may be installed at a workplace or caused to be worn by a worker with his written consent;
 36. establishing rules for its internal management;
 37. establishing rules applicable to the examination and decision of questions over which an inspector or the Commission has jurisdiction or over which certain persons or the executive committee have jurisdiction pursuant to section 172;
 38. repealed;
 39. taking the necessary measures for the implementation of an agreement made pursuant to section 170;
 40. determining the cases or circumstances where a party is entitled to reimbursement of the costs incurred for the examination of a question under section 172, specifying the nature and indicating the amounts thereof;
 - (40.1) repealed; [1997, c. 27, s. 47]
 41. exempting certain categories of persons, workers, employers, workplaces, establishments or construction sites from the application of this act or certain of its provisions;
 42. generally prescribing any other measure to facilitate the application of this Act.

The content of the regulations may vary according to the categories of persons, workers, employers, workplaces, establishments or construction sites to which they apply. The regulations may also provide times within which they are to be applied, and these times may vary according to the object and scope of each regulation.

A regulation may refer to an approval, certification or homologation of the Bureau de normalisation du Québec or of another standardizing body.

[1982, c. 58, s. 72; 1985, c. 6, s. 547;
1988, c. 61, s. 3; 1997, c. 27, s. 47]

223.1 The Government may make regulations:

1. prescribing the form and manner in which an application for exemption under section 62.8 or a contestation under section 62.15 must be filed and the information, documents and fees that must accompany it;
2. prescribing the criteria to be applied in examining an application for exemption;
3. prescribing the procedure applicable to the examination of an application for exemption under section 62.8;
4. prescribing the rules of procedure applicable to the body designated pursuant to section 62.14 and the period within which a contestation may be filed.

[1988, c. 61, s. 4; 1997, c. 27, s. 48]

223.2 The regulations made for the carrying out of subdivision 5 of Division II of Chapter III may provide that, where they refer to other texts, they refer to all subsequent amendments to such texts.

[1988, c. 61, s. 4]

Regulation respecting occupational health and safety

OPERATIONS AND ORGANIZATION

130 Any establishment the operation of which is likely to emit noise at the auditory level of workers shall be operated in accordance with section 136 so that the noise measured at any work station does not exceed the standards prescribed in sections 131 to 135 for any time period indicated therein.

An establishment shall be designed, constructed or equipped so that the standards and requirements prescribed in the first paragraph are complied with and so that the ceilings, walls, floors, corridors, stairwells, or freight or passenger elevator hoistways of the establishment do not emit noise toward any building or facility adjacent to the establishment.

CONTINUOUS NOISE

131 No worker in an establishment may be exposed to the continuous noise levels prescribed below during a time period longer than that indicated in the following table:

Table

Sound level (in dBA, corrected dBA or dBA equivalent)	Duration of exposure* permitted (hours per day)
85	16
86	13,9
87	12,1
88	10,6
89	9,2
90	8
91	7
92	6
93	5,3
94	4,6
95	4
96	3,5
97	3
98	2,6
99	2,3
100	2
101	1,75
102	1,50
103	1,3
104	1,2
105	1
106	0,9
107	0,8
108	0,7
109	0,6
110	0,5
111	0,45
112	0,4
113	0,35
114	0,30
115	0,25
>115	0

* this includes any continuous exposure or number of short term exposures during a worker's work period.

The permitted duration of exposure for any worker at any sound level indicated in the preceding table is reduced by one half, effective from a date to be determined by a regulation made in accordance with section 223 of the Act respecting occupational health and safety (R.S.Q., s. S-2.1).

CONTINUOUS NOISES AT DIFFERENT LEVELS

132 Where a worker is exposed to continuous noises at different levels, the combined effect of those levels shall be computed by using one of the following methods:

(1) by adding the following fractions:

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_m}{T_m}$$

where C indicates the total time in hours of exposure at a specific level and where T indicates the total duration in hours of exposure permitted in accordance with section 131.

(2) by computing the equivalent sound level in dBA equivalent with the following formula:

$$L_{eq} = 16,61 \log_{10} \frac{1}{T} \int_0^T 10^{L(t)/16,61} dt$$

where: L_{eq} = equivalent sound level

L = instantaneous sound level in dBA

T = total duration of worker's exposure, expressed in hours and by using the sound level thus obtained to apply the table under section 131.

Where the method of computation specified in subparagraph 1) of the first paragraph is used, a worker shall not be exposed to a sound level such that the sum of the fractions exceeds the unit.

The computations specified in this evaluation shall not include any exposure of a worker to a sound level of less than 85 dBA.

PREDOMINANT FREQUENCY BAND

133 Where a continuous noise includes predominant frequency bands, the continuous level shall be computed in corrected dBA in accordance with the method prescribed in Schedule VII.

IMPACT NOISE

134 In an establishment, the daily exposure of a worker to impact noise shall not exceed the number indicated in the following table:

Sound level in dB linear as peak value	Permitted number of impacts (per 8 hours)
120	10 000
121	7 943

122	6 310
123	5 012
124	3 981
125	3 162
126	2 512
127	1 995
128	1 585
129	1 259
130	1 000
131	794
132	631
133	501
134	398
135	316
136	251
137	200
138	158
139	126
140	100
>140	0

IMPACT NOISES ON DIFFERENT LEVELS

135 Where a worker is exposed to impact noises on different levels, the combined effect of these levels shall be computed by using one of the following methods:

(1) by adding the following fractions:

$$\frac{C_1}{N_1} + \frac{C_2}{N_2} + \dots + \frac{C_m}{N_m}$$

where C indicates the total number of impacts at a specific level and N indicates the total number of impacts permitted according to section 134.

(2) by computing the equivalent level in dB linear peak value with the following formula:

$$L_{eq} = 10 \log_{10} \frac{1}{N} \sum_{n=0}^N 10^{L(n)/10}$$

$$SEA = L_{eq} + 10 \log N$$

where: SEA = sum of acoustic energies

L_{eq} = equivalent level of impact noises

L_n = impact noise level in dB linear peak value

N = total number of impact noises to which a worker is exposed per day

n = number of impact noises for each sound level of impact noises

Where the method of computation specified in subparagraph 1) of the first paragraph is used, a worker shall not be exposed to an impact sound level such that the sum of the fractions exceeds the unit.

Where the measurements are taken pursuant to subparagraph 2) of the first paragraph, a worker shall not be exposed to impact noises such that the SAE exceeds 160 or such that the peak value in dB linear exceeds 140.

The computations in this evaluation shall not include any exposure of a worker to a sound level of less than 120 dB linear as peak value.

CORRECTIVE MEASURES AND INDIVIDUAL PROTECTIVE EQUIPMENT

136 The employer shall comply with the standards established under sections 131 to 135 by implementing the measures indicated hereafter in the following order:

1. reduce the noise at its source;
2. isolate any work station exposed to the noise;
3. insulate the work areas acoustically.

When, in taking the measures presented in the first paragraph, it proves to be impossible to comply with the standards prescribed in sections 131 to 135 or until the changes stipulated in the said paragraph are made, the employer shall put hearing protectors at the disposal of workers or shall limit the time that they are exposed to noise, in conjunction with an audiometric testing program.

The measures stipulated in the first paragraph shall be implemented, even if the employer is unsuccessful in complying with the standards prescribed under sections 131 to 135.

HEARING PROTECTORS

137 Any hearing protector provided to a worker in accordance with the second paragraph of section 136 shall reduce the noise such that the worker is no longer exposed to noises that exceed the standards established in sections 131 to 135. These hearing protectors shall comply with the [CSA Standard Z.94.2-1974](#) entitled Hearing Protectors.

They shall also be disinfected before being used by another worker, except in an emergency.

POSTING OF NOTICES

138 Where a worker is exposed to noises that exceed the standards established in sections 131 to 135, a poster indicating that the wearing of ear protectors is mandatory,

shall be displayed near the work station or room where the worker is assigned. If the notice includes characters, the latter shall be at least 30 millimetres high.

MEASURING DEVICES

139 For the purpose of enforcing this Division, the sound level shall be measured with a Type 2 sound level meter for general use or a Type I sound level meter for precision purposes as prescribed in CSA Standard Specifications for Sound Level Meters Z.107.1-1973.

Devices used to determine predominant frequency bands shall comply with CSA Standard Z.107.5-1975 entitled Octave, Half-Octave and Third Octave Band Filter Sets.

MEASUREMENT METHODS

140 For the purposes of enforcing this Division, except for the case provided for in section 133, the noise shall be measured in accordance with CSA Standard Z.107.2-1973 entitled Methods for the Measurement of Sound Pressure Levels.

MEASUREMENT OF NOISE

141 Noise emitted at a work station shall be measured at least once a year in any establishment that employs 50 workers or more and where such noise is likely to exceed the standards prescribed in sections 131 to 135.

Measurements shall also be taken within 30 days after a change in industrial processes or equipment or after the installation of devices for reducing the levels of noise emitted at a work station. Measurements shall be entered in a register and kept for a period of at least 5 years.

Safety Code for the Construction Industry

CONTINUOUS NOISE

2.10.7.1 On a construction site, no worker shall be exposed to continuous sound levels permitted by the table below during a time period longer than the one mentioned.

<i>Sound level (in dBA, corrected dBA or equivalent dBA)</i>	<i>Permitted exposure time* (h/day)</i>
85	16
86	13,9
87	12,1
88	10,6
89	9,2
90	8

91	7
92	6
93	5,3
94	4,6
95	4
96	3,5
97	3
98	2,6
99	2,3
100	2

<i>Sound level (in dBA, corrected dBA or equivalent dBA)</i>	<i>Permitted exposure time* (h/day)</i>
101	1,75
102	1,50
103	1,3
104	1,2
105	1
106	0,9
107	0,8
108	0,7
109	0,6
110	0,5
111	0,45
112	0,4
113	0,35
114	0,30
115	0,25
>115	0

* including any continuous exposure or any series of short exposures during a worker's working period.

CONTINUOUS NOISES AT DIFFERENT LEVELS

2.10.7.2 When a worker is exposed to continuous noises at different levels, the combined effect of these levels shall be estimated:

(a) by adding the following fractions:

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_m}{T_m} \text{ where C indicates}$$

the total exposure hours at a given level and T indicates the total time of

- exposure hours permitted by section 2.10.7.1; or
 (b) by calculating the equivalent sound level in dBA with a sound level meter, an audio-dosimeter or any other measuring device corresponding to the following formula:

$$L_{eq} = 16,61 \text{ Log}_{10} \frac{1}{T} \int_0^T \frac{L}{16,61} dt$$

where L_{eq} = equivalent sound level in dBA

where L = instantaneous sound level in dBA

where T = total exposure time of the worker, given hours

and by using the level so obtained to apply the table in section 2.10.7.1.

In the case where the evaluation method mentioned in subparagraph a of the first paragraph is used, a worker shall not be exposed to a sound level such that the sum of the fractions is higher than unity. Any exposure of the worker to a sound level lower than 85 dBA shall be excluded from the calculations mentioned in this section.

IMPACT NOISES

2.10.7.3 On a construction site, the daily exposure of a worker to an impact noise shall not exceed the number in the following table:

Sound level in dB linear peak value	Permitted number of impulses (per 8 hours)
120	10 000
121	7 943
122	6 310
123	5 012
124	3 981
125	3 162
126	2 512
127	1 995
128	1 585
129	1 259
130	1 000
131	794
132	631
133	501
134	398
135	316
136	251
137	200
138	158
139	126

140	100
>140	0

IMPACT NOISES OF DIFFERENT LEVELS

2.10.7.4 When a worker is exposed to impact noises of different levels, the combined effect of these levels shall be computed by adding the following fractions:

$$\frac{C_1}{N_1} + \frac{C_2}{N_2} + \dots + \frac{C_m}{N_m}$$

where C indicates the total number of impacts at a specific sound level, and Nm indicates the total number of impacts permitted in accordance with section 2.10.7.3. For the purposes of this section, the computation shall not include any exposure of a worker to a sound level of less than 120 dB linear peak value.

Where this method of computation is used, a worker shall not be exposed to a sound level so that the sum of the fractions exceeds unity.

CORRECTIVE MEASURES

2.10.7.5 The employer shall comply with the standards established in sections 2.10.7.1 to 2.10.7.4 by taking the measures indicated below, in the following order:

- (a) by reducing the noise at its source;
- (b) by isolating any work location exposed to the noise.

When, in taking the measures presented in the first paragraph, the employer cannot comply with the standards prescribed in sections 2.10.7.1 to 2.10.7.4, or until the changes required by the first paragraph are made, the employer shall provide workers with hearing protectors or limit the exposure time of workers as part of an audiometric testing program.

HEARING PROTECTORS

2.10.7.6 Any hearing protector provided by an employer to a worker in accordance with the second paragraph of section 2.10.7.5 shall reduce the noise so that the worker is no longer exposed to noises exceeding the standards established in sections 2.10.7.1 to 2.10.7.4.

Such a hearing protector must comply with CAN/CSA Standard Z94.2, Hearing Protection Devices, Performance, Selection, Care and Use, applicable at the time of its manufacture.

The hearing protector must be disinfected before being used by another worker.

[O.C. 329-94, s. 11; 393-2011, s. 5]

POSTING OF NOTICES

2.10.7.7 When a worker is exposed to noises that exceed the standards established in sections 2.10.7.1 to 2.10.7.4, the employer shall post, near the work location of the worker, a notice indicating that wearing ear protectors is compulsory. If the notice includes characters, the latter shall be at least 30 millimetres high.

MEASURING DEVICES

2.10.7.8 Measuring devices: For the purposes of this Division, the noise level must be measured with a Type 2 sound level meter for general use or a Type 1 sound level meter for precision purposes, in compliance with one of the following standards, applicable at the time of manufacture of the sound meter:

1. Sound Level Meters, CSA Standard Z107.1;
2. Specification for Sound Level Meters, ANSI Standard S1.4A

[O.C. 393-2011, s. 6]

MEASUREMENT METHODS

2.10.7.9 Measurement methods: For the purposes of this Division, noise must be measured in compliance with CSA/CAN Standard Z107.56-94, Procedures for the Measurement of Occupational Noise Exposure.

[O.C. 393-2011, s. 7]

PROTECTION OF RESPIRATORY PASSAGES

2.10.8 The impurities in the air of a work environment shall be eliminated at their emission point so that their concentration is reduced to a level lower than the permissible values indicated in Schedule I of the Regulation respecting occupational health and safety, approved by Order in Council 885-2001 dated July 4, 2001.

[O.C. 885-2001, s. 366]

2.10.9 When it is impossible to reduce the concentration of toxic vapours or gases, fumes, dusts or other harmful or toxic substances to a level lower than limits permitted under section 2.10.8, the employer shall provide the worker with the respiratory protective equipment specified in the Guide des appareils de protection respiratoire utilisés au Québec, published by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail, as it reads at the time that it is applied.

The apparatuses referred to in the first subparagraph shall, prior to use by another worker, be disinfected in compliance with the CSA Standard Z94.4-93 entitled "Selection, Use and Care of Respirators.

The employer may not provide self-contained or air-supplied protective breathing apparatus equipped with an automatic device which interrupts or restricts the air supply in the part of the apparatus covering the face.

[O.C. 1960-86, s. 1; 329-94, s. 12;
885-2001, s. 367]

Environment Quality Act

NOISE

94 It shall be the duty of the Minister to supervise and control noise.

For such purpose he may construct, erect, install and operate any system or equipment necessary in the territory of any municipality. He may also acquire by agreement or expropriation any immovable required and make any agreement with any person or municipality.

[S.Q. 1972, c. 49, s. 94; 1978, c. 64, s. 30;
1996, c. 2, s. 841]

REGULATIONS

95 The Government may make regulations to:

- (a) prohibit or limit abusive or useless noise inside or outside a building;
- (b) determine the terms and conditions of use of any vehicle, engine, piece of machinery, instrument, or equipment generating noise;
- (c) prescribe standards for noise intensity.

[S.Q. 1972, c. 49, s. 95]

Regulation respecting hot mix asphalt plants

NOISE

10 A hot mix asphalt plant as well as the area for the loading, unloading and discharge of aggregate materials used for the needs of such a plant may nevertheless be situated at a distance that is less than the distance prescribed in sections 8 and 9 if the operator submits in support of his request an estimate of the maximum level of the noise that will be emitted into the environment by the operation of the hot mix asphalt plant and if the noise measured at the boundary of the residential, commercial or mixed zone referred to in section 8 or of the structure or immovable referred to in section 9 does not exceed 40 dBA between 18 h and 6 h and 45 dBA between 6 h and 18 h. These estimates must not include the noise emitted by the hot mix asphalt transport trucks.

Where the Deputy Minister has granted a certificate of authorization for a hot mix asphalt plant on the strength of an application supported by a noise estimate in accordance with this section, the operator of the hot mix asphalt plan must comply with the noise standards established in the first paragraph during the entire operation of the plant.

METHOD

11 For the purposes of application of section 10, noise is evaluated in accordance with

the measurement method prescribed in Schedule B.

SCHEDULE A OCTAVE BAND ANALYSIS (S. 1)

The value retained for each octave is the minimum value during a period of 30 seconds, at the evaluation point. If the hot mix asphalt plant produces a noise during a period that lasts less than 30 seconds, the measurements are taken during the emission period. Octave band analysis is made in linear dB using the slow response on the sound level meter.

Every octave band analysis is made using a sound level meter and octave band filters that comply with the standards prescribed in Schedule B, *in fine*.

SCHEDULE B METHOD FOR NOISE MEASUREMENT (S. 11)

The noise level at a hot mix asphalt plant is measured according to the following formula:

$$B = S + I - A + 10 \log_{10} \left[(0,0014 \cdot 10^{\left[\frac{L_1 + 5}{10} \right]} + 10^{\left[\frac{L_x}{10} \right]} \right]$$

where

S = 5 where there are one or several predominant frequency bands;

S = 0 where there is no predominant frequency band;

I = 5 where there are one or several information-bearing noises;

I = 0 where there is no information-bearing noise;

A = A₁ + (A₂ - A₃) calculated as follows:

A₁ = attenuation caused by distance;

$$20 \log_{10} \frac{d_2}{d_1}$$

d₁ = distance from the hot mix asphalt plant to using the following formula;

d₂ = distance from the hot mix asphalt plant to the evaluation point;

A₂ = attenuation at the evaluation point caused by a barrier;

A₃ = attenuation at the measuring point caused by the same barrier;

L₁ = equivalent level of impact noise.

Calculation of the arithmetic mean of the maximum energies, during the period of emission of the impact noises produced during the sampling period that are recorded at the point of measurement.

The formula to be used is the following:

$$L_1 = 10 \log_{10} \left[\frac{1}{m} \sum_{n=1}^m 10 \frac{dB_n}{10} \right]$$

where

dB_n = maximum noise of the Nth impact noise during its emission period.

m = total number of impacts during the emission period; if the number of impacts is over 720/hour, m equals 720.

L_x = equivalent level of a noise.

Equivalent level of a noise at the point of measurement during its period of emission during a sampling period.

The formula to be used is the following:

$$L_x = 10 \log_{10} \frac{1}{100} \sum f_{i10} \frac{L_i}{10}$$

where f_i = time interval (expressed in a percentage of the sampling period) during which the noise level is less than the limit of class i.

Where the hot mix asphalt plant is not in its period of emission, the corresponding f_i is equal to 0.

L_i = sound level in dBA corresponding to the average of class i.

The scope of class i must be set at a value equal to or less than 2 dBA and the sampling period must be equal to or less than 0,1 seconds.

For the purposes of this measurement method, the normal sampling period is 60 consecutive minutes. If the sampling lasts less than 60 minutes, an adjustment must be made so that the ratio between the periods of emission and the pause are the same.

All the measurements are made in dBA using the rapid response of the sound level meter. The sound level meter and the octave band filters must comply with the standards prescribed in publications 179 (2nd edition, 1973) and 225 (1st edition, 1966) published by Central Office of International Electrotechnical Commission.

In this measurement method, the hot mix asphalt plant is considered as including the loading, unloading and discharge areas of aggregate material.

Regulation respecting pits and quarries, R.R.Q., c. Q-2, r.2

EXCEPTIONS FOR NOISE

12 A new pit or quarry may nevertheless be established at a distance that is under the

distances prescribed in sections 10 and 11 if the operator submits in support of his request an estimate of the maximum noise level that will be emitted into the environment by the operation of the new pit or quarry and if the noise measured at the boundary of the residential, commercial or mixed zone contemplated in section 10 and at any structure or immovable contemplated in section 11 does not exceed 40 dBA between 18 h and 6 h and 45 dBA between 6 h and 18 h.

In a case where the Deputy Minister granted a certificate of authorization for a pit or quarry following a request supported by a noise level estimate in accordance with this section, the operator of the pit or quarry must, during the entire operation, comply with the noise standards established in the first paragraph.

METHOD

13 For the purposes of application of section 12, noise is evaluated according to the method prescribed in Schedules D and E.

SCHEDULE D METHOD FOR NOISE MEASUREMENT (SS. 1, 13 AND SCHEDULE E)

The noise level at a pit or quarry shall be measured according to the following formula:

$$B = S + I - A + 10 \log_{10} \left[(.0014 \text{ m})^{10} \frac{L+5}{10} + 10 \frac{L}{10} \right]$$

where

S = 5 where there are one or several importunate frequency bands;

S = 0 where there is no importunate frequency band;

I = 5 where there is one or several information bearing noise;

I = 0 where there is no information bearing noise;

A = A₁ + (A₂ - A₃) calculated as follows:

A₁ = attenuation caused by distance

$$20 \log_{10} \frac{d_2}{d_1}$$

and

d₁ = distance from the pit or quarry to the point of measurement

d₂ = distance from the pit or quarry and the evaluation point.

A₂ = attenuation at the evaluation point caused by a barrier

A₃ = attenuation at the measuring point caused by the same barrier.

L₁ = equivalent level of impact noise:

Calculation of the arithmetic mean of the maximum energies, during the period of emission of the impact noises produced during the sampling time period which are recorded at the point of measurement.

The formula to be used is as follows:

$$L_l = 10 \log_{10} \left[\frac{1}{m} \sum_{n=1}^m 10^{\frac{dBn}{10}} \right]$$

where:

dBn = maximum noise of the nth impact noise during its emission period.

m = total number of impacts during the emission period. If the number of impacts is over 720/hour, m 720.

L_x = equivalent level of a noise:

Equivalent level of a noise at the point of measurement during its period of emission during a sampling period.

The formula to be used is the following:

$$L_x = 10 \log_{10} \frac{1}{100} \sum f_i 10^{\frac{L_i}{10}}$$

where f_i = time interval (expressed in a percentage of the sampling time) during which the noise level is less than the limit of class i.

Where the pit or quarry is not in a period of emission, the corresponding f_i shall be equal to 0.

and L_i = sound level in dBA corresponding to the average of class i.

The scope of class i must be fixed at a value equal or less than 2 dBA and the period of sampling must be equal or less than 0,1 seconds.

For the purposes of this measurement method, the normal sampling time shall be 60 consecutive minutes. If the sampling lasts longer than 60 minutes, an adjustment must be made so that the ratio between the periods of emission and the pause be the same. All the measurements shall be made in dBA using the rapid response of the sound level meter. The sound level meter and the octave band filters must comply with the standards prescribed in publications 179 (2nd. edition, 1973) and 225 (1st edition, 1966) of the Central Office of the International Electrotechnical Commission.

SCHEDULE E OCTAVE BAND ANALYSIS – METHOD (SS. 1 AND 13)

The value retained for each octave shall be the minimum value during a period of 30 seconds, at the evaluation point. If the pit or quarry produces a noise during a period that lasts less than 30 seconds, the measurement shall be taken during the emission period.

Octave band analysis shall be made in linear dB using the slow response on the sound level meter.

Every octave band analysis shall be made using a sound level meter and octave band filters which comply with the standards prescribed in Schedule D, *in fine*.

Ontario

As made under the Occupational Health and Safety Act, Industrial Establishments

INDUSTRIAL ESTABLISHMENTS

139 (1) In this section:

"dBA" means a measure of sound level in decibels using a reference sound pressure of 20 micropascals when measured on the A- weighting network of a sound level meter;

"decibel" means a unit of measurement of sound pressure level that is equal to 20 times the logarithm to the base 10 of the ratio of the pressure of a sound, divided by the reference pressure of 20 micropascals;

"equivalent sound exposure level" is the steady sound level in dBA which, if present in a workplace for eight hours in a day, would contain the same total energy as that generated by the actual and varying sound levels to which a worker is exposed in his or her total work day, determined in accordance with the formula set out in subsection (2).

(2) The formula for determining the equivalent sound exposure level is as follows:

$$L_{ex,8} = 10 \text{ Log}_{10} \left(\frac{\left[\sum_{i=1}^n (t_i \times 10^{0.1 \text{ SPL}_i}) \right]}{8} \right)$$

where,

$L_{ex,8}$ is the equivalent sound exposure level in 8 hours,

[sum] is the sum of the values in the enclosed expression for all activities from $i = 1$ to $i = n$,

i is a discrete activity of a worker exposed to a sound level,

t_i is the duration in hours of i ,

SPL_i is the sound level of i in dBA,

n is the total number of discrete activities in the worker's total workday.

(3) Every employer shall take all measures reasonably necessary in the circumstances to protect workers from exposure to hazardous sound levels.

(4) The protective measures shall include the provision and use of engineering controls, work practices and, subject to subsection (7), personal protective equipment.

(5) Any measurement of sound levels in the workplace that is done in order to determine what protective measures are appropriate shall be done without regard to any use of personal protective equipment.

(6) Without limiting the generality of subsections (3) and (4), every employer shall ensure that no worker is exposed to a sound level greater than an equivalent sound exposure level of 85 dBA, $L_{ex,8}$.

(7) Except in the circumstances set out in subsections (8) and (9), the employer shall protect workers from exposure to a sound level greater than the limit described in subsection (6) without requiring them to use and wear personal protective equipment.

(8) If this subsection applies, workers shall wear and use personal protective equipment appropriate in the circumstances to protect them from exposure to a sound level greater than the limit described in subsection (6).

(9) Subsection (8) applies if engineering controls are required by subsections (3) and (4) and:

- (a) are not in existence or are not obtainable;
- (b) are not reasonable or not practical to adopt, install or provide because of the duration or frequency of the exposures or because of the nature of the process, operation or work;
- (c) are rendered ineffective because of a temporary breakdown of such controls; or
- (d) are ineffective to prevent, control or limit exposure because of an emergency.

(10) A clearly visible warning sign shall be posted at every approach to an area in the workplace where the sound level, measured as described in subsection (5), regularly exceeds 85 dBA.

[O. Reg. 565/06, s. 2; 420/10, s. 27]

Form 1. Repealed. [O. Reg. 420/10, s. 28]

OIL AND GAS – OFFSHORE

41 (1) In this section:

"dBA" means a measure of sound level in decibels using a reference sound pressure of 20 micropascals when measured on the A-weighting network of a sound level meter;

"decibel" means a unit of measurement of sound pressure level that is equal to 20 times the logarithm to the base 10 of the ratio of the pressure of a sound, divided by the reference pressure of 20 micropascals;

"equivalent sound exposure level" is the steady sound level in dBA which, if present in a workplace for eight hours in a day, would contain the same total energy as that generated by the actual and varying sound levels to which a worker is exposed in his or her total work day, determined in accordance with the formula set out in subsection (2).

(2) The formula for determining the equivalent sound exposure level is as follows:

$$L_{ex,8} = 10 \text{ Log}_{10} \left(\frac{\left[\sum_{i=1}^n (t_i \times 10^{0.1 \text{ SPL}_i}) \right]}{8} \right)$$

where,

$L_{ex,8}$ is the equivalent sound exposure level in 8 hours,

\sum is the sum of the values in the enclosed expression for all activities from $i = 1$ to $i = n$,

i is a discrete activity of a worker exposed to a sound level,

t_i is the duration in hours of i ,

SPL_i is the sound level of i in dBA,

n is the total number of discrete activities in the worker's total work day.

(3) Every employer shall take all measures reasonably necessary in the circumstances to protect workers from exposure to hazardous sound levels.

(4) The protective measures shall include the provision and use of engineering controls, work practices and, subject to subsection (7), personal protective equipment.

(5) Any measurement of sound levels in the workplace that is done in order to determine what protective measures are appropriate shall be done without regard to any use of personal protective equipment.

(6) Without limiting the generality of subsections (3) and (4), every employer shall ensure that no worker is exposed to a sound level greater than an equivalent sound exposure level of 85 dBA, $L_{ex,8}$.

(7) Except in the circumstances set out in subsections (8) and (9), the employer shall protect workers from exposure to a sound level greater than the limit described in subsection (6) without requiring them to use and wear personal protective equipment.

(8) If this subsection applies, workers shall wear and use personal protective equipment appropriate in the circumstances to protect them from exposure to a sound level greater than the limit described in subsection (6).

(9) Subsection (8) applies if engineering controls are required by subsections (3) and (4) and:

- (a) are not in existence or are not obtainable;
- (b) are not reasonable or not practical to adopt, install or provide because of the duration or frequency of the exposures or because of the nature of the process, operation or work;
- (c) are rendered ineffective because of a temporary breakdown of such controls; or
- (d) are ineffective to prevent, control or limit exposure because of an emergency.

(10) A clearly visible warning sign shall be posted at every approach to an area in the workplace where the sound level, measured as described in subsection (5), regularly exceeds 85 dBA.

[O. Reg. 566/06, s. 2; 421/10, s. 6]

Manitoba

As made under the Workplace Safety and Health Act, Workplace Safety and Health Regulation

SOUND CONTROL DESIGN

12.1 An employer must ensure that a new workplace, a significant physical alteration, renovation or repair to an existing workplace or a work process or any significant equipment that is introduced to the workplace is designed and constructed so that the continuous noise level generated:

- (a) is not more than 85 dBA; or
- (b) is as low as is reasonably practicable, where it is not reasonably practicable to meet the standard under clause (a).

NOISE EXPOSURE ASSESSED AND REPORTED

12.2 An employer must conduct a noise exposure assessment at the workplace in accordance with CAN/CSA Standard-Z107.56-06, *Measurement of Occupational Exposure to Noise*, and prepare and post in a conspicuous place in the workplace a written report of the assessment, if:

- (a) a worker is or is likely to be exposed to noise at a workplace in excess of 80 dBA;
- (b) there is;

- (i) an alteration, renovation or repair of the workplace,
 - (ii) new equipment introduced in the workplace, or
 - (iii) a modification done to a work process, that may result in a significant change in a worker's exposure to noise, or
- (c) a worker provides the employer with evidence of an occupationally induced hearing loss.

HEARING PROTECTION

12.3 If a worker is or is likely to be exposed to noise in a workplace that exceeds 80 dBA Lex but does not exceed 85 dBA Lex, the employer must:

- (a) inform a worker about the hazards of the level of noise; and
- (b) on the request of the worker, provide him or her with:
 - (i) a hearing protector that complies with CAN/CSA Standard-Z94.2-02, *Hearing Protection Devices - Performance, Selection, Care, and Use*, and
 - (ii) information about the selection, use and care of the hearing protector.

CONTROL MEASURES IF EXPOSURE EXCEEDS 85 DBA LEX

12.4 (1) When a noise exposure assessment conducted under this Part indicates a worker is exposed to noise in the workplace that is more than 85 dBA Lex, and if reasonably practicable, an employer must implement sound control measures that reduce the noise to which the worker is exposed to 85 dBA Lex or less.

(2) When it is not reasonably practicable to implement sound control measures, or the sound control measures implemented by an employer do not reduce the worker's noise exposure to 85 dBA Lex or less, an employer must:

- (a) inform the worker about the hazards of the level of noise;
- (b) provide the worker with:
 - (i) a hearing protector that
 - (A) complies with CAN/CSA Z94.2-02, *Hearing Protection Devices - Performance, Selection, Care, and Use*; and
 - (B) reduces the worker's noise exposure to 85 dBA Lex or less; and
 - (ii) information about the selection, use and care of the hearing protector, and
- (c) at the employer's expense, provide the worker with the following audiometric tests:
 - (i) an initial baseline test as soon as is reasonably practicable but not later than 70 days after the worker is initially exposed to that noise level,
 - (ii) a further test at least once every year after the initial baseline test.

(3) In order to ensure the tests and reports required under this Part are completed, an employer obligated to provide audiometric testing must, at the employer's expense, engage a physician or audiologist.

(4) Only a physician, an audiologist or an industrial audiometric technician engaged by the employer may perform the audiometric testing described in clause (2)(c).

TESTING AND RESULTS

12.5 (1) An audiometric test required under clause 12.4(2)(c) must be conducted:

- (a) using an audiometer that:
 - (i) meets the requirements of CAN/CSA CAN3-Z107.4-M86 (R2001), Pure Tone Air Conduction Audiometers for Hearing Conservation and for Screening, and
 - (ii) provides pure tones of selected frequencies at calibrated outputs and is used to measure pure tone air conduction hearing threshold levels, and

- (b) in a location where the octave band sound pressure level is not more than the octave band sound pressure level indicated in Column 1 of the following table for each octave band centre frequency set out in Column 2.

Column 1 Octave Band Sound Pressure Level (Decibels)	Column 2 Octave Band Center Frequency (Hz)
30	500
30	1000
35	2000
42	4000
45	8000

(2) An industrial audiometric technician, physician or audiologist administering an audiometric test must:

- (a) comply with the requirements of subsection (1);
- (b) record the results of the test;
- (c) retain a copy of the test record for a period of at least 10 years from the date of the test; and
- (d) provide a copy of the test results to the worker.

(3) If the results of an audiometric test indicate an abnormal audiogram or show an abnormal shift, the industrial audiometric technician, physician or audiologist administering the test must:

- (a) advise the worker of the test results;
- (b) request that the worker provide a relevant medical history; and
- (c) if he or she is not the physician or audiologist engaged by the employer under subsection 12.4(3), forward the results, the relevant medical history and a baseline audiogram to that physician or audiologist.

(4) Every worker must provide a relevant medical history if requested to do so under clause (3)(b).

(5) When a physician or audiologist engaged by an employer receives results of an audiometric test that indicate an abnormal audiogram or show an abnormal shift, the physician or audiologist must:

- (a) review the test results, the worker's medical history and the baseline audiogram;
- (b) prepare a written report setting out:
 - (i) his or her interpretation of the results, including his or her opinion as to whether the abnormal audiogram or abnormal shift is a result of exposure to noise at the workplace, and
 - (ii) any recommendations with respect to actions to be taken by the employer to conserve the worker's hearing, and
- (c) provide a copy of the report to the employer and the worker.

(6) The physician or audiologist who prepares the report under subsection (5) must retain the test record and the report for a period of at least 10 years from the date the report is prepared.

ANNUAL REPORT

12.6 (1) An employer who is required to provide audiometric testing must ensure that an annual written report is prepared that sets out a detailed account of the steps taken by the employer to comply with the requirements of this Part.

(2) The annual report must include:

- (a) the sound control measures taken at the workplace; and
- (b) statistics in respect of the number of workers;
 - (i) who received audiometric testing under clause 12.4(2)(c),
 - (ii) who experienced an abnormal audiogram or an abnormal shift, and
 - (iii) whose abnormal audiogram and abnormal shift was, in the opinion of the physician or audiologist who reviewed the test results, a result of exposure to noise at the workplace.

(3) Within 30 days after having the annual report prepared, an employer must provide a copy of it to:

- (a) the physician or audiologist engaged by the employer under subsection 12.4(3);
- (b) the committee or, if there is no committee, the representative; and
- (c) the director.

APPLIES TO HEARING PROTECTORS PROVIDED

12.7 A hearing protector provided by an employer under this Part is personal protective equipment and the obligations of the employer and the worker under Part 6 (Personal

Protective Equipment) apply to the hearing protector provided.

WARNING SIGNS

12.8 An employer must post a warning sign - indicating that any person entering the workplace or work area risks exposure to a noise level that is harmful to hearing - at the entrance to any workplace or work area where the noise level is more than 85 dBA.

Operation of Mines Regulation

General Workplace Requirements

Hearing conservation and noise control

This document has been repealed and replaced by Operation of Mines Regulation Man. Reg. 212/2011.

Off-road Vehicles Act

REGULATIONS

68 For the purpose of carrying out the provisions of this Act according to their intent, the Lieutenant Governor in Council may make regulations ancillary thereto and not inconsistent therewith; and every regulation made under, and in accordance with the authority granted by, this section has the force of law; and without limiting the generality of the foregoing, the Lieutenant Governor in Council may make regulations:

- (a)-(a.1) Repealed; [S.M. 2005, c. 37, s. 159]
- (b) prescribing the fees payable in respect of any matter under this Act or the regulations;
- (c) requiring or prohibiting the use of any equipment in connection with off-road vehicles or things that may be attached to off-road vehicles;
- (d) prescribing the requirements, rules and conditions to be observed by the owners and operators of off-road vehicles;
- (e) (d.1) Repealed; [S.M. 2005, c. 37, s. 159]
- (f) providing for the payment of fees for copies or access to any writing, paper or document filed in the office of the registrar under this Act or the regulations, or any statement containing information from the records of the registrar and prescribing the amount of the fees;
- (g) exempting designated off-road vehicles in specified areas, or throughout the province, and the owners, operators and passengers thereof, from specified provisions of this Act other than sections 24(1), 30, 31, 47, 48, 49, 51 and 66;
- (h) prescribing maximum level of noise, measured in decibels on the "A" scale of a sound level measuring device for off-road vehicles;
- (i) Repealed; [S.M. 2005, c. 37, s. 159]

- (j) respecting any matter deemed necessary in connection with prescribing or approving training courses for the proper and safe operation of off-road vehicles and the issuance of certificates to graduates of such courses;
- (k) prohibiting the use of designated off-road vehicles in designated areas;
- (l) designating specific roadways and shoulders on which designated off-road vehicles may be used;
- (m) prohibiting designated off-road vehicles from crossing certain roadways and shoulders;
- (n) prescribing the standards that off-road vehicle safety helmets shall meet;
- (o) exempting certain persons, classes of persons or members of certain groups or organizations from wearing safety helmets and seat belt assemblies;
- (p) prescribing the manner in which the registration plate shall be affixed to the off-road vehicle and the validation sticker affixed to the registration plate;
- (q) prescribing the equipment that off-road vehicles shall be equipped with and the standards that the equipment shall meet;
- (r) designating the type and location of signs to be erected by a traffic authority.

[S.M. 1988-89, c. 13, s. 33; 1994, c. 4, s. 36;
1995, c. 11, s. 11; 1999, c. 12, s. 25;
2005, c. 37, s. 159]

69 Repealed. [S.M. 2005, c. 37, s. 159]

See also: Guidelines for Hearing Conservation and Noise Control, February 2007

Saskatchewan

As made under, Occupational Health and Safety Act, Occupational Health and Safety Regulations

GENERAL DUTY

109 (1) An employer, contractor or owner shall ensure that all reasonably practicable means are used to reduce noise levels in all areas where workers may be required or permitted to work.

(2) The means to reduce noise levels pursuant to subsection (1) may include any of the following:

- (a) eliminating or modifying the noise source;
- (b) substituting quieter equipment or processes;
- (c) enclosing the noise source;
- (d) installing acoustical barriers or sound-absorbing materials.

NOISE REDUCTION THROUGH DESIGN, CONSTRUCTION OF BUILDINGS

110 On and after July 1, 1997, an employer, contractor or owner shall ensure that:

- (a) all new places of employment are designed and constructed so as to achieve the lowest reasonably practicable noise level;
- (b) any alteration, renovation or repair to an existing place of employment is made so as to achieve the lowest reasonably practicable noise level; and
- (c) all new equipment to be used at a place of employment is designed and constructed so as to achieve the lowest reasonably practicable noise level.

MEASUREMENT OF NOISE LEVELS

111 (1) In every area where workers are required or permitted to work and the noise level may frequently exceed 80 dBA, an employer or contractor shall ensure that:

- (a) the noise level is measured in accordance with an approved method;
- (b) in consultation with the committee, the representative or, where there is no committee or representative, the workers, a competent person evaluates the sources of the noise and recommends corrective action; and
- (c) the measurements, evaluation and recommendations are documented.

(2) An employer or contractor shall re-measure the noise level in accordance with subsection (1) where altering, renovating or repairing the place of employment, introducing new equipment to the place of employment or modifying any process at the place of employment may result in a significant change in noise levels or occupational noise exposure.

(3) An employer or contractor shall keep a record of the results of any noise level measurements conducted at the place of employment as long as the employer or contractor operates in Saskatchewan.

(4) On request, an employer or contractor shall make available to an affected worker a copy of the results of any measurements conducted.

(5) An employer or contractor shall ensure that any area in which the measurements taken pursuant to subsection (1) show noise levels in excess of 80 dBA is clearly marked by a sign indicating the range of noise levels.

HEARING PROTECTION REQUIRED

112 Where a worker's occupational noise exposure is or is believed to be between 80 dBA Lex and 85 dBA Lex, an employer or contractor shall:

- (a) inform the worker of the hazards of occupational noise exposure;
- (b) on the request of the worker, make available to the worker hearing protectors that

- meet the requirements of section 99; and
- (c) train the worker in the selection, use and maintenance of the hearing protectors.

DAILY EXPOSURE GREATER THAN 85 DBA LEX

113 (1) Where a worker's occupational noise exposure equals or exceeds 85 dBA Lex, an employer or contractor shall:

- (a) inform the worker of the hazards of occupational noise exposure;
- (b) take all reasonably practicable steps to reduce noise levels in all areas where the worker may be required or permitted to work;
- (c) minimize the worker's occupational noise exposure to the extent that is reasonably practicable; and
- (d) document the steps taken pursuant to clauses (b) and (c).

(2) Where, in the opinion of the employer or contractor, it is not reasonably practicable to reduce noise levels or minimize the worker's occupational noise exposure to less than 85 dBA Lex, an employer or contractor shall provide written reasons for that opinion to the committee and, where there is no committee, shall inform the workers of the reasons for that opinion.

(3) Where it is not reasonably practicable to reduce a worker's occupational noise exposure below 85 dBA Lex or the noise level below 90 dBA in any area where a worker may be required or permitted to work, an employer or contractor shall:

- (a) provide a hearing protector to the worker that meets the requirements of section 99;
- (b) train the worker in the selection, use and maintenance of the hearing protector; and
- (c) arrange for the worker to have, at least once every 24 months during the worker's normal working hours, an audiometric test and appropriate counselling based on the test results under the direction of a physician, an audiologist or a registered nurse who has a certificate in audiometric testing.

(4) Where a worker cannot attend an audiometric test mentioned in clause (3)(c) during the worker's normal working hours, an employer or contractor shall credit the worker's attendance at the test as time at work and ensure that the worker does not lose any pay or other benefits.

(5) Where a worker cannot recover the costs of a audiometric test mentioned in clause (3)(c), an employer or contractor shall reimburse the worker for the costs of the test that, in the opinion of the director, are reasonable.

HEARING CONSERVATION PLAN

114 (1) Where 10 or more workers' occupational noise exposure exceeds or is believed

to exceed 85 dBA Lex, an employer or contractor shall, in consultation with the committee:

- (a) develop a hearing conservation plan; and
- (b) review and, where necessary, revise the hearing conservation plan every three years.

(2) An employer or contractor shall implement a hearing conservation plan developed pursuant to subsection (1) and appoint a supervisor to oversee the plan.

(3) A hearing conservation plan must be in writing and must include:

- (a) the methods and procedures to be used in assessing the occupational noise exposure of workers;
- (b) the methods of noise control to be used, including engineering controls and administrative arrangements;
- (c) the selection, use and maintenance of hearing protectors;
- (d) a plan to train workers in the hazards of excessive exposure to noise and the correct use of control measures and hearing protectors;
- (e) the maintenance of exposure records;
- (f) the requirements for audiometric tests; and
- (g) a schedule for reviewing the hearing conservation plan and procedures for conducting the review.

(4) An employer or contractor shall make a copy of a hearing conservation plan readily available for reference by workers.

Alberta

As made under the Occupational Health and Safety Act, Occupational Health and Safety Code

DUTY TO REDUCE

216 An employer must ensure that all reasonably practicable measures are used to reduce the noise to which workers are exposed in areas of the work site where workers may be present.

NOISE CONTROL DESIGN

217 (1) An employer must ensure that the following are designed and constructed in such a way that the continuous noise levels generated are not more than 85 dBA or are as low as reasonably practicable:

- (a) a new work site;

- (b) significant physical alterations, renovations or repairs to an existing work site or work area;
- (c) a work process introduced to the work site or work area;
- (d) significant equipment introduced to the work site or work area.

(2) Subsection (1) does not apply to alterations, renovations or repairs begun or work processes or equipment introduced before April 30, 2004.

WORKER EXPOSURE TO NOISE

218 An employer must ensure that a worker's exposure to noise does not exceed

- (a) the noise exposure limits in Schedule 3, Table 1; and
- (b) 85 dBA Lex.

NOISE EXPOSURE ASSESSMENT

219 (1) If workers are, or may be, exposed to noise at a work site in excess of 85 dBA Lex and the noise exposure limits in Schedule 3, Table 1, an employer must do a noise exposure assessment under section 7.

(2) A person who assesses noise exposure at a work site must measure the noise in accordance with CSA Standard Z107.56-06, Procedures for the Measurement of Occupational Noise Exposure.

(3) A person who measures noise exposure at a work site must use:

- (a) a sound level meter meeting the requirements for a Type 2 instrument as specified by ANSI Standard S1.4-1983 (R2006), Specification for Sound Level Meters;
- (b) a noise dosimeter meeting the requirements for a Type 2 instrument as specified by ANSI Standard S1.25-1991 (R1997), Specification for Personal Noise Dosimeters, and set at;
 - (i) a criterion level of 85 dBA with a 3 dB exchange rate,
 - (ii) a threshold level at or below 80 dBA or "off", and
 - (iii) slow response,
- (c) an integrating sound level meter meeting the requirements as specified by ANSI Standard S1.43-1997, Specifications for Integrating Averaging Sound Level Meters, or IEC Standard 61672-1 (2002), Electroacoustics - Sound Level Meters - Part 1:- Specifications and IEC Standard 61672-2 (2003), Electroacoustics - Sound Level Meters - Part 2: Pattern evaluation tests; or
- (d) equipment approved by a Director of Occupational Hygiene.

(4) An employer must ensure that a noise exposure assessment is:

- (a) conducted and interpreted by a competent person; and

- (b) updated if a change in equipment or process affects the noise level or the length of time a worker is exposed to noise.

RESULTS RECORDED

220 (1) An employer must ensure that results of noise exposure measurements are recorded and include:

- (a) the dates of measurements;
- (b) the workers or occupations evaluated;
- (c) the type of measuring equipment used;
- (d) the sound level readings measured; and
- (e) the work location evaluated.

(2) An employer must ensure that:

- (a) a copy of the results of the noise exposure assessment is available on request to an affected worker or an officer; and
- (b) the record of the noise exposure assessment is retained for as long as the employer operates in Alberta.

NOISE MANAGEMENT PROGRAM

221 (1) If a noise exposure assessment confirms that workers are exposed to excess noise at a work site, the employer must develop and implement a noise management program that includes policies and procedures.

(2) The employer must ensure that the noise management program includes the following:

- (a) a plan to educate workers in the hazards of exposure to excess noise and to train workers in the correct use of control measures and hearing protection;
- (b) the methods and procedures to be used when measuring or monitoring worker exposure to noise;
- (c) the posting of suitable warning signs in any work area where the noise level exceeds 85 dBA;
- (d) the methods of noise control to be used;
- (e) the selection, use and maintenance of hearing protection devices to be worn by workers;
- (f) the requirements for audiometric testing and the maintenance of test records;
- (g) an annual review of the policies and procedures to address:
 - (i) the effectiveness of the education and training plan,
 - (ii) the need for further noise measurement, and
 - (iii) the adequacy of noise control measures.

(3) A worker who is subject to noise management must cooperate with the employer in implementing the policies and procedures.

HEARING PROTECTION

222 (1) An employer must ensure that hearing protection equipment provided to workers exposed to excess noise:

- (a) meets the requirements of CSA Standard Z94.2-02, Hearing Protection Devices - Performance, Selection, Care, and Use; and
- (b) is of the appropriate class and grade as described in Schedule 3, Table 2.

(2) An employer must:

- (a) provide workers with training in the selection, use and maintenance of hearing protection equipment required to be used at a work site in accordance with the manufacturer's specifications; and
- (b) ensure that affected workers wear the required hearing protection equipment.

(3) Workers who are provided with hearing protection equipment must wear and use the equipment in accordance with the training provided by the employer.

AUDIOMETRIC TESTING

223 (1) An employer must provide, at the employer's expense, the following audiometric tests for a worker exposed to excess noise:

- (a) an initial baseline test as soon as is practicable, but not later than six months after the worker is employed or within six months after a worker is exposed to excess noise because of a change in the worker's duties or process conditions;
- (b) not more than 12 months after the initial baseline test; and
- (c) at least every second year after the test under clause (b).

(2) An employer must ensure that audiometric tests are administered by an audiometric technician who must:

- (a) work in consultation with a physician, audiologist or occupational health nurse designated by the employer;
- (b) maintain a log book for each audiometer being used that;
 - (i) contains the audiometer's written calibration records, and
 - (ii) remains with the audiometer throughout its useful lifetime,
- (c) conduct the tests in a location where background noise levels do not exceed those specified in Schedule 3, Table 3;
- (d) record the results of the audiometric tests;
- (e) provide a copy of the test results to the worker;
- (f) retain the records of the audiometric tests for a period of not less than 10 years;

and

- (g) ensure that the medical history information is under the sole control of the person designated under subsection (2)(a).

(3) If the results of an audiometric test indicate an abnormal audiogram or show an abnormal shift, the audiometric technician must:

- (a) advise the worker of the test results;
- (b) request the worker to provide, and the worker must provide, relevant medical history; and
- (c) forward the results that indicate an abnormal audiogram or an abnormal shift, the medical history and the baseline audiogram to a physician or audiologist designated by the employer to receive this information.

(4) If the physician or audiologist designated by the employer confirms the audiogram as abnormal or the occurrence of the abnormal shift, the physician or audiologist must:

- (a) advise the worker to that effect within 30 days;
- (b) with the written consent of the worker, provide results of the audiometric tests to the worker's physician;
- (c) advise the employer as to the effectiveness of the noise management program in place at the work site; and
- (d) retain the records of the audiometric test for a period of not less than 10 years.

(5) A person must not release records of audiometric tests conducted on a worker or medical history received from a worker as required by this section to any person without the worker's written permission except in accordance with this section.

CREDIT OF TIME

224 If it is not reasonably practicable for a worker to undergo audiometric testing during the worker's normal working hours, the employer must:

- (a) credit the time the worker spends to get the test done as time at work; and
- (b) ensure that the worker does not lose any pay or other benefits because the worker was tested.

See also:

Code of Practice of Firefighters
Part 16 - Noise Exposure

Noise in the Workplace, November 2009

Occupational Health and Safety (OHS) Code - Comparison of Requirements between the OHS Code 2006 and OHS Code 2009.

British Columbia

Occupational Health and Safety Regulation

DEFINITION

7.1 (1) In this Division, "noise exposure limits" means either of the noise exposure limits established under section 7.2.

(2) Noise terminology and measurements used or described in this Division have the same meaning that they have in:

- (a) CSA Standard Z107.56-94, Procedures for the Measurement of Occupational Noise Exposure, as amended from time to time; and
- (b) ANSI Standard S1.25-1991, Specification for Personal Noise Dosimeters, as amended from time to time.

[B.C. Reg. 382/2004, s. 1]

NOISE EXPOSURE LIMITS

7.2 An employer must ensure that a worker is not exposed to noise levels above either of the following exposure limits:

- (a) 85 dBA Lex daily noise exposure level;
- (b) 140 dBC peak sound level.

[B.C. Reg. 382/2004, s. 1]

NOISE MEASUREMENT REQUIRED

7.3 (1) If a worker is or may be exposed to potentially harmful levels of noise, or if information indicates that a worker may be exposed to a level exceeding 82 dBA Lex, the employer must measure the noise exposure.

(2) The noise exposure measurement must:

- (a) be performed in accordance with CSA Standard Z107.56-94, Procedures for the Measurement of Occupational Noise Exposure, as amended from time to time, except as otherwise determined by the Board; and
- (b) be updated if a change in equipment or process affects the noise level or the duration of noise exposure.

(3) Except as otherwise determined by the Board, noise dosimeters and sound level meters used for measuring noise exposure must meet the requirements of ANSI Standard S1.25-1991, Specification for Personal Noise Dosimeters, as amended from time to time.

(4) The employer must inform affected workers of the results of any noise exposure measurement and the significance of the measurement to risk of hearing loss.

EXEMPTION

7.4 An employer is not required to measure the noise exposure of a worker if:

- (a) based on other information, the employer identifies the worker as being exposed to noise in excess of an exposure limit; and
- (b) the employer establishes an effective noise control and hearing conservation program for that worker.

[B.C. Reg. 382/2004, s. 1]

NOISE CONTROL AND HEARING CONSERVATION PROGRAM

7.5 If noise in the workplace exceeds either of the noise exposure limits, the employer must develop and implement an effective noise control and hearing conservation program with the following elements:

- (a) noise measurement;
- (b) education and training;
- (c) engineered noise control;
- (d) hearing protection;
- (e) posting of noise hazard areas;
- (f) hearing tests;
- (g) annual program review.

[B.C. Reg. 382/2004, s. 1]

ENGINEERED NOISE CONTROL

7.6 If a worker is exposed to noise above a noise exposure limit, the employer must:

- (a) investigate options for engineered noise control; and
- (b) when practicable, implement one or more of those options to reduce noise exposure of workers to or below the exposure limits.

[B.C. Reg. 382/2004, s. 1]

HEARING PROTECTION AND WARNING SIGNS

7.7 (1) If it is not practicable to reduce noise levels to or below noise exposure limits, the employer must:

- (a) reduce noise exposure to the lowest level practicable;
- (b) post warning signs in the noise hazard areas;
- (c) give to affected workers hearing protection that meets the requirements of CSA Standard Z94.2-02, Hearing Protection Devices - Performance, Selection, Care, and Use, as amended from time to time, except as otherwise determined by the Board, and maintain the hearing protection so that it continues to meet those standards; and
- (d) ensure that hearing protection is worn effectively in noise hazard areas.

(2) Workers in a posted noise hazard area must wear hearing protection.

[B.C. Reg. 382/2004, s. 1]

HEARING TESTS

7.8 (1) The employer must give workers who are exposed to noise that exceeds noise exposure limits:

- (a) an initial hearing test as soon as practicable after employment starts, but not later than 6 months after the start of employment; and
- (b) a test at least once every 12 months after the initial test.

(2) Hearing tests must be administered by a hearing tester authorized by the Board.

(3) The employer must ensure that the authorized hearing tester sends the test results to the Board.

[B.C. Reg. 382/2004, s. 1]

RECORDS TO BE KEPT

7.9 The employer must keep records of:

- (a) the annual hearing test results for each worker, which must:
 - (i) be kept as long as the worker is employed by the employer, and
 - (ii) be kept confidential and not released to anyone without the written permission of the worker, or as otherwise required by law,
- (b) the education and training provided to workers; and
- (c) the results of noise exposure measurements taken under section 7.3.

PERSONAL PROTECTIVE EQUIPMENT

16.54 (1) An ATV operator and any passenger on an ATV must wear eye protection as required by Part 8 (Personal Protective Clothing and Equipment), and hearing protection meeting the requirements of Part 7 (Noise, Vibration, Radiation and Temperature).

(2) An ATV operator and any passenger on an ATV must wear:

- (a) clothing suitable for the environmental conditions; and
- (b) when necessary to protect against the hazards presented at the worksite, suitable gloves and clothing which covers the ankles and legs and the arms to the wrists.

[B.C. Reg. 312/2003, App. D, s. 15]

See also: WorkSafe BC OHS Guidelines Part 7, Division 1 - Noise Exposure

Northwest Territories

As made under the Safety Act, General Safety Regulations

NOISE HAZARDS

30 Where a worker is required to work in a noisy area the employer shall take appropriate measures to suppress the noise, but if it is not reasonably practicable to decrease the noise nor isolate the worker from the noise, the worker shall wear personal protective equipment that will protect him or her from the harmful effects of the noise.

31 (1) An employer shall take reasonable measures to ensure that noise levels at a work site do not exceed the occupational exposure limits set out in Table 1 of Schedule A.

(2) Where noise levels at a work site exceed the limits referred to in subsection (1), an employer shall provide to each worker hearing protective equipment that complies with the Canadian Standards Association Standard Z94.2-94, Hearing Protectors, as amended from time to time, and no person shall work where such noise levels exist without wearing that protective equipment.

[R-028-93, s. 5; R-135-98, s. 2]

SCHEDULE A

(Table 1: Subsection 22(1), Tables 2 and 3: Subsection 26(1), subsection 194(1), section 195, subsections 196(1), (2) and 197(1), sections 199, 201 and 204)

1. (1) In this Schedule:

"8-hour Occupational Exposure Limit" means the time-weighted average concentration of an airborne substance for an 8-hour period;

"15-minute Occupational Exposure Limit" means the time-weighted average concentration of an airborne substance for a 15-minute period;

"ceiling Occupational Exposure Limit" means the maximum concentration of an airborne substance;

"dBA" means a measure of sound level in decibels using a reference sound pressure of 20 µPa when measured on the A weighting network of a sound level meter;

"impulse noise" means sounds with:

(a) rise times of not more than 35 milliseconds to peak intensity;

- (b) durations of not more than 500 milliseconds between the time when peak intensity is reached and the time when the sound level decays to 20 dB below peak intensity; and
- (c) maxima at intervals of greater than one second;

"mg/m³" means milligrams of substance per cubic metre of air measured at standard conditions of 25° C and 100 kPa;

"ppm" means parts of vapor or gas by volume per million parts of contaminated air by volume;

"respirable mass" means that weight of the total airborne particulate which can be inhaled and deposited in the lower respiratory tract;

"skin" when it appears in conjunction with a substance in Schedule A means the substance can be absorbed through the intact skin.

(2) For the purposes of calculating the 15-minute Occupational Exposure Limit in Table 2 of Schedule A:

- (a) not more than four 15-minute periods shall be permitted per shift; and
- (b) there must be at least 60 minutes between each period referred to in paragraph (a).

Table 1A. Occupational Exposure Limits (Noise)

Sound Level (dBA)	Maximum Permitted Duration (hours per day)
(Figures to be prorated if not specified)	
80	16
85	8
90	4
95	2
100	1
105	0.50
110	0.25
115	0.125
greater than 115	0

Table 1 B. Occupational Exposure Limits (Impulse Noise)

Peak Sound Pressure Level (decibels)	Maximum Permitted (impulses per 8-
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	hour day)
(Figures to be prorated if not specified)	
120	10,000
130	1,000
140	100
greater than 140	0

Table 2

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Abate	-	10	-	20	-	-
Acetaldehyde	100	180	150	270	-	-
Acetic acid	10	26	15	39	-	-
Acetic anhydride	-	-	-	-	5	21
Acetone	1000	2370	1250	2970	-	-
Acetonitrile - Skin	40	67	60	100	-	-
Acetylene dichloride (1,2-Dichloroethylene)	200	795	250	995	-	-
Acetylene tetrabromide	1	14	1.5	21	-	-
Acrolein	0.1	0.23	0.3	0.69	-	-
Acrylamide - Skin	-	0.3	-	0.6	-	-
Acrylic acid	10	30	20	60	-	-
Acrylonitrile - Skin	2	4.3	4	8.6	-	-
Aldrin - Skin	-	0.25	-	0.75	-	-
Allyl alcohol - Skin	2	4.7	4	9.5	-	-
Allyl chloride	1	3.2	2	6.3	-	-
Allyl glycidyl ether (AGE) - Skin	5	23	10	47	-	-
Allyl propyl disulfide	2	12	3	18	-	-
Aluminum metal & oxide	-	10	-	20	-	-
Aluminum pyro powders	-	5	-	10	-	-
Aluminum welding fumes	-	5	-	10	-	-
Aluminum soluble salts	-	2	-	4	-	-
Aluminum, alkyls	-	2	-	4	-	-
2-Aminoethanol (Ethanolamine)	3	7.5	6	15	-	-

2-Aminopyridine	0.5	1.9	2	7.7	-	-
Ammonia	25	17	35	24	-	-
Ammonium chloride - fume	-	10	-	20	-	-
Ammonium sulfamate (Ammate)	-	10	-	20	-	-
n-Amyl acetate	100	530	150	800	-	-
sec-Amyl acetate	125	665	150	800	-	-
Aniline and homologues - Skin	2	7.6	5	19	-	-
Anisidine (o-, p- isomers) - Skin	0.1	0.5	0.3	1.5	-	-
Antimony and compounds (as Sb)	-	0.5	-	1.5	-	-
Antimony trioxide, handling and use (as Sb)	-	0.5	-	1.5	-	-
Antimony trioxide production (as Sb)	-	0.5	-	1.5	-	-
ANTU (alpha-Naphthyl thiourea)	-	0.3	-	0.9	-	-
Arsenic & soluble compounds (as As)	-	0.2	-	0.6	-	-
Arsenic trioxide production (as As)	-	0.05	-	0.15	-	-
Arsine	0.05	0.16	0.15	0.48	-	-
Asbestos	see TABLE 3					
Asphalt (petroleum fumes)	-	10	-	20	-	-
Atrazine	-	5	-	10	-	-
Azinphos-methyl - Skin	-	0.2	-	0.6	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		ceiling Occupational Exposure Limit	mg/m ³
	ppm	mg/m ³	ppm	mg/m ³	ppm	
Barium (soluble compounds) (as Ba)	-	0.5	-	1.5	-	-
Baygon (Propoxur)	-	0.5	-	2	-	-
BaytexR (Fenthion)	-	0.1	-	0.3	-	-
Benomyl	0.8	10	1.3	15	-	-
Benzene - Skin	10	32	25	80	-	-
p-Benzoquinone (Quinone)	0.1	0.42	0.3	1.3	-	-
Benzoyl peroxide	-	5	-	10	-	-
Benzyl chloride	1	5.2	3	16	-	-

Beryllium	-	0.002	-	0.006	-	-
Biphenyl	0.2	1.3	0.6	3.8	-	-
Bismuth telluride, Se-doped	-	5	-	10	-	-
Borates, tetra, sodium salts,						
Anhydrous	-	1	-	3	-	-
Decahydrate	-	5	-	10	-	-
Pentahydrate	-	1	-	3	-	-
Boron oxide	-	10	-	20	-	-
Boron tribromide	1	10	3	31	-	-
Boron trifluoride	-	-	-	-	1	2.8
Bromacil	1	10	2	21	-	-
Bromine	0.1	0.65	0.3	2	-	-
Bromine Pentafluoride	0.1	0.72	0.3	2.1	-	-
Bromochloromethane (Chlorobromomethane)	200	1060	250	1320	-	-
Bromoform - Skin	0.5	5.2	1.5	16	-	-
1,3-Butadiene	1000	2212	1250	2765	-	-
Butane	800	1901	1000	2576	-	-
Butanethiol (Butyl mercaptan)	0.5	1.8	1.5	5.5	-	-
2-Butanone (Methyl ethyl ketone)	200	590	300	885	-	-
2-Butoxyethanol (Butyl CellosolveR) - Skin	25	120	75	360	-	-
n-Butyl acetate	150	713	200	950	-	-
sec-Butyl acetate	200	950	250	1187	-	-
tert-Butyl acetate	200	950	250	1187	-	-
Butyl acrylate	10	52	20	105	-	-
n-Butyl alcohol - Skin	-	-	-	-	50	152
sec-Butyl alcohol	100	303	150	455	-	-
tert-Butyl alcohol	100	303	150	455	-	-
Butylamine - Skin	-	-	-	-	5	15
tert-Butyl chromate (as CrO ₃) - Skin	-	-	-	-	-	0.1
n-Butyl glycidyl ether (BGE)	25	133	38	200	-	-
n-Butyl lactate	5	30	10	60	-	-
Butyl mercaptan	0.5	1.8	1.5	5.5	-	-
o-sec-Butylphenol - Skin	5	31	10	62	-	-
p-tert-Butyltoluene	10	61	20	121	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Cadmium, dust & salts (as Cd)	-	0.05	-	0.2	-	-
Cadmium oxide fume (as Cd)	-	-	-	-	-	0.05
Calcium arsenate (as As)	-	0.2	-	0.6	-	-
Calcium cyanamide	-	0.5	-	1	-	-
Calcium hydroxide	-	5	-	10	-	-
Calcium oxide	-	2	-	4	-	-
Camphor, synthetic	2	12	3	19	-	-
Caprolactam						
Dust	-	1	-	3	-	-
Vapour	5	23	10	46	-	-
Captafol (DifolatanR) - Skin	-	0.1	-	0.3	-	-
Captan	-	5	-	15	-	-
Carbaryl (SevinR)	-	5	-	10	-	-
Carbofuran (FuradanR)	-	0.1	-	0.3	-	-
Carbon black	-	3.5	-	7	-	-
Carbon dioxide	5000	9000	15000	27000	-	-
Carbon disulfide - Skin	10	31	20	62	-	-
Carbon monoxide	50	57	400	460	-	-
Carbon tetrabromide	0.1	1.4	0.3	4.1	-	-
Carbon tetrachloride - Skin	5	32	20	126	-	-
Carbonyl chloride (Phosgene)	0.1	0.4	0.3	1.2	-	-
Carbonyl fluoride	2	5.4	5	13.5	-	-
Catechol (Pyrocatechol)	5	23	10	45	-	-
CellosolveR acetate (2-Ethoxyethyl acetate) - Skin	50	270	100	540	-	-
Cesium hydroxide	-	2	-	4	-	-
Chlordane - Skin	-	0.5	-	2	-	-
Chlorinated camphene - Skin	-	0.5	-	1	-	-
Chlorinated diphenyl oxide	-	0.5	-	2	-	-
Chlorine	1	3	3	8.7	3	8.7
Chlorine dioxide	0.1	0.27	0.3	0.82	-	-

Chlorine trifluoride	-	-	-	-	0.1	0.38
Chloroacetaldehyde	-	-	-	-	1	3.2
alpha-Chloroacetophenone (Phenacyl chloride)	0.05	0.32	0.15	0.95	-	-
Chloroacetyl chloride	0.05	0.23	0.15	0.69	-	-
Chlorobenzene (Monochlorobenzene)	75	345	115	520	-	-
o-Chlorobenzylidene malononitrile - Skin	0.05	0.39	0.15	1.2	-	-
Chlorobromomethane	200	1060	250	1320	-	-
2-Chloro-1,3-butadiene (beta-Chloroprene) - Skin	10	45	20	90	-	-
Chlorodifluoromethane	1000	3520	1250	4400	-	-
Chlorodiphenyl (42% Chlorine) - Skin	-	1	-	2	-	-
Chlorodiphenyl (54% Chlorine) - Skin	-	0.5	-	1	-	-
1-Chloro-2,3-epoxy-propane (Epichlorohydrin)	2	7.6	5	19	-	-
2-Chloroethanol (Ethylene chlorohydrin) - Skin	-	-	-	-	1	3.3
Chloroethylene (Vinyl chloride)	2	5.2	10	26	-	-
Chloroform (Trichloromethane)	10	49	50	225	-	-
bis-Chloromethyl ether	0.001	0.0047	0.003	0.014	-	-
Chloromethyl methyl ether	0.005	0.02	0.015	0.05	-	-
1-Chloro-1-nitropropane	2	10	4	20	-	-
Chloropentafluoroethane	1000	6340	1250	7925	-	-
Chloropicrin	0.1	0.67	0.3	2	-	-
beta-Chloroprene - Skin	10	45	20	90	-	-
o-Chlorostyrene	50	285	75	425	-	-
o-Chlorotoluene - Skin	50	260	75	390	-	-
2-Chloro-6-(trichloromethyl) pyridine (N-ServeR)	-	10	-	20	-	-
Chlorpyrifos (DursbanR) - Skin	-	0.2	-	0.6	-	-
Chromium metal	-	0.5	-	1.5	-	-
Chromium (II) compounds (as Cr)	-	0.5	-	1.5	-	-
Chromium (III) compounds (as Cr)	-	0.5	-	1.5	-	-
Chromium (VI) compounds (as Cr)	-	-	-	-	-	-
water soluble	-	0.05	-	0.15	-	-
water insoluble	-	0.05	-	0.15	-	-

Chromite ore processing (chromate (as Cr))	-	0.05	-	0.15	-	-
Chromium, Sol. chromic, chromous salts (as Cr)	-	0.5	-	0.15	-	-
Clopidol (CoydenR)	-	10	-	20	-	-
Coal tar pitch volatiles, as benzene solubles	-	0.2	-	0.6	-	-
Cobalt dust and fume (as Co)	-	0.1	-	0.3	-	-
Copper fume	-	0.2	-	0.6	-	-
dust and mists (as Cu)	-	1	-	2	-	-
Cotton dust, raw	-	0.2	-	0.6	-	-
CragR herbicide (Sodium 2,4-dichlorophenoxyethyl sulphate)	-	10	-	20	-	-
Cresol, all isomers - Skin	5	22	10	44	-	-
Crotonaldehyde	2	5.8	6	17	-	-
CruformateR	-	5	-	20	-	-
Cumene - Skin	50	245	75	370	-	-
Cyanamide	-	2	-	4	-	-
Cyanides, as CN - Skin	-	5	-	10	-	-
Cyanogen	10	21	20	43	-	-
Cyanogen chloride	-	-	-	-	0.3	0.75
Cyclohexane	300	1030	375	1290	-	-
Cyclohexanol	50	205	75	305	-	-
Cyclohexanone	25	100	100	400	-	-
Cyclohexene	300	1010	375	1260	-	-
Cyclohexylamine - Skin	10	41	20	82	-	-
Cyclonite - Skin	-	1.5	-	3	-	-
Cyclopentadiene	75	205	150	405	-	-
Cyclopentane	600	1720	900	2580	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	mg/m ³
	ppm	mg/m ³	ppm	mg/m ³	ppm	
2,4-D (2,4-Dichlorophenoxyacetic acid)	-	10	-	20	-	-

DDT (Dichlorodiphenyltrichloroethane)	-	1	-	3	-	-
DDVP (Dichlorvos) - Skin	0.1	0.9	0.3	2.7	-	-
Decaborane - Skin	0.05	0.3	0.15	0.9	-	-
DemetonR - Skin	0.01	0.11	0.03	0.32	-	-
Diacetone alcohol (4-Hydroxy-4-methyl-2-pentanone)	50	235	75	355	-	-
1,2-Diaminoethane (Ethylene diamine)	10	26	20	51	-	-
DiazinonR - Skin	-	0.1	-	0.3	-	-
Diazomethane	0.2	0.34	0.6	1	-	-
Diborane	0.1	0.11	0.3	0.34	-	-
DibromR	-	3	-	6	-	-
2-N-Dibutylaminoethanol - Skin	2	14	4	28	-	-
Dibutyl phosphate	1	5	2	10	-	-
Dibutyl phthalate	-	5	-	10	-	-
Dichloroacetylene	-	-	-	-	0.1	0.39
o-Dichlorobenzene	-	-	-	-	50	300
p-Dichlorobenzene	75	450	110	660	-	-
1,1-Dichloroethane (Ethylidene chloride)	200	810	250	1010	-	-
1,2-Dichloroethane (Ethylene dichloride)	10	40	15	60	-	-
1,1-Dichloroethylene (Vinylidene dichloride)	10	40	20	80	-	-
1,2-Dichloroethylene	200	795	250	995	-	-
Dichloroethyl ether - Skin	5	29	10	59	-	-
Dichloromethane (Methylene chloride)	100	347	400	1737	-	-
Dichloromonofluoromethane	10	42	20	84	-	-
1,1-Dichloro-1-nitroethane	2	12	10	59	-	-
1,2-Dichloropropane (Propylene dichloride)	75	345	110	510	-	-
1,3-Dichloropropene - Skin	1	5	10	50	-	-
2,2-Dichloropropionic acid	1	6	2	12	-	-
Dichlorotetrafluoroethane	1000	6990	1250	8740	-	-
Dichlorvos (DDVP) - Skin	0.1	0.9	0.3	2.7	-	-
Dicrotophos (BidrinR) - Skin	-	0.25	-	0.75	-	-
Dicyclopentadiene	5	27	10	54	-	-
Dicyclopentadienyl iron	-	10	-	20	-	-

Dieldrin - Skin	-	0.25	-	0.75	-	-
Diethanolamine	3	13	6	26	-	-
Diethylamine	10	30	25	75	-	-
Diethylaminoethanol - Skin	10	48	20	96	-	-
Diethylene triamine - Skin	1	4	3	13	-	-
Diethyl ether (Ethyl ether)	400	1213	500	1516	-	-
Diethyl ketone	200	705	250	881	-	-
Diethyl phthalate	-	5	-	10	-	-
Difluorodibromomethane	100	858	150	1287	-	-
Diglycidyl ether (DGE)	0.1	0.5	0.3	1.5	-	-
Dihydroxybenzene (Hydroquinone)	-	2	-	4	-	-
Diisobutyl ketone	25	145	38	220	-	-
Diisopropylamine - Skin	5	21	10	41	-	-
Dimethoxymethane (Methylal)	1000	3112	1250	3891	-	-
Dimethyl acetamide - Skin	10	36	15	53	-	-
Dimethylamine	10	18	20	36	-	-
Dimethylaminobenzene (Xylidene) - Skin	5	25	10	50	-	-
N,N-Dimethylaniline - Skin	5	25	10	50	-	-
Dimethylbenzene (Xylene) - Skin	100	434	150	652	-	-
Dimethyl carbamyl chloride (Schedule)	-	-	-	-	-	-
Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate (DibromR)	-	3	-	6	-	-
Dimethylformamide - Skin	10	30	20	60	-	-
2,6-Dimethyl-4-heptanone (Diisobutyl ketone)	25	145	38	220	-	-
1,1-Dimethylhydrazine - Skin	0.5	1.3	1	2.6	-	-
Dimethylphthalate	-	5	-	10	-	-
Dimethyl sulfate - Skin	0.1	0.52	0.3	1.6	-	-
Dinitrobenzene (all isomers) - Skin	0.15	1	0.5	3.4	-	-
Dinitro-o-cresol - Skin	-	0.2	-	0.6	-	-
3,5-Dinitro-o-toluamide (ZoaleneR)	-	5	-	10	-	-
Dinitrotoluene - Skin	-	1.5	-	5	-	-
Dioxane - Tech. grade - Skin	25	90	100	360	-	-
Dioxathion (DelnavR) - Skin	-	0.2	-	0.6	-	-
Diphenyl (Biphenyl)	0.2	1.3	0.6	3.8	-	-
Diphenylamine	-	10	-	20	-	-

Diphenylmethane diisocyanate (Methylene bisphenyl-isocyanate (MDI))			-	-	0.02	0.2
Dipropylene glycol methyl ether	100	606	150	909	-	-
Dipropyl ketone	50	234	75	351	-	-
Diquat	-	0.5	-	1	-	-
Di-sec-octyl phthalate (Di(2-ethylhexyl) phthalate)	-	5	-	10	-	-
Disulfiram	-	2	-	5	-	-
Disulfoton (DisystonR)	-	0.1	-	0.3	-	-
2,6-Ditert-butyl-p-cresol	-	10	-	20	-	-
Diuron	-	10	-	20	-	-
Divinyl benzene	10	53	20	106	-	-
Dyfonate - Skin	-	0.1	-	0.3	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Endosulfan (ThiodanR) - Skin	-	0.1	-	0.3	-	-
Endrin - Skin	-	0.1	-	0.3	-	-
Epichlorohydrin - Skin	2	7.6	5	19	-	-
EPN - Skin	-	0.5	-	2	-	-
1,2-Epoxypropane (Propylene oxide)	20	47	30	71	-	-
2,3-Epoxy-1-propanol (Glycidol)	25	76	100	303	-	-
Ethanethiol (Ethyl mercaptan)	0.5	1.3	2	5.1	-	-
Ethanolamine	3	7.5	6	15	-	-
Ethion (NialateR) - Skin	-	0.4	-	1.2	-	-
2-Ethoxyethanol - Skin	50	184	100	369	-	-
2-Ethoxyethyl acetate (CellosolveR acetate) - Skin	50	270	100	540	-	-
Ethyl acetate	400	1441	500	1801	-	-
Ethyl acrylate - Skin	5	20	25	102	-	-
Ethyl alcohol (Ethanol)	1000	1884	1250	2355	-	-
Ethylamine	10	18	20	37	-	-

Ethyl amyl ketone (5-Methyl-3-heptanone)	25	131	38	196	-	-
Ethyl benzene	100	434	125	542	-	-
Ethyl bromide	200	891	250	1114	-	-
Ethyl butyl ketone (3-Heptanone)	50	234	75	350	-	-
Ethyl chloride	1000	2639	1250	3299	-	-
Ethyl ether	400	1213	500	1516	-	-
Ethyl formate	100	303	150	454	-	-
Ethyl mercaptan	0.5	1.3	2	5.1	-	-
Ethyl silicate	10	85	30	256	-	-
Ethylene chlorohydrin - Skin	-	-	-	-	1	3.3
Ethylene diamine	10	26	20	51	-	-
Ethylene dichloride (1,2-Dichloroethane)	10	40	15	60	-	-
Ethylene glycon	-	10	-	20	-	-
Vapour	-	50	-	127	-	-
Ethylene glycol dinitrate - Skin	0.02	1.2	0.05	0.31	-	-
Ethylene glycol methyl ether acetate (Methyl CellosolveR acetate) - Skin	25	121	35	170	-	-
Ethylene oxide	10	20	50	100	-	-
Ethyleneimine - Skin	0.5	0.90	1.5	2.7	-	-
Ethylidene Chloride (1,1-Dichloroethane)	200	810	250	1110	-	-
Ethylidene norbornene	-	-	-	-	5	25
N-Ethylmorpholine - Skin	5	23	20	94	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Fensulfothion (Dansanit)	-	0.1	-	0.3	-	-
Fenthion (BaytexR)	-	0.1	-	0.3	-	-
Ferbam	-	10	-	20	-	-
Ferrovandium dust	-	1	-	3	-	-
Fluoride (as F)	-	2.5	-	5	-	-

Fluorine	1	1.6	2	3.1	-	-
Fluorotrichloromethane	1000	5619	1250	7024	-	-
Formaldehyde	-	-	-	-	2	2.4
Formamide	20	37	30	55	-	-
Formic acid	5	9	10	18	-	-
Furfural - Skin	2	8	10	39	-	-
Furfuryl alcohol - Skin	5	20	10	40	-	-
Gasoline	300	900	500	1500	-	-
Germanium tetrahydride	0.2	0.63	0.6	1.9	-	-
Glutaraldehyde	-	-	-	-	0.2	0.82
Glycerin mist	-	10	-	20	-	-
Glycidol (2,3-Epoxy-1-propanol)	25	76	100	303	-	-
Glycol monoethyl ether (2-Ethoxyethanol) - Skin	50	184	100	369	-	-
GuthionR (Azinphos-methyl) - Skin	-	0.2	-	0.6	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Hafnium	-	0.5	-	1.5	-	-
Heptachlor - Skin	-	0.5	-	2	-	-
Heptane (n-Heptane)	400	1640	500	2049	-	-
3-Heptanone (Ethyl butyl ketone)	50	234	75	350	-	-
Hexachloro butadiene	0.02	0.21	0.06	0.64	-	-
Hexachlorocyclopentadiene	0.01	0.11	0.03	0.34	-	-
Hexachloroethane - Skin	1	10	3	29	-	-
Hexachloronaphthalene - Skin	-	0.02	-	0.06	-	-
Hexafluoro- acetone	0.1	0.68	0.3	2	-	-
Hexane (n-Hexane)	100	352	125	440	-	-
2-Hexanone (Methyl n-butyl ketone) - Skin	5	20	10	40	-	-
Hexone (Methyl isobutyl ketone) - Skin	50	205	75	300	-	-
sec-Hexyl acetate	50	295	75	440	-	-

Hexylene glycol	-	-	-	-	25	120
Hydrazine - Skin	0.1	0.13	0.3	0.39	-	-
Hydrogenated terphenyls	0.5	5	1.5	15	-	-
Hydrogen bromide	3	9.9	6	20	-	-
Hydrogen chloride	-	-	-	-	5	7.5
Hydrogen cyanide - Skin	-	-	-	-	10	11
Hydrogen fluoride (as F)	3	2.5	6	4.9	-	-
Hydrogen peroxide	1	1.4	2	2.8	-	-
Hydrogen selenide (as Se)	0.05	0.17	0.15	0.5	-	-
Hydrogen sulfide	10	14	15	21	20	28
Hydroquinone	-	2	-	4	-	-
2-Hydroxypropyl acrylate - Skin	0.5	3	1.5	9	-	-
Indene	10	47	15	71	-	-
Indium & Compounds (as In)	-	0.1	-	0.3	-	-
Iodine	-	-	-	-	0.1	1
Iodoform	0.6	9.6	1	16	-	-
Iron oxide fume	-	5	-	10	-	-
Iron pentacarbonyl (as Fe)	0.01	0.08	0.03	0.24	-	-
Iron salts, soluble (as Fe)	-	1	-	2	-	-
Isoamyl acetate	100	533	125	665	-	-
Isoamyl alcohol	100	360	125	450	-	-
Isobutyl acetate	150	713	187	889	-	-
Isobutyl alcohol	50	152	75	227	-	-
Isophorone	-	-	-	-	5	28
Isophorone diisocyanate - Skin	0.01	0.09	0.03	0.27	-	-
Isopropoxyethanol	25	105	75	320	-	-
Isopropyl acetate	250	104	310	1295	-	-
Isopropyl alcohol - Skin	400	983	500	1228	-	-
Isopropylamine	5	12	10	24	-	-
N-Isopropylaniline - Skin	2	11	5	22	-	-
Isopropyl ether	250	1044	310	1316	-	-
Isopropyl glycidyl ether (IGE)	50	237	75	356	-	-
Ketene	0.5	0.86	1.5	2.6	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational	15 minute Occupational	Ceiling Occupational	
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	Exposure Limit		Exposure Limit		Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Lead, inorg., fumes & dusts (as Pb)	-	0.15	-	0.45	-	-
Lead arsenate (as Pb)	-	0.15	-	0.45	-	-
Lead chromate (as Cr)	-	0.05	-	0.15	-	-
Lindane - Skin	-	0.5	-	1.5	-	-
Lithium hydride	-	0.025	-	0.075	-	-
L.P.G. (Liquified Petroleum Gas)	1000	1800	1250	2250	-	-
Magnesium oxide fume (as Mg)	-	10	-	20	-	-
Malathion - Skin	-	10	-	20	-	-
Maleic anhydride	0.25	1	0.75	3	-	-
Manganese & compounds (as Mn)	-	-	-	-	-	5
Manganese fume (as Mn)	-	1	-	3	-	-
Manganese cyclopentadienyl tricarbonyl (as Mn) - Skin	-	0.1	-	0.3	-	-
Manganese tetroxide	-	1	-	2	-	-
Mercury (Alkyl compounds) - Skin (as Hg)	-	0.01	-	0.03	-	-
Mercury (all forms except Alkyl) (as Hg)	-	0.05	-	0.15	-	-
Mesityl oxide	15	60	25	100	-	-
Methacrylic acid	20	70	30	105	-	-
Methanethiol (Methyl mercaptan)	0.5	1	1.5	2.9	-	-
Methomyl (LannateR) - Skin	-	2.5	-	5	-	-
Methoxychlor	-	10	-	20	-	-
2-Methoxyethanol - Skin (Methyl CellosolveR)	25	78	35	115	-	-
Methyl acetate	200	605	250	760	-	-
Methyl acetylene (Propyne)	1000	1638	1250	2048	-	-
Methyl acetylene-propadiene mixture (MAPP)	1000	1800	1250	2250	-	-
Methyl acrylate - Skin	10	35	20	70	-	-
Methyl acrylonitrile - Skin	1	2.7	2	5.5	-	-
Methylal (Dimethoxy-methane)	1000	3112	1250	3891	-	-
Methyl alcohol (Methanol) - Skin	200	262	250	328	-	-
Methylamine	10	12	20	25	-	-
Methyl amyl alcohol (Methyl isobutyl	25	105	40	167	-	-

carbinol) - Skin						
Methyl isoamyl ketone	100	466	150	700	-	-
Methyl n-amyl ketone (2-Heptanone)	50	235	100	465	-	-
Methyl bromide - Skin	5	20	15	58	-	-
Methyl n-butyl ketone (2-Hexanone) - Skin	5	20	10	40	-	-
Methyl CellosolveR (2-Methoxyethanol) - Skin	25	78	35	115	-	-
Methyl CellosolveR acetate (Ethylene glycol monomethyl ether acetate) - Skin	25	121	35	170	-	-
Methyl chloride	50	102	100	205	-	-
Methyl chloroform (1,1,1-Trichloroethane)	350	1910	450	2455	-	-
Methyl 2-cyanoacrylate	2	9	4	18	-	-
Methylcyclo-hexane	400	1600	500	2000	-	-
Methylcyclo-hexanol	50	235	75	350	-	-
o-Methylcyclohexanone - Skin	50	230	75	345	-	-
Methylcyclo-pentadienyl manganese tricarbonyl (as Mn) - Skin	-	0.2	-	0.6	-	-
Methyl demeton - Skin	-	0.5	-	1.5	-	-
Methylene bisphenyl-isocyanate (MDI)	0.005	0.051	-	-	0.02	-
Methylene chloride (Dichloro-methane)	100	347	500	1737	-	-
4,4'-Methylene bis (2-chloroaniline) - (MOCA) - Skin	0.02	0.22	0.06	0.66	-	-
Methylene bis (4-cyclohexyl-isocyanate)	-	-	-	-	0.01	0.1
4,4-Methylene dianiline - Skin	0.1	0.8	0.5	4	-	-
Methyl ethyl ketone (MEK) (2-Butanone)	200	590	300	885	-	-
Methyl ethyl ketone peroxide	-	-	-	-	0.2	1.4
Methyl formate	100	255	150	385	-	-
5-Methyl-3-heptanone (Ethyl amyl ketone)	25	131	38	196	-	-
Methyl hydrazine - Skin	-	-	-	-	0.2	0.38
Methyl iodide - Skin	2	12	5	29	-	-
Methyl isobutyl carbinol - Skin	25	105	40	167	-	-
Methyl isobutyl ketone (Hexone) - Skin	50	205	75	300	-	-

Methyl isocyanate - Skin	0.02	0.05	0.06	0.15	-	-
Methyl isopropyl ketone	200	705	250	881		-
Methyl mercaptan	0.5	1	1.5	2.9		-
Methyl methacrylate	100	410	125	510		-
Methyl parathion - Skin	-	0.2	-	0.6		-
Methyl propyl ketone (2-Pentanone)	200	704	250	879		-
Methyl silicate	1	6	5	31	-	
alpha-Methyl styrene	50	243	100	486	-	-
Molybdenum (as Mo)						
Soluble compounds	-	5	-	10	-	-
Insoluble compounds	-	10	-	20	-	-
Monocrotophos (AzodrinR)	-	0.25	-	0.75	-	-
Monomethyl aniline - Skin	2	8.8	4	18	-	-
Morpholine - Skin	20	70	30	105	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Naphthalene	10	52	15	79	-	-
Nickel carbonyl (as Ni)	0.05	0.34	0.15	0.1	-	-
Nickel metal	-	1	-	2	-	-
Nickel, soluble compounds (as Ni)	-	0.1	-	0.3	-	-
Nickel sulfide roasting, fume and dust (as Ni)	-	1	-	3	-	-
Nicotine - Skin	-	0.5	-	1.5	-	-
Nitric acid	2	5.2	4	10	-	-
Nitric oxide	25	31	35	43	-	-
p-Nitroaniline - Skin	1	5.6	2	11	-	-
Nitrobenzene - Skin	1	5	2	10	-	-
p-Nitrochloro-benzene - Skin	-	1	-	2	-	-
Nitroethane	100	307	150	460	-	-
Nitrogen dioxide	3	6	5	9.4	-	-
Nitrogen trifluoride	10	29	15	44	-	-
Nitroglycerin - Skin	0.02	0.19	0.05	0.46	-	-

Nitromethane	100	250	150	375	-	-
1-Nitropropane	25	91	35	128	-	-
2-Nitropropane	-	-	-	-	25	91
Nitrotoluene - Skin	5	28	10	56	-	-
Nitrotrichloro-methane (Chloropicrin)	0.1	0.67	0.3	2	-	-
Nitrous oxide	100	180	200	360	-	-
Nonane	200	1049	250	1311	-	-
Octachloro-naphthalene - Skin	-	0.1	-	0.3	-	-
Octane	300	1402	375	1752	-	-
Oil Mist, mineral	-	5	-	10	-	-
Osmium tetroxide (as Os)	0.0002	0.0021	0.0006	0.0063	-	-
Oxalic acid	-	1	-	2	-	-
Oxygen difluoride	0.05	0.11	0.15	0.33	-	-
Ozone	0.1	0.2	0.3	0.59	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Paraffin wax fume	-	2	-	6	-	-
Paraquat - respirable sizes	-	0.1	-	0.3	-	-
Parathion - Skin	-	0.1	-	0.3	-	-
Particulate polycyclic aromatic hydrocarbons (PPAH) as benzene solubles	-	0.2	-	0.6	-	-
Pentaborane	0.005	0.013	0.015	0.039	-	-
Pentachloronaphthalene	-	0.5	-	2	-	-
Pentachlorophenol - Skin	-	0.5	-	1.5	-	-
Pentane	600	1771	750	2213	-	-
2-Pentanone (Methyl propyl ketone)	200	704	250	879	-	-
Perchloroethylene - Skin	100	678	150	1017	-	-
Perchloromethyl mercaptan	0.1	0.62	0.3	1.85	-	-
Perchloryl fluoride	3	13	6	25	-	-
Phenol - Skin	5	19	10	38	-	-
Phenothiazine - Skin	-	5	-	10	-	-

p-Phenylene diamine - Skin	-	0.1	-	0.3	-	-
Phenyl ether (vapor)	1	7	2	14	-	-
Phenyl ether-Diphenyl mixture (vapor)	0.5	4	2	16	-	-
Phenylethylene (Styrene)	50	213	100	426	-	-
Phenyl glycidyl ether (PGE)	10	60	15	90	-	-
Phenylhydrazine - Skin	5	22	10	44	-	-
Phenyl mercaptan	0.5	2.3	1.5	6.8	-	-
Phenylphosphine	-	-	-	-	0.05	0.23
Phorate (ThimetR) - Skin	-	0.05	-	0.2	-	-
Phosdrin (MevinphosR) - Skin	0.01	0.092	0.03	0.27	-	-
Phosgene (Carbonyl chloride)	0.1	0.4	0.3	1.2	-	-
Phosphine	0.3	0.42	1	1.3	-	-
Phosphoric acid	-	1	-	3	-	-
Phosphorus (yellow)	-	0.1	-	0.3	-	-
Phosphorus pentachloride	0.1	1	0.3	3	-	-
Phosphorus pentasulfide	-	1	-	3	-	-
Phosphorus trichloride	0.5	2.8	1.5	8.4	-	-
Phthalic anhydride	1	6	4	24	-	-
m-Phthalodinitrile	-	5	-	10	-	-
Picloram (TordonT)	-	10	-	20	-	-
Picric acid - Skin	-	0.1	-	0.3	-	-
PivalR (2-Pivalyl-1,3-indandione) (Pindone)	-	0.1	-	0.3	-	-
Platinum metal	-	1	-	2	-	-
Platinum (Soluble salts) (as Pt)	-	0.002	-	0.006	-	-
Potassium hydroxide	-	-	-	-	-	2
Propargyl alcohol - Skin	1	2.3	3	6.9	-	-
beta-Propiolactone	0.5	1.5	1	3	-	-
Propionic acid	10	30	15	45	-	-
n-Propyl acetate	200	835	250	1040	-	-
Propyl alcohol - Skin	200	491	250	615	-	-
n-Propyl nitrate	25	107	40	172	-	-
Propylene dichloride (1,2-Dichloropropane)	75	345	115	510	-	-
Propylene glycol dinitrate (PGDN) - Skin	0.02	0.1	0.05	0.3	-	-
Propylene glycol monomethyl ether	100	360	150	540	-	-

Propylene imine - Skin	2	4.7	4	9.3	-	-
Propylene oxide	20	47	30	71	-	-
Propyne (Methyl-acetylene)	1000	1638	1250	2048	-	-
Pyrethrum	-	5	-	10	-	-
Pyridine	5	16	10	32	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Quinone	0.1	0.42	0.3	1.3	-	-
RDX (Cyclonite) - Skin	-	1.5	-	3	-	-
Resorcinol	10	45	20	90	-	-
Rhodium, Metal Fume and dusts (as Rh)	-	0.001	-	0.003	-	-
Soluble salts (as Rh)	-	0.1	-	0.3	-	-
Ronnel	-	10	-	20	-	-
Rosin core solder pyrolysis products (as formaldehyde)	-	0.1	-	-.3	-	-
Rotenone (commercial)	-	5	-	10	-	-
Rubber solvent (naphtha)	400	1600	500	2000	-	-
Selenium compounds (as Se)	-	0.2	-	0.6	-	-
Selenium hexafluoride (as Se)	0.05	0.4	0.15	1.2	-	-
SencorR (Metribuzin)	-	5	-	10	-	-
SevinR (Carbaryl)	-	5	-	10	-	-
Silica	see TABLE 3					
Silicon tetrahydride (Silane)	0.5	0.65	1	1.3	-	-
Silver, metal	-	0.1	-	0.3	-	-
Silver, soluble compounds (as Ag)	-	0.01	-	0.03	-	-
Sodium azide	-	-	-	-	0.1	0.27
Sodium bisulfite	-	5	-	10	-	-
Sodium, 2,4-dichlorophenoxy ethyl sulfate	-	10	-	20	-	-

Sodium fluoroacetate (1080) - Skin	-	0.05	-	0.15	-	-
Sodium hydroxide	-	-	-	-	-	2
Sodium metabisulphite	-	5	-	10	-	-
Stibine	0.1	0.51	0.3	1.5	-	-
Stoddard solvent	100	575	125	720	-	-
Strychnine	-	0.15	-	0.45	-	-
Styrene, monomer - Skin (Phenyl ethylene)	50	213	100	426	-	-
Subtilisins (Proteolytic enzymes as 100% pure crystalline enzyme)	-	-	-	-	-	0.00006
Sulphur dioxide	2	5	5	13	-	-
Sulphur hexafluoride	1000	5973	1250	7467	-	-
Sulphuric acid	-	1	-	3	-	-
Sulphur monochloride	1	5.5	3	17	-	-
Sulphur pentafluoride	0.025	0.26	0.075	0.78	-	-
Sulphur tetrafluoride	0.1	0.44	0.3	1.3	-	-
Sulphuryl fluoride	5	21	10	42	-	-
Systox (DemetonR) - Skin	0.01	0.11	0.03	0.32	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
2,4,5-T	-	10	-	20	-	-
Tantalum	-	5	-	10	-	-
TEDP - Skin	-	0.2	-	0.6	-	-
Tellurium and compounds (as Te)	-	0.1	-	0.3	-	-
Tellurium hexafluoride (as Te)	0.02	0.2	0.06	0.59	-	-
TEPP - Skin	0.004	0.047	0.01	0.12	-	-
Terphenyls	-	-	-	-	0.5	4.7
1,1,1,2-Tetrachloro-2,2-difluoroethane	500	4170	625	5210	-	-
1,1,2,2-Tetrachloro-1,2-difluoroethane	500	4170	625	5210	-	-
1,1,2,2-Tetrachloroethane - Skin	5	34	10	69	-	-
Tetrachloro-ethylene (Perchloro-ethylene)	100	678	150	1017	-	-

Tetrachloro-methane (Carbon tetrachloride) - Skin	5	32	20	126	-	-
Tetrachloro-naphthalene	-	2	-	4	-	-
Tetraethyl lead (as Pb) - Skin	-	0.1	-	0.3	-	-
Tetrahydrofuran	200	590	250	735	-	-
Tetramethyl lead (as Pb) - Skin	-	0.15	-	0.5	-	-
Tetramethyl succinonitrile - Skin	0.5	2.8	2	11	-	-
Tetranitro-methane	1	8	3	24	-	-
Tetrasodium pyrophosphate	-	5	-	10	-	-
Tetryl (2,4,6-Trinitrophenyl-Methylnitramine) - Skin -	1.5	-	3.0	-	-	-
Thallium, soluble compounds (as Tl) - Skin	-	0.1	-	0.3	-	-
4,4'-Thiobis(6-tert-butyl-m cresol)	-	10	-	20	-	-
Thioglycolic acid	1	3.8	3	11	-	-
ThiramR	-	5	-	10	-	-
Tin, inorganic compounds, except SnH and SnO (as Sn)	-	2	-	4	-	-
Tin, organic compounds (as Sn) - Skin	-	0.1	-	0.2	-	-
Toluene (Toluol) - Skin	100	375	150	560	-	-
Toluene-2,4-diisocyanate	0.005	0.04	-	-	0.02	0.14
o-Toluidine	5	22	10	44	-	-
Toxaphene (Chlorinated camphene) - Skin	-	0.5	-	1	-	-
Tributyl phosphate	0.2	2.2	0.4	4.4	-	-
Trichloroacetic acid	1	6	2	10	-	-
1,2,4-Trichlorobenzene	5	40	10	80	-	-
1,1,1-Trichloroethane (Methyl chloroform)	350	1910	450	2455	-	-
1,1,2-Trichloroethane - Skin	10	45	20	90	-	-
Trichloroethylene	100	537	150	806	-	-
Trichlorofluoromethane	1000	5619	1250	7024	-	-
Trichloromethane (Chloroform)	10	49	50	225	-	-
Trichloronaph-thalene	-	5	-	10	-	-
Trichloronitro-methane (Chloropicrin)	0.1	0.67	0.3	2	-	-
1,2,3-Trichloropropane - Skin	50	302	75	452	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	1000	7664	1250	9580	-	-

Tricyclohexyltin hydroxide (PlictranR)	-	5	-	10	-	-
Triethylamine	25	104	40	166	-	-
Trifluoromono-bromomethane	1000	6090	1200	7308	-	-
Trimellitic anhydride (TMA)	-	0.05	-	0.15	-	-
Trimethyl benzene	25	123	35	172	-	-
Trimethyl phosphite	0.5	2.5		7.6	-	-
2,4,6-Trinitrophenol (Picric acid) - Skin	-	0.1		0.3	-	-
2,4,6-Trinitrophenyl methyl nitramine (Tetryl) - Skin	-	1.5	-	3.0	-	-
2,4,6-Trinitrotoluene (TNT) - Skin	-	-		-	-	0.5
Triorthocresyl phosphate	-	0.1		0.3	-	-
Triphenyl amine	-	5		10	-	-
Triphenyl phosphate	-	3	-	6	-	-
Tungsten & Compounds, (as W)						
Soluble	-	1	-	3	-	-
Insoluble	-	5	-	10	-	-
Turpentine	100	560	150	840	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	mg/m ³
	ppm	mg/m ³	ppm	mg/m ³	ppm	
Uranium (natural) soluble & insoluble compounds (as U)	-	0.2	-	0.6	-	-
Valeraldehyde	50	175	75	265	-	-
Vanadium, (V2O5) (as V)						
Dust	-	0.5	-	1.5	-	-
Fume	-	-	-	-	-	0.05
Vinyl acetate	10	35	20	70	-	-
Vinyl benzene (Styrene)	50	213	100	426	-	-
Vinyl bromide	5	22	10	44	-	-
Vinyl chloride (Chloroethylene)	2	5.2	10	26	-	-
Vinyl cyanide (Acrylonitrile) - Skin	2	4.3	4	8.6	-	-
Vinyl cyclohexene dioxide	10	57	15	86	-	-

Vinylidene chloride	10	36	20	72	-	-
Vinyl toluene	50	242	100	483	-	-
VM & P Naphtha	300	1350	400	1800	-	-
Warfarin	-	0.1	-	0.3	-	-
Welding fumes (total particulate)	-	5	-	10	-	-
Wood dust, allergenic	-	2.5	-	5	-	-
Wood dust, nonallergenic	-	5	-	10	-	-
Xylene (o-, m-, p- isomers) - Skin	100	434	150	652	-	-
m-Xylene alpha, alpha'-diamine	-	-	-	-	-	0.1
Xylidine - Skin	5	25	10	50	-	-
Yttrium	-	1	-	3	-	-
Zinc chloride fume	-	1	-	2	-	-
Zinc chromate (as Cr)	-	0.05	-	0.15	-	-
Zinc oxide fume	-	5	-	10	-	-
Zirconium compounds (as Zr)	-	5	-	10	-	-

Table 3

	8 hours Occupational Respirable Mass mg/m ³	Exposure Limit Total Mass mg/m ³
Silica (SiO ₂)		
Amorphous	2	5
Cristobalite	0.05	0.15
Fused silica	0.1	0.3
Quartz	0.1	0.3
Silica flour	0.05	0.15
Tridymite	0.05	0.15
Tripoli	0.1	0.3
Aluminum oxide (Al ₂ O ₃)	5	10
Asbestos	see footnote 1	
Calcium carbonate	5	10
Calcium silicate	5	10
Cellulose (paper fibre)	5	10
Emery	5	10
Fibrous Glass	see footnote 2	
Graphite (synthetic)	5	10
Gypsum	5	10
Kaolin	5	10

Limestone	5	10
Marble	5	10
Magnesite	5	10
Mica	3	6
Mineral Wool Fibre	see footnote 2	
Nuisance particulate	5	10
Pentaerythritol	5	10
Perlite	5	10
Plaster of Paris	5	10
Portland Cement	5	10
Rouge	5	10
Silicon	5	10
Silicon carbide	5	10
Soapstone	3	6
Starch	5	10
Sucrose	5	10
Talc (fibrous)	see footnote 3	
Talc (nonasbestiform)	3	6
Tin oxide	5	10
Titanium dioxide	5	10
Zinc stearate	5	10
Zinc oxide dust	5	10

1 asbestos:

- (a) for asbestos fibre, except crocidolite, amosite and tremolite, the 8-hour Occupational Exposure Limit is two fibres greater than 5 micrometers in length per cm^3 of air; the 15-minute Occupational Exposure Limit is 10 fibres greater than 5 micrometers in length per cm^3 of air;
- (b) for crocidolite fibre, the 8-hour Occupational Exposure Limit is 0.2 fibres greater than 5 micrometers in length per cm^3 of air; the 15-minute Occupational Exposure Limit is one fibre greater than 5 micrometers in length per cm^3 of air;
- (c) for amosite and tremolite fibre, the 8-hour Occupational Exposure Limit is 0.5 fibres greater than 5 micrometers in length per cm^3 of air; the 15-minute Occupational Exposure Limit is 2.5 fibres greater than 5 micrometers in length per cm^3 of air.

2 fibrous glass or mineral wool fibre:

- (a) for fibrous glass or mineral wool fibre, the 8-hour Occupational Exposure Limit is

- three fibres per cm³ of air;
- (b) fibres included in this count are those having a diameter equal to or less than 3.5 micrometers and a length equal to or greater than 10 micrometers;
- (c) the 8-hour Occupational Exposure Limit is 5 mg/m³ (total mass);

3 talc (fibrous):

- (a) for fibrous talc, the 8-hour Occupational Exposure Limit is two fibres greater than 5 micrometers in length per cm³ of air;
- (b) the 15-minute Occupational Exposure Limit is 10 fibres greater than 5 micrometers in length per cm³ of air.

As made under the Mine Health and Safety Act, Mine Health and Safety Regulations

EXPOSURE LEVELS

9.19 The manager shall take all reasonable measures to ensure the noise levels at worksites in a mine do not exceed the exposure levels shown in Schedule 5 (Noise Exposure).

MEASUREMENTS OF NOISE LEVELS

9.20 (1) The manager shall ensure that a noise level survey is conducted at all worksites.

(2) The results of every noise level survey shall be given to the Committee and made available to an inspector.

(3) Where the noise is constant and measurements show noise levels in excess of 85 dBA, the area shall be clearly marked by signs indicating that hearing protection is required.

(4) In any area where the noise level may exceed 85 dBA, the manager shall ensure that effective procedures are provided to protect employees from any harmful effects of the noise and copies of the procedures are sent to the chief inspector and given to the Committee.

(5) Where personal noise dosimeters are used they shall have the following measurement specifications:

- (a) a noise measurement exchange rate of 3 dB;
- (b) a threshold level of 75 dBA or lower; and
- (c) if measurement is expressed as a percentage, a reading of 100% for an average exposure of noise equivalent to 85 dBA for eight hours (Lex).

[R-008-2003, s. 92]

9.21 Repealed. [R-008-2003, s. 93]

HEARING PROTECTION

9.22 (1) Subject to subsection (2), the selection of the type of hearing protection devices provided by the owner is a matter to be jointly decided by the manager and the Committee or, where there is no Committee in place, other representatives of the employees.

(2) Hearing protective devices shall be used in accordance with the recommendations of Table A1 (Selection of Hearing Protectors) in the standard CAN/CSA Z94.2-94, Hearing Protectors.

9.23 Where an inspector has reason to believe that the type of hearing protective device provided by the manager is unsuitable for use by the employee, the inspector may require the manager to provide an alternative type.

9.24 Every manager shall ensure that any mould of the auditory canal taken for manufacture of a hearing protective device shall be moulded for the employee by a qualified person and the initial fitting of the employee shall be done by a qualified person.

9.25 The manager shall develop and implement a hearing conservation program that shall include:

- (a) education of the employees;
- (b) noise surveys of worksites and equipment;
- (c) engineering and administrative controls;
- (d) hearing protection for employees;
- (e) audiometric testing; and
- (f) consultation with employees.

AUDIOMETRIC TESTING

9.26 (1) Every employee who works in an environment where the noise level is 80 dBA or greater shall, at the expense of the owner, be given an audiometric test for hearing acuity by a person who is certified, by a body acceptable to the chief inspector, to conduct such tests:

- (a) on commencing employment;
- (b) annually on the anniversary of commencing employment; and
- (c) at any other time when required by the manager or the chief inspector.

(2) The manager shall keep on file a record of the audiometric tests and the record shall be available for examination by an inspector.

(3) The manager shall give the results of an audiometric test of an employee to the employee within three days of receiving the results.

[R-008-2003, s. 94]

SCHEDULE 5 NOISE EXPOSURE

(Section 9.19)

1 (1) In this Schedule:

- (a) "steady state noise" means noise in which variations of peak pressure levels occur in one second or less; and
- (b) "impact noise" means noise in which variations of peak pressure levels occur at intervals greater than one second apart.

(2) For purposes of Table 2, an unweighted peak measurement may be used if an instrument is not available to measure a C-weighted peak.

2 (1) No person may be exposed without hearing protection to:

- (a) steady state noise over 109 dBA;
- (b) a maximum equivalent noise level exceeding 85 dBA for an eight hour shift, or exceeding the equivalent exposure level set out in Table 1; and
- (c) impact noise at a peak pressure level exceeding 140 dBC, or exceeding the maximum levels set out in Table 2.

(2) Where the maximum noise level permitted in paragraph (1)(a), (b) or (c) is exceeded at a worksite, a person shall be provided with and shall use the hearing protection recommended in Table A1 of the standard CAN/CSA Z94.2-94, *Hearing Protectors*.

Table 1 Exposure Limits Equivalent to 85 dBA/8 Hours Shift

Length of Exposure	Average Noise Level
16 hours	82 dBA
12 hours	83 dBA
10 hours	84 dBA
8 hours	85 dBA
4 hours	88 dBA
2 hours	91 dBA
1 hour	94 dBA
½ hour	97 dBA
1/4 hour	100 dBA

Table 2 Impact Noise Exposure Limits

Peak Pressure Level (decibels)	Maximum Permitted (impulses per eight hour day)
120	10,000

130	1,000
140	100
greater than 140	0

Nunavut

As made under the Safety Act, General Safety Regulations

ACCIDENT PREVENTION

NOISE HAZARDS

30 Where a worker is required to work in a noisy area the employer shall take appropriate measures to suppress the noise, but if it is not reasonably practicable to decrease the noise nor isolate the worker from the noise, the worker shall wear personal protective equipment that will protect him or her from the harmful effects of the noise.

31 (1) An employer shall take reasonable measures to ensure that noise levels at a work site do not exceed the occupational exposure limits set out in Table 1 of Schedule A.

(2) Where noise levels at a work site exceed the limits referred to in subsection (1), an employer shall provide to each worker hearing protective equipment that complies with the Canadian Standards Association Standard Z94.2-94, Hearing Protectors, as amended from time to time, and no person shall work where such noise levels exist without wearing that protective equipment.

[R-028-93, s. 5; R-135-98, s. 2]

SCHEDULE A

(Table 1: Subsection 22(1), Tables 2 and 3: Subsection 26(1), subsection 194(1), section 195, subsections 196(1), (2) and 197(1), sections 199, 201 and 204)

1 (1) In this Schedule:

"8-hour Occupational Exposure Limit" means the time-weighted average concentration of an airborne substance for an 8-hour period;

"15-minute Occupational Exposure Limit" means the time-weighted average concentration of an airborne substance for a 15-minute period;

"ceiling Occupational Exposure Limit" means the maximum concentration of an airborne substance;

"dBA" means a measure of sound level in decibels using a reference sound pressure of 20 µPa when measured on the A weighting network of a sound level meter;

"impulse noise" means sounds with:

- (a) rise times of not more than 35 milliseconds to peak intensity;
- (b) durations of not more than 500 milliseconds between the time when peak intensity is reached and the time when the sound level decays to 20 dB below peak intensity; and
- (c) maxima at intervals of greater than one second;

"mg/m³" means milligrams of substance per cubic metre of air measured at standard conditions of 25° C and 100 kPa;

"ppm" means parts of vapor or gas by volume per million parts of contaminated air by volume;

"respirable mass" means that weight of the total airborne particulate which can be inhaled and deposited in the lower respiratory tract;

"skin" when it appears in conjunction with a substance in Schedule A means the substance can be absorbed through the intact skin.

(2) For the purposes of calculating the 15-minute Occupational Exposure Limit in Table 2 of Schedule A:

- (a) not more than four 15-minute periods shall be permitted per shift; and
- (b) there must be at least 60 minutes between each period referred to in paragraph (a).

Table 1A. Occupational Exposure Limits (Noise)

Sound Level (dBA)	Maximum Permitted Duration (hours per day)
(Figures to be prorated if not specified)	
80	16
85	8
90	4
95	2
100	1
105	0.50
110	0.25
115	0.125
greater than 115	0

Table 1 B. Occupational Exposure Limits (Impulse Noise)

Peak Sound Pressure Level (decibels)	Maximum Permitted (impulses per 8-hour day)
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(Figures to be prorated if not specified)	
120	10,000
130	1,000
140	100
greater than 140	0

Table 2

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Abate	-	10	-	20	-	-
Acetaldehyde	100	180	150	270	-	-
Acetic acid	10	26	15	39	-	-
Acetic anhydride	-	-	-	-	5	21
Acetone	1000	2370	1250	2970	-	-
Acetonitrile - Skin	40	67	60	100	-	-
Acetylene dichloride (1,2-Dichloroethylene)	200	795	250	995	-	-
Acetylene tetrabromide	1	14	1.5	21	-	-
Acrolein	0.1	0.23	0.3	0.69	-	-
Acrylamide - Skin	-	0.3	-	0.6	-	-
Acrylic acid	10	30	20	60	-	-
Acrylonitrile - Skin	2	4.3	4	8.6	-	-
Aldrin - Skin	-	0.25	-	0.75	-	-
Allyl alcohol - Skin	2	4.7	4	9.5	-	-
Allyl chloride	1	3.2	2	6.3	-	-
Allyl glycidyl ether (AGE) - Skin	5	23	10	47	-	-
Allyl propyl disulfide	2	12	3	18	-	-
Aluminum metal & oxide	-	10	-	20	-	-
Aluminum pyro powders	-	5	-	10	-	-
Aluminum welding fumes	-	5	-	10	-	-
Aluminum soluble salts	-	2	-	4	-	-
Aluminum, alkyls	-	2	-	4	-	-
2-Aminoethanol (Ethanolamine)	3	7.5	6	15	-	-
2-Aminopyridine	0.5	1.9	2	7.7	-	-
Ammonia	25	17	35	24	-	-
Ammonium chloride - fume	-	10	-	20	-	-
Ammonium sulfamate (Ammate)	-	10	-	20	-	-
n-Amyl acetate	100	530	150	800	-	-
sec-Amyl acetate	125	665	150	800	-	-

Aniline and homologues - Skin	2	7.6	5	19	-	-
Anisidine (o-, p- isomers) - Skin	0.1	0.5	0.3	1.5	-	-
Antimony and compounds (as Sb)	-	0.5	-	1.5	-	-
Antimony trioxide, handling and use (as Sb)	-	0.5	-	1.5	-	-
Antimony trioxide production (as Sb)	-	0.5	-	1.5	-	-
ANTU (alpha-Naphthyl thiourea)	-	0.3	-	0.9	-	-
Arsenic & soluble compounds (as As)	-	0.2	-	0.6	-	-
Arsenic trioxide production (as As)	-	0.05	-	0.15	-	-
Arsine	0.05	0.16	0.15	0.48	-	-
Asbestos	see TABLE 3					
Asphalt (petroleum fumes)	-	10	-	20	-	-
Atrazine	-	5	-	10	-	-
Azinphos-methyl - Skin	-	0.2	-	0.6	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Barium (soluble compounds) (as Ba)	-	0.5	-	1.5	-	-
Baygon (Propoxur)	-	0.5	-	2	-	-
BaytexR (Fenthion)	-	0.1	-	0.3	-	-
Benomyl	0.8	10	1.3	15	-	-
Benzene - Skin	10	32	25	80	-	-
p-Benzoquinone (Quinone)	0.1	0.42	0.3	1.3	-	-
Benzoyl peroxide	-	5	-	10	-	-
Benzyl chloride	1	5.2	3	16	-	-
Beryllium	-	0.002	-	0.006	-	-
Biphenyl	0.2	1.3	0.6	3.8	-	-
Bismuth telluride, Se-doped	-	5	-	10	-	-
Borates, tetra, sodium salts, Anhydrous	-	1	-	3	-	-
Decahydrate	-	5	-	10	-	-
Pentahydrate	-	1	-	3	-	-
Boron oxide	-	10	-	20	-	-
Boron tribromide	1	10	3	31	-	-
Boron trifluoride	-	-	-	-	1	2.8
Bromacil	1	10	2	21	-	-

Bromine	0.1	0.65	0.3	2	-	-
Bromine Pentafluoride	0.1	0.72	0.3	2.1	-	-
Bromochloromethane (Chlorobromomethane)	200	1060	250	1320	-	-
Bromoform - Skin	0.5	5.2	1.5	16	-	-
1,3-Butadiene	1000	2212	1250	2765	-	-
Butane	800	1901	1000	2576	-	-
Butanethiol (Butyl mercaptan)	0.5	1.8	1.5	5.5	-	-
2-Butanone (Methyl ethyl ketone)	200	590	300	885	-	-
2-Butoxyethanol (Butyl CellosolveR) - Skin	25	120	75	360	-	-
n-Butyl acetate	150	713	200	950	-	-
sec-Butyl acetate	200	950	250	1187	-	-
tert-Butyl acetate	200	950	250	1187	-	-
Butyl acrylate	10	52	20	105	-	-
n-Butyl alcohol - Skin	-	-	-	-	50	152
sec-Butyl alcohol	100	303	150	455	-	-
tert-Butyl alcohol	100	303	150	455	-	-
Butylamine - Skin	-	-	-	-	5	15
tert-Butyl chromate (as CrO3) - Skin	-	-	-	-	-	0.1
n-Butyl glycidyl ether (BGE)	25	133	38	200	-	-
n-Butyl lactate	5	30	10	60	-	-
Butyl mercaptan	0.5	1.8	1.5	5.5	-	-
o-sec-Butylphenol - Skin	5	31	10	62	-	-
p-tert-Butyltoluene	10	61	20	121	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Cadmium, dust & salts (as Cd)	-	0.05	-	0.2	-	-
Cadmium oxide fume (as Cd)	-	-	-	-	-	0.05
Calcium arsenate (as As)	-	0.2	-	0.6	-	-
Calcium cyanamide	-	0.5	-	1	-	-
Calcium hydroxide	-	5	-	10	-	-
Calcium oxide	-	2	-	4	-	-
Camphor, synthetic	2	12	3	19	-	-
Caprolactam						
Dust	-	1	-	3	-	-
Vapour	5	23	10	46	-	-

Captafol (DifolatanR) - Skin	-	0.1	-	0.3	-	-
Captan	-	5	-	15	-	-
Carbaryl (SevinR)	-	5	-	10	-	-
Carbofuran (FuradanR)	-	0.1	-	0.3	-	-
Carbon black	-	3.5	-	7	-	-
Carbon dioxide	5000	9000	15000	27000	-	-
Carbon disulfide - Skin	10	31	20	62	-	-
Carbon monoxide	50	57	400	460	-	-
Carbon tetrabromide	0.1	1.4	0.3	4.1	-	-
Carbon tetrachloride - Skin	5	32	20	126	-	-
Carbonyl chloride (Phosgene)	0.1	0.4	0.3	1.2	-	-
Carbonyl fluoride	2	5.4	5	13.5	-	-
Catechol (Pyrocatechol)	5	23	10	45	-	-
CellosolveR acetate (2-Ethoxyethyl acetate) - Skin	50	270	100	540	-	-
Cesium hydroxide	-	2	-	4	-	-
Chlordane - Skin	-	0.5	-	2	-	-
Chlorinated camphene - Skin	-	0.5	-	1	-	-
Chlorinated diphenyl oxide	-	0.5	-	2	-	-
Chlorine	1	3	3	8.7	3	8.7
Chlorine dioxide	0.1	0.27	0.3	0.82	-	-
Chlorine trifluoride	-	-	-	-	0.1	0.38
Chloroacetaldehyde	-	-	-	-	1	3.2
alpha-Chloroacetophenone (Phenacyl chloride)	0.05	0.32	0.15	0.95	-	-
Chloroacetyl chloride	0.05	0.23	0.15	0.69	-	-
Chlorobenzene (Monochlorobenzene)	75	345	115	520	-	-
o-Chlorobenzylidene malononitrile - Skin	0.05	0.39	0.15	1.2	-	-
Chlorobromomethane	200	1060	250	1320	-	-
2-Chloro-1,3-butadiene (beta-Chloroprene) - Skin	10	45	20	90	-	-
Chlorodifluoromethane	1000	3520	1250	4400	-	-
Chlorodiphenyl (42% Chlorine) - Skin	-	1	-	2	-	-
Chlorodiphenyl (54% Chlorine) - Skin	-	0.5	-	1	-	-
1-Chloro-2,3-epoxy-propane (Epichlorohydrin)	2	7.6	5	19	-	-
2-Chloroethanol (Ethylene chlorohydrin) - Skin	-	-	-	-	1	3.3
Chloroethylene (Vinyl chloride)	2	5.2	10	26	-	-
Chloroform (Trichloromethane)	10	49	50	225	-	-
bis-Chloromethyl ether	0.001	0.0047	0.003	0.014	-	-

Chloromethyl methyl ether	0.005	0.02	0.015	0.05	-	-
1-Chloro-1-nitropropane	2	10	4	20	-	-
Chloropentafluoroethane	1000	6340	1250	7925	-	-
Chloropicrin	0.1	0.67	0.3	2	-	-
beta-Chloroprene - Skin	10	45	20	90	-	-
o-Chlorostyrene	50	285	75	425	-	-
o-Chlorotoluene - Skin	50	260	75	390	-	-
2-Chloro-6-(trichloromethyl) pyridine (N-ServeR)	-	10	-	20	-	-
Chlorpyrifos (DursbanR) - Skin	-	0.2	-	0.6	-	-
Chromium metal	-	0.5	-	1.5	-	-
Chromium (II) compounds (as Cr)	-	0.5	-	1.5	-	-
Chromium (III) compounds (as Cr)	-	0.5	-	1.5	-	-
Chromium (VI) compounds (as Cr)						
water soluble	-	0.05	-	0.15	-	-
water insoluble	-	0.05	-	0.15	-	-
Chromite ore processing (chromate (as Cr))	-	0.05	-	0.15	-	-
Chromium, Sol. chromic, chromous salts (as Cr)	-	0.5	-	0.15	-	-
Clopidol (CoydenR)	-	10	-	20	-	-
Coal tar pitch volatiles, as benzene solubles	-	0.2	-	0.6	-	-
Cobalt dust and fume (as Co)	-	0.1	-	0.3	-	-
Copper fume	-	0.2	-	0.6	-	-
dust and mists (as Cu)	-	1	-	2	-	-
Cotton dust, raw	-	0.2	-	0.6	-	-
CragR herbicide (Sodium 2,4-dichlorophenoxyethyl sulphate)	-	10	-	20	-	-
Cresol, all isomers - Skin	5	22	10	44	-	-
Crotonaldehyde	2	5.8	6	17	-	-
CruformateR	-	5	-	20	-	-
Cumene - Skin	50	245	75	370	-	-
Cyanamide	-	2	-	4	-	-
Cyanides, as CN - Skin	-	5	-	10	-	-
Cyanogen	10	21	20	43	-	-
Cyanogen chloride	-	-	-	-	0.3	0.75
Cyclohexane	300	1030	375	1290	-	-
Cyclohexanol	50	205	75	305	-	-
Cyclohexanone	25	100	100	400	-	-
Cyclohexene	300	1010	375	1260	-	-
Cyclohexylamine - Skin	10	41	20	82	-	-

Cyclonite - Skin	-	1.5	-	3	-	-
Cyclopentadiene	75	205	150	405	-	-
Cyclopentane	600	1720	900	2580	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
2,4-D (2,4-Dichlorophenoxyacetic acid)	-	10	-	20	-	-
DDT (Dichlorodiphenyltrichloroethane)	-	1	-	3	-	-
DDVP (Dichlorvos) - Skin	0.1	0.9	0.3	2.7	-	-
Decaborane - Skin	0.05	0.3	0.15	0.9	-	-
DemetonR - Skin	0.01	0.11	0.03	0.32	-	-
Diacetone alcohol (4-Hydroxy-4-methyl-2-pentanone)	50	235	75	355	-	-
1,2-Diaminoethane (Ethylene diamine)	10	26	20	51	-	-
DiazinonR - Skin	-	0.1	-	0.3	-	-
Diazomethane	0.2	0.34	0.6	1	-	-
Diborane	0.1	0.11	0.3	0.34	-	-
DibromR	-	3	-	6	-	-
2-N-Dibutylaminoethanol - Skin	2	14	4	28	-	-
Dibutyl phosphate	1	5	2	10	-	-
Dibutyl phthalate	-	5	-	10	-	-
Dichloroacetylene	-	-	-	-	0.1	0.39
o-Dichlorobenzene	-	-	-	-	50	300
p-Dichlorobenzene	75	450	110	660	-	-
1,1-Dichloroethane (Ethylidene chloride)	200	810	250	1010	-	-
1,2-Dichloroethane (Ethylene dichloride)	10	40	15	60	-	-
1,1-Dichloroethylene (Vinylidene dichloride)	10	40	20	80	-	-
1,2-Dichloroethylene	200	795	250	995	-	-
Dichloroethyl ether - Skin	5	29	10	59	-	-
Dichloromethane (Methylene chloride)	100	347	400	1737	-	-
Dichloromonofluoromethane	10	42	20	84	-	-
1,1-Dichloro-1-nitroethane	2	12	10	59	-	-
1,2-Dichloropropane (Propylene dichloride)	75	345	110	510	-	-
1,3-Dichloropropene - Skin	1	5	10	50	-	-
2,2-Dichloropropionic acid	1	6	2	12	-	-

Dichlorotetrafluoroethane	1000	6990	1250	8740	-	-
Dichlorvos (DDVP) - Skin	0.1	0.9	0.3	2.7	-	-
Dicrotophos (BidrinR) - Skin	-	0.25	-	0.75	-	-
Dicyclopentadiene	5	27	10	54	-	-
Dicyclopentadienyl iron	-	10	-	20	-	-
Dieldrin - Skin	-	0.25	-	0.75	-	-
Diethanolamine	3	13	6	26	-	-
Diethylamine	10	30	25	75	-	-
Diethylaminoethanol - Skin	10	48	20	96	-	-
Diethylene triamine - Skin	1	4	3	13	-	-
Diethyl ether (Ethyl ether)	400	1213	500	1516	-	-
Diethyl ketone	200	705	250	881	-	-
Diethyl phthalate	-	5	-	10	-	-
Difluorodibromomethane	100	858	150	1287	-	-
Diglycidyl ether (DGE)	0.1	0.5	0.3	1.5	-	-
Dihydroxybenzene (Hydroquinone)	-	2	-	4	-	-
Diisobutyl ketone	25	145	38	220	-	-
Diisopropylamine - Skin	5	21	10	41	-	-
Dimethoxymethane (Methylal)	1000	3112	1250	3891	-	-
Dimethyl acetamide - Skin	10	36	15	53	-	-
Dimethylamine	10	18	20	36	-	-
Dimethylaminobenzene (Xylidene) - Skin	5	25	10	50	-	-
N,N-Dimethylaniline - Skin	5	25	10	50	-	-
Dimethylbenzene (Xylene) - Skin	100	434	150	652	-	-
Dimethyl carbamyl chloride (Schedule)	-	-	-	-	-	-
Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate (DibromR)	-	3	-	6	-	-
Dimethylformamide - Skin	10	30	20	60	-	-
2,6-Dimethyl-4-heptanone (Diisobutyl ketone)	25	145	38	220	-	-
1,1-Dimethylhydrazine - Skin	0.5	1.3	1	2.6	-	-
Dimethylphthalate	-	5	-	10	-	-
Dimethyl sulfate - Skin	0.1	0.52	0.3	1.6	-	-
Dinitrobenzene (all isomers) - Skin	0.15	1	0.5	3.4	-	-
Dinitro-o-cresol - Skin	-	0.2	-	0.6	-	-
3,5-Dinitro-o-toluamide (ZoaleneR)	-	5	-	10	-	-
Dinitrotoluene - Skin	-	1.5	-	5	-	-
Dioxane - Tech. grade - Skin	25	90	100	360	-	-
Dioxathion (DelnavR) - Skin	-	0.2	-	0.6	-	-
Diphenyl (Biphenyl)	0.2	1.3	0.6	3.8	-	-
Diphenylamine	-	10	-	20	-	-

Diphenylmethane diisocyanate (Methylene bisphenyl-isocyanate (MDI))			-	-	0.02	0.2
Dipropylene glycol methyl ether	100	606	150	909	-	-
Dipropyl ketone	50	234	75	351	-	-
Diquat	-	0.5	-	1	-	-
Di-sec-octyl phthalate (Di(2-ethylhexyl) phthalate)	-	5	-	10	-	-
Disulfiram	-	2	-	5	-	-
Disulfoton (DisystonR)	-	0.1	-	0.3	-	-
2,6-Ditert-butyl-p-cresol	-	10	-	20	-	-
Diuron	-	10	-	20	-	-
Divinyl benzene	10	53	20	106	-	-
Dyfonate - Skin	-	0.1	-	0.3	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	mg/m ³
	ppm	mg/m ³	ppm	mg/m ³	ppm	
Endosulfan (ThiodanR) - Skin	-	0.1	-	0.3	-	-
Endrin - Skin	-	0.1	-	0.3	-	-
Epichlorohydrin - Skin	2	7.6	5	19	-	-
EPN - Skin	-	0.5	-	2	-	-
1,2-Epoxypropane (Propylene oxide)	20	47	30	71	-	-
2,3-Epoxy-1-propanol (Glycidol)	25	76	100	303	-	-
Ethanthiol (Ethyl mercaptan)	0.5	1.3	2	5.1	-	-
Ethanolamine	3	7.5	6	15	-	-
Ethion (NialateR) - Skin	-	0.4	-	1.2	-	-
2-Ethoxyethanol - Skin	50	184	100	369	-	-
2-Ethoxyethyl acetate (CellosolveR acetate) - Skin	50	270	100	540	-	-
Ethyl acetate	400	1441	500	1801	-	-
Ethyl acrylate - Skin	5	20	25	102	-	-
Ethyl alcohol (Ethanol)	1000	1884	1250	2355	-	-
Ethylamine	10	18	20	37	-	-
Ethyl amyl ketone (5-Methyl-3-heptanone)	25	131	38	196	-	-
Ethyl benzene	100	434	125	542	-	-
Ethyl bromide	200	891	250	1114	-	-
Ethyl butyl ketone (3-Heptanone)	50	234	75	350	-	-
Ethyl chloride	1000	2639	1250	3299	-	-

Ethyl ether	400	1213	500	1516	-	-
Ethyl formate	100	303	150	454	-	-
Ethyl mercaptan	0.5	1.3	2	5.1	-	-
Ethyl silicate	10	85	30	256	-	-
Ethylene chlorohydrin - Skin	-	-	-	-	1	3.3
Ethylene diamine	10	26	20	51	-	-
Ethylene dichloride (1,2-Dichloroethane)	10	40	15	60	-	-
Ethylene glycon	-	10	-	20	-	-
Vapour	-	50	-	127	-	-
Ethylene glycol dinitrate - Skin	0.02	1.2	0.05	0.31	-	-
Ethylene glycol methyl ether acetate (Methyl CellosolveR acetate) - Skin	25	121	35	170	-	-
Ethylene oxide	10	20	50	100	-	-
Ethyleneimine - Skin	0.5	0.90	1.5	2.7	-	-
Ethylidene Chloride (1,1-Dichloroethane)	200	810	250	1110	-	-
Ethylidene norbornene	-	-	-	-	5	25
N-Ethylmorpholine - Skin	5	23	20	94	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Fensulfothion (Dansanit)	-	0.1	-	0.3	-	-
Fenthion (BaytexR)	-	0.1	-	0.3	-	-
Ferbam	-	10	-	20	-	-
Ferrovandium dust	-	1	-	3	-	-
Fluoride (as F)	-	2.5	-	5	-	-
Fluorine	1	1.6	2	3.1	-	-
Fluorotrichloromethane	1000	5619	1250	7024	-	-
Formaldehyde	-	-	-	-	2	2.4
Formamide	20	37	30	55	-	-
Formic acid	5	9	10	18	-	-
Furfural - Skin	2	8	10	39	-	-
Furfuryl alcohol - Skin	5	20	10	40	-	-
Gasoline	300	900	500	1500	-	-
Germanium tetrahydride	0.2	0.63	0.6	1.9	-	-
Glutaraldehyde	-	-	-	-	0.2	0.82
Glycerin mist	-	10	-	20	-	-

Glycidol (2,3-Epoxy-1-propanol)	25	76	100	303	-	-
Glycol monoethyl ether (2-Ethoxyethanol) - Skin	50	184	100	369	-	-
GuthionR (Azinphos-methyl) - Skin	-	0.2	-	0.6	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Hafnium	-	0.5	-	1.5	-	-
Heptachlor - Skin	-	0.5	-	2	-	-
Heptane (n-Heptane)	400	1640	500	2049	-	-
3-Heptanone (Ethyl butyl ketone)	50	234	75	350	-	-
Hexachloro butadiene	0.02	0.21	0.06	0.64	-	-
Hexachlorocyclopentadiene	0.01	0.11	0.03	0.34	-	-
Hexachloroethane - Skin	1	10	3	29	-	-
Hexachloronaphthalene - Skin	-	0.02	-	0.06	-	-
Hexafluoro- acetone	0.1	0.68	0.3	2	-	-
Hexane (n-Hexane)	100	352	125	440	-	-
2-Hexanone (Methyl n-butyl ketone) - Skin	5	20	10	40	-	-
Hexone (Methyl isobutyl ketone) - Skin	50	205	75	300	-	-
sec-Hexyl acetate	50	295	75	440	-	-
Hexylene glycol	-	-	-	-	25	120
Hydrazine - Skin	0.1	0.13	0.3	0.39	-	-
Hydrogenated terphenyls	0.5	5	1.5	15	-	-
Hydrogen bromide	3	9.9	6	20	-	-
Hydrogen chloride	-	-	-	-	5	7.5
Hydrogen cyanide - Skin	-	-	-	-	10	11
Hydrogen fluoride (as F)	3	2.5	6	4.9	-	-
Hydrogen peroxide	1	1.4	2	2.8	-	-
Hydrogen selenide (as Se)	0.05	0.17	0.15	0.5	-	-
Hydrogen sulfide	10	14	15	21	20	28
Hydroquinone	-	2	-	4	-	-
2-Hydroxypropyl acrylate - Skin	0.5	3	1.5	9	-	-
Indene	10	47	15	71	-	-
Indium & Compounds (as In)	-	0.1	-	0.3	-	-
Iodine	-	-	-	-	0.1	1
Iodoform	0.6	9.6	1	16	-	-

Iron oxide fume	-	5	-	10	-	-
Iron pentacarbonyl (as Fe)	0.01	0.08	0.03	0.24	-	-
Iron salts, soluble (as Fe)	-	1	-	2	-	-
Isoamyl acetate	100	533	125	665	-	-
Isoamyl alcohol	100	360	125	450	-	-
Isobutyl acetate	150	713	187	889	-	-
Isobutyl alcohol	50	152	75	227	-	-
Isophorone	-	-	-	-	5	28
Isophorone diisocyanate - Skin	0.01	0.09	0.03	0.27	-	-
Isopropoxyethanol	25	105	75	320	-	-
Isopropyl acetate	250	104	310	1295	-	-
Isopropyl alcohol - Skin	400	983	500	1228	-	-
Isopropylamine	5	12	10	24	-	-
N-Isopropylaniline - Skin	2	11	5	22	-	-
Isopropyl ether	250	1044	310	1316	-	-
Isopropyl glycidyl ether (IGE)	50	237	75	356	-	-
Ketene	0.5	0.86	1.5	2.6	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Lead, inorg., fumes & dusts (as Pb)	-	0.15	-	0.45	-	-
Lead arsenate (as Pb)	-	0.15	-	0.45	-	-
Lead chromate (as Cr)	-	0.05	-	0.15	-	-
Lindane - Skin	-	0.5	-	1.5	-	-
Lithium hydride	-	0.025	-	0.075	-	-
L.P.G. (Liquified Petroleum Gas)	1000	1800	1250	2250	-	-
Magnesium oxide fume (as Mg)	-	10	-	20	-	-
Malathion - Skin	-	10	-	20	-	-
Maleic anhydride	0.25	1	0.75	3	-	-
Manganese & compounds (as Mn)	-	-	-	-	-	5
Manganese fume (as Mn)	-	1	-	3	-	-
Manganese cyclopentadienyl tricarbonyl (as Mn) - Skin	-	0.1	-	0.3	-	-
Manganese tetroxide	-	1	-	2	-	-
Mercury (Alkyl compounds) - Skin (as Hg)	-	0.01	-	0.03	-	-
Mercury (all forms except Alkyl) (as Hg)	-	0.05	-	0.15	-	-
Mesityl oxide	15	60	25	100	-	-

Methacrylic acid	20	70	30	105	-	-
Methanethiol (Methyl mercaptan)	0.5	1	1.5	2.9	-	-
Methomyl (LannateR) - Skin	-	2.5	-	5	-	-
Methoxychlor	-	10	-	20	-	-
2-Methoxyethanol - Skin (Methyl CellosolveR)	25	78	35	115	-	-
Methyl acetate	200	605	250	760	-	-
Methyl acetylene (Propyne)	1000	1638	1250	2048	-	-
Methyl acetylene-propadiene mixture (MAPP)	1000	1800	1250	2250	-	-
Methyl acrylate - Skin	10	35	20	70	-	-
Methyl acrylonitrile - Skin	1	2.7	2	5.5	-	-
Methylal (Dimethoxy-methane)	1000	3112	1250	3891	-	-
Methyl alcohol (Methanol) - Skin	200	262	250	328	-	-
Methylamine	10	12	20	25	-	-
Methyl amyl alcohol (Methyl isobutyl carbinol) - Skin	25	105	40	167	-	-
Methyl isoamyl ketone	100	466	150	700	-	-
Methyl n-amyl ketone (2-Heptanone)	50	235	100	465	-	-
Methyl bromide - Skin	5	20	15	58	-	-
Methyl n-butyl ketone (2-Hexanone) - Skin	5	20	10	40	-	-
Methyl CellosolveR (2-Methoxyethanol) - Skin	25	78	35	115	-	-
Methyl CellosolveR acetate (Ethylene glycol monomethyl ether acetate) - Skin	25	121	35	170	-	-
Methyl chloride	50	102	100	205	-	-
Methyl chloroform (1,1,1-Trichloroethane)	350	1910	450	2455	-	-
Methyl 2-cyanoacrylate	2	9	4	18	-	-
Methylcyclo-hexane	400	1600	500	2000	-	-
Methylcyclo-hexanol	50	235	75	350	-	-
o-Methylcyclohexanone - Skin	50	230	75	345	-	-
Methylcyclo-pentadienyl manganese tricarbonyl (as Mn) - Skin	-	0.2	-	0.6	-	-
Methyl demeton - Skin	-	0.5	-	1.5	-	-
Methylene bisphenyl-isocyanate (MDI)	0.005	0.051	-	-	0.02	-
Methylene chloride (Dichloro-methane)	100	347	500	1737	-	-
4,4'-Methylene bis (2-chloroaniline) - (MOCA) - Skin	0.02	0.22	0.06	0.66	-	-
Methylene bis (4-cyclohexyl-isocyanate)	-	-	-	-	0.01	0.1
4,4-Methylene dianiline - Skin	0.1	0.8	0.5	4	-	-

Methyl ethyl ketone (MEK) (2-Butanone)	200	590	300	885	-	-
Methyl ethyl ketone peroxide	-	-	-	-	0.2	1.4
Methyl formate	100	255	150	385	-	-
5-Methyl-3-heptanone (Ethyl amyl ketone)	25	131	38	196	-	-
Methyl hydrazine - Skin	-	-	-	-	0.2	0.38
Methyl iodide - Skin	2	12	5	29	-	-
Methyl isobutyl carbinol - Skin	25	105	40	167	-	-
Methyl isobutyl ketone (Hexone) - Skin	50	205	75	300	-	-
Methyl isocyanate - Skin	0.02	0.05	0.06	0.15	-	-
Methyl isopropyl ketone	200	705	250	881	-	-
Methyl mercaptan	0.5	1	1.5	2.9	-	-
Methyl methacrylate	100	410	125	510	-	-
Methyl parathion - Skin	-	0.2	-	0.6	-	-
Methyl propyl ketone (2-Pentanone)	200	704	250	879	-	-
Methyl silicate	1	6	5	31	-	-
alpha-Methyl styrene	50	243	100	486	-	-
Molybdenum (as Mo)						
Soluble compounds	-	5	-	10	-	-
Insoluble compounds	-	10	-	20	-	-
Monocrotophos (AzodrinR)	-	0.25	-	0.75	-	-
Monomethyl aniline - Skin	2	8.8	4	18	-	-
Morpholine - Skin	20	70	30	105	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	mg/m ³
	ppm	mg/m ³	ppm	mg/m ³	ppm	
Naphthalene	10	52	15	79	-	-
Nickel carbonyl (as Ni)	0.05	0.34	0.15	0.1	-	-
Nickel metal	-	1	-	2	-	-
Nickel, soluble compounds (as Ni)	-	0.1	-	0.3	-	-
Nickel sulfide roasting, fume and dust (as Ni)	-	1	-	3	-	-
Nicotine - Skin	-	0.5	-	1.5	-	-
Nitric acid	2	5.2	4	10	-	-
Nitric oxide	25	31	35	43	-	-
p-Nitroaniline - Skin	1	5.6	2	11	-	-
Nitrobenzene - Skin	1	5	2	10	-	-

p-Nitrochloro-benzene - Skin	-	1	-	2	-	-
Nitroethane	100	307	150	460	-	-
Nitrogen dioxide	3	6	5	9.4	-	-
Nitrogen trifluoride	10	29	15	44	-	-
Nitroglycerin - Skin	0.02	0.19	0.05	0.46	-	-
Nitromethane	100	250	150	375	-	-
1-Nitropropane	25	91	35	128	-	-
2-Nitropropane	-	-	-	-	25	91
Nitrotoluene - Skin	5	28	10	56	-	-
Nitrotrichloro-methane (Chloropicrin)	0.1	0.67	0.3	2	-	-
Nitrous oxide	100	180	200	360	-	-
Nonane	200	1049	250	1311	-	-
Octachloro-naphthalene - Skin	-	0.1	-	0.3	-	-
Octane	300	1402	375	1752	-	-
Oil Mist, mineral	-	5	-	10	-	-
Osmium tetroxide (as Os)	0.0002	0.0021	0.0006	0.0063	-	-
Oxalic acid	-	1	-	2	-	-
Oxygen difluoride	0.05	0.11	0.15	0.33	-	-
Ozone	0.1	0.2	0.3	0.59	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	mg/m ³
	ppm	mg/m ³	ppm	mg/m ³	ppm	
Paraffin wax fume	-	2	-	6	-	-
Paraquat - respirable sizes	-	0.1	-	0.3	-	-
Parathion - Skin	-	0.1	-	0.3	-	-
Particulate polycyclic aromatic hydrocarbons (PPAH) as benzene solubles	-	0.2	-	0.6	-	-
Pentaborane	0.005	0.013	0.015	0.039	-	-
Pentachloronaphthalene	-	0.5	-	2	-	-
Pentachlorophenol - Skin	-	0.5	-	1.5	-	-
Pentane	600	1771	750	2213	-	-
2-Pentanone (Methyl propyl ketone)	200	704	250	879	-	-
Perchloroethylene - Skin	100	678	150	1017	-	-
Perchloromethyl mercaptan	0.1	0.62	0.3	1.85	-	-
Perchloryl fluoride	3	13	6	25	-	-
Phenol - Skin	5	19	10	38	-	-
Phenothiazine - Skin	-	5	-	10	-	-

p-Phenylene diamine - Skin	-	0.1	-	0.3	-	-
Phenyl ether (vapor)	1	7	2	14	-	-
Phenyl ether-Diphenyl mixture (vapor)	0.5	4	2	16	-	-
Phenylethylene (Styrene)	50	213	100	426	-	-
Phenyl glycidyl ether (PGE)	10	60	15	90	-	-
Phenylhydrazine - Skin	5	22	10	44	-	-
Phenyl mercaptan	0.5	2.3	1.5	6.8	-	-
Phenylphosphine	-	-	-	-	0.05	0.23
Phorate (ThimetR) - Skin	-	0.05	-	0.2	-	-
Phosdrin (MevinphosR) - Skin	0.01	0.092	0.03	0.27	-	-
Phosgene (Carbonyl chloride)	0.1	0.4	0.3	1.2	-	-
Phosphine	0.3	0.42	1	1.3	-	-
Phosphoric acid	-	1	-	3	-	-
Phosphorus (yellow)	-	0.1	-	0.3	-	-
Phosphorus pentachloride	0.1	1	0.3	3	-	-
Phosphorus pentasulfide	-	1	-	3	-	-
Phosphorus trichloride	0.5	2.8	1.5	8.4	-	-
Phthalic anhydride	1	6	4	24	-	-
m-Phthalodinitrile	-	5	-	10	-	-
Picloram (TordonT)	-	10	-	20	-	-
Picric acid - Skin	-	0.1	-	0.3	-	-
PivalR (2-Pivalyl-1,3-indandione) (Pindone)	-	0.1	-	0.3	-	-
Platinum metal	-	1	-	2	-	-
Platinum (Soluble salts) (as Pt)	-	0.002	-	0.006	-	-
Potassium hydroxide	-	-	-	-	-	2
Propargyl alcohol - Skin	1	2.3	3	6.9	-	-
beta-Propiolactone	0.5	1.5	1	3	-	-
Propionic acid	10	30	15	45	-	-
n-Propyl acetate	200	835	250	1040	-	-
Propyl alcohol - Skin	200	491	250	615	-	-
n-Propyl nitrate	25	107	40	172	-	-
Propylene dichloride (1,2-Dichloropropane)	75	345	115	510	-	-
Propylene glycol dinitrate (PGDN) - Skin	0.02	0.1	0.05	0.3	-	-
Propylene glycol monomethyl ether	100	360	150	540	-	-
Propylene imine - Skin	2	4.7	4	9.3	-	-
Propylene oxide	20	47	30	71	-	-
Propyne (Methyl-acetylene)	1000	1638	1250	2048	-	-
Pyrethrum	-	5	-	10	-	-
Pyridine	5	16	10	32	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Quinone	0.1	0.42	0.3	1.3	-	-
RDX (Cyclonite) - Skin	-	1.5	-	3	-	-
Resorcinol	10	45	20	90	-	-
Rhodium, Metal Fume and dusts (as Rh)	-	0.001	-	0.003	-	-
Soluble salts (as Rh)	-	0.1	-	0.3	-	-
Ronnel	-	10	-	20	-	-
Rosin core solder pyrolysis products (as formaldehyde)	-	0.1	-	0.3	-	-
Rotenone (commercial)	-	5	-	10	-	-
Rubber solvent (naphtha)	400	1600	500	2000	-	-
Selenium compounds (as Se)	-	0.2	-	0.6	-	-
Selenium hexafluoride (as Se)	0.05	0.4	0.15	1.2	-	-
SencorR (Metribuzin)	-	5	-	10	-	-
SevinR (Carbaryl)	-	5	-	10	-	-
Silica	see TABLE 3					
Silicon tetrahydride (Silane)	0.5	0.65	1	1.3	-	-
Silver, metal	-	0.1	-	0.3	-	-
Silver, soluble compounds (as Ag)	-	0.01	-	0.03	-	-
Sodium azide	-	-	-	-	0.1	0.27
Sodium bisulfite	-	5	-	10	-	-
Sodium, 2,4-dichlorophenoxy ethyl sulfate	-	10	-	20	-	-
Sodium fluoroacetate (1080) - Skin	-	0.05	-	0.15	-	-
Sodium hydroxide	-	-	-	-	-	2
Sodium metabisulphite	-	5	-	10	-	-
Stibine	0.1	0.51	0.3	1.5	-	-
Stoddard solvent	100	575	125	720	-	-
Strychnine	-	0.15	-	0.45	-	-
Styrene, monomer - Skin (Phenyl ethylene)	50	213	100	426	-	-
Subtilisins (Proteolytic enzymes as 100% pure crystalline enzyme)	-	-	-	-	-	0.00006
Sulphur dioxide	2	5	5	13	-	-

Sulphur hexafluoride	1000	5973	1250	7467	-	-
Sulphuric acid	-	1	-	3	-	-
Sulphur monochloride	1	5.5	3	17	-	-
Sulphur pentafluoride	0.025	0.26	0.075	0.78	-	-
Sulphur tetrafluoride	0.1	0.44	0.3	1.3	-	-
Sulphuryl fluoride	5	21	10	42	-	-
Systox (DemetonR) - Skin	0.01	0.11	0.03	0.32	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational Exposure Limit		15 minute Occupational Exposure Limit		Ceiling Occupational Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
2,4,5-T	-	10	-	20	-	-
Tantalum	-	5	-	10	-	-
TEDP - Skin	-	0.2	-	0.6	-	-
Tellurium and compounds (as Te)	-	0.1	-	0.3	-	-
Tellurium hexafluoride (as Te)	0.02	0.2	0.06	0.59	-	-
TEPP - Skin	0.004	0.047	0.01	0.12	-	-
Terphenyls	-	-	-	-	0.5	4.7
1,1,1,2-Tetrachloro-2,2-difluoroethane	500	4170	625	5210	-	-
1,1,2,2-Tetrachloro-1,2-difluoroethane	500	4170	625	5210	-	-
1,1,2,2-Tetrachloroethane - Skin	5	34	10	69	-	-
Tetrachloro-ethylene (Perchloro-ethylene)	100	678	150	1017	-	-
Tetrachloro-methane (Carbon tetrachloride) - Skin	5	32	20	126	-	-
Tetrachloro-naphthalene	-	2	-	4	-	-
Tetraethyl lead (as Pb) - Skin	-	0.1	-	0.3	-	-
Tetrahydrofuran	200	590	250	735	-	-
Tetramethyl lead (as Pb) - Skin	-	0.15	-	0.5	-	-
Tetramethyl succinonitrile - Skin	0.5	2.8	2	11	-	-
Tetranitro-methane	1	8	3	24	-	-
Tetrasodium pyrophosphate	-	5	-	10	-	-
Tetryl (2,4,6-Trinitrophenyl-Methylnitramine) - Skin -	1.5	-	3.0	-	-	-
Thallium, soluble compounds (as Tl) - Skin	-	0.1	-	0.3	-	-
4,4'-Thiobis(6-tert-butyl-m cresol)	-	10	-	20	-	-
Thioglycolic acid	1	3.8	3	11	-	-
ThiramR	-	5	-	10	-	-

Tin, inorganic compounds, except SnH and SnO (as Sn)	-	2	-	4	-	-
Tin, organic compounds (as Sn) - Skin	-	0.1	-	0.2	-	-
Toluene (Toluol) - Skin	100	375	150	560	-	-
Toluene-2,4-diisocyanate	0.005	0.04	-	-	0.02	0.14
o-Toluidine	5	22	10	44	-	-
Toxaphene (Chlorinated camphene) - Skin	-	0.5	-	1	-	-
Tributyl phosphate	0.2	2.2	0.4	4.4	-	-
Trichloroacetic acid	1	6	2	10	-	-
1,2,4-Trichlorobenzene	5	40	10	80	-	-
1,1,1-Trichloroethane (Methyl chloroform)	350	1910	450	2455	-	-
1,1,2-Trichloroethane - Skin	10	45	20	90	-	-
Trichloroethylene	100	537	150	806	-	-
Trichlorofluoromethane	1000	5619	1250	7024	-	-
Trichloromethane (Chloroform)	10	49	50	225	-	-
Trichloronaph-thalene	-	5	-	10	-	-
Trichloronitro-methane (Chloropicrin)	0.1	0.67	0.3	2	-	-
1,2,3-Trichloropropane - Skin	50	302	75	452	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	1000	7664	1250	9580	-	-
Tricyclohexyltin hydroxide (PlictranR)	-	5	-	10	-	-
Triethylamine	25	104	40	166	-	-
Trifluoromono-bromomethane	1000	6090	1200	7308	-	-
Trimellitic anhydride (TMA)	-	0.05	-	0.15	-	-
Trimethyl benzene	25	123	35	172	-	-
Trimethyl phosphite	0.5	2.5	-	7.6	-	-
2,4,6-Trinitrophenol (Picric acid) - Skin	-	0.1	-	0.3	-	-
2,4,6-Trinitrophenyl methylnitramine (Tetryl) - Skin	-	1.5	-	3.0	-	-
2,4,6-Trinitrotoluene (TNT) - Skin	-	-	-	-	-	0.5
Triorthocresyl phosphate	-	0.1	-	0.3	-	-
Triphenyl amine	-	5	-	10	-	-
Triphenyl phosphate	-	3	-	6	-	-
Tungsten & Compounds, (as W)						
Soluble	-	1	-	3	-	-
Insoluble	-	5	-	10	-	-
Turpentine	100	560	150	840	-	-

Table 2 (cont'd)

SUBSTANCE	8 hour Occupational	15 minute Occupational	Ceiling Occupational	
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	Exposure Limit		Exposure Limit		Exposure Limit	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Uranium (natural) soluble & insoluble compounds (as U)	-	0.2	-	0.6	-	-
Valeraldehyde	50	175	75	265	-	-
Vanadium, (V ₂ O ₅) (as V)						
Dust	-	0.5	-	1.5	-	-
Fume	-	-	-	-	-	0.05
Vinyl acetate	10	35	20	70	-	-
Vinyl benzene (Styrene)	50	213	100	426	-	-
Vinyl bromide	5	22	10	44	-	-
Vinyl chloride (Chloroethylene)	2	5.2	10	26	-	-
Vinyl cyanide (Acrylonitrile) - Skin	2	4.3	4	8.6	-	-
Vinyl cyclohexene dioxide	10	57	15	86	-	-
Vinylidene chloride	10	36	20	72	-	-
Vinyl toluene	50	242	100	483	-	-
VM & P Naphtha	300	1350	400	1800	-	-
Warfarin	-	0.1	-	0.3	-	-
Welding fumes (total particulate)	-	5	-	10	-	-
Wood dust, allergenic	-	2.5	-	5	-	-
Wood dust, nonallergenic	-	5	-	10	-	-
Xylene (o-, m-, p- isomers) - Skin	100	434	150	652	-	-
m-Xylene alpha, alpha'-diamine	-	-	-	-	-	0.1
Xylidine - Skin	5	25	10	50	-	-
Yttrium	-	1	-	3	-	-
Zinc chloride fume	-	1	-	2	-	-
Zinc chromate (as Cr)	-	0.05	-	0.15	-	-
Zinc oxide fume	-	5	-	10	-	-
Zirconium compounds (as Zr)	-	5	-	10	-	-

Table 3

	8 hours Occupational Respirable Mass mg/m ³	Exposure Limit Total Mass mg/m ³
Silica (SiO ₂)		
Amorphous	2	5
Cristobalite	0.05	0.15
Fused silica	0.1	0.3
Quartz	0.1	0.3
Silica flour	0.05	0.15
Tridymite	0.05	0.15

Tripoli	0.1	0.3
Aluminum oxide (Al ₂ O ₃)	5	10
Asbestos	see footnote 1	
Calcium carbonate	5	10
Calcium silicate	5	10
Cellulose (paper fibre)	5	10
Emery	5	10
Fibrous Glass	see footnote 2	
Graphite (synthetic)	5	10
Gypsum	5	10
Kaolin	5	10
Limestone	5	10
Marble	5	10
Magnesite	5	10
Mica	3	6
Mineral Wool Fibre	see footnote 2	
Nuisance particulate	5	10
Pentaerythritol	5	10
Perlite	5	10
Plaster of Paris	5	10
Portland Cement	5	10
Rouge	5	10
Silicon	5	10
Silicon carbide	5	10
Soapstone	3	6
Starch	5	10
Sucrose	5	10
Talc (fibrous)	see footnote 3	
Talc (nonasbestiform)	3	6
Tin oxide	5	10
Titanium dioxide	5	10
Zinc stearate	5	10
Zinc oxide dust	5	10

1 asbestos:

- (a) for asbestos fibre, except crocidolite, amosite and tremolite, the 8-hour Occupational Exposure Limit is two fibres greater than 5 micrometers in length per cm³ of air; the 15-minute Occupational Exposure Limit is 10 fibres greater than 5 micrometers in length per cm³ of air;
- (b) for crocidolite fibre, the 8-hour Occupational Exposure Limit is 0.2 fibres greater than 5 micrometers in length per cm³ of air; the 15-minute Occupational Exposure Limit is one fibre greater than 5 micrometers in length per cm³ of air;

- (c) for amosite and tremolite fibre, the 8-hour Occupational Exposure Limit is 0.5 fibres greater than 5 micrometers in length per cm^3 of air; the 15-minute Occupational Exposure Limit is 2.5 fibres greater than 5 micrometers in length per cm^3 of air;

2 fibrous glass or mineral wool fibre:

- (a) for fibrous glass or mineral wool fibre, the 8-hour Occupational Exposure Limit is three fibres per cm^3 of air;
- (b) fibres included in this count are those having a diameter equal to or less than 3.5 micrometers and a length equal to or greater than 10 micrometers;
- (c) the 8-hour Occupational Exposure Limit is 5 mg/m^3 (total mass).

3 talc (fibrous):

- (a) for fibrous talc, the 8-hour Occupational Exposure Limit is two fibres greater than 5 micrometers in length per cm^3 of air;
- (b) the 15-minute Occupational Exposure Limit is 10 fibres greater than 5 micrometers in length per cm^3 of air.

As made under the Mine Health and Safety Act, Mine Health and Safety Regulations

EXPOSURE LEVELS

9.19 The manager shall take all reasonable measures to ensure the noise levels at worksites in a mine do not exceed the exposure levels shown in Schedule 5 (Noise Exposure).

MEASUREMENTS OF NOISE LEVELS

9.20 (1) The manager shall ensure that a noise level survey is conducted at all worksites.

(2) The results of every noise level survey shall be given to the Committee and made available to an inspector.

(3) Where the noise is constant and measurements show noise levels in excess of 85 dBA, the area shall be clearly marked by signs indicating that hearing protection is required.

(4) In any area where the noise level may exceed 85 dBA, the manager shall ensure that effective procedures are provided to protect employees from any harmful effects of the noise and copies of the procedures are sent to the chief inspector and given to the Committee.

(5) Where personal noise dosimeters are used they shall have the following measurement specifications:

- (d) a noise measurement exchange rate of 3 dB;
- (e) a threshold level of 75 dBA or lower; and
- (f) if measurement is expressed as a percentage, a reading of 100% for an average exposure of noise equivalent to 85 dBA for eight hours (Lex).

[R-008-2003, s. 92]

9.21 Repealed. [R-008-2003, s. 93]

HEARING PROTECTION

9.22 (1) Subject to subsection (2), the selection of the type of hearing protection devices provided by the owner is a matter to be jointly decided by the manager and the Committee or, where there is no Committee in place, other representatives of the employees.

(2) Hearing protective devices shall be used in accordance with the recommendations of Table A1 (Selection of Hearing Protectors) in the standard CAN/CSA Z94.2-94, Hearing Protectors.

9.23 Where an inspector has reason to believe that the type of hearing protective device provided by the manager is unsuitable for use by the employee, the inspector may require the manager to provide an alternative type.

9.24 Every manager shall ensure that any mould of the auditory canal taken for manufacture of a hearing protective device shall be moulded for the employee by a qualified person and the initial fitting of the employee shall be done by a qualified person.

9.25 The manager shall develop and implement a hearing conservation program that shall include:

- (a) education of the employees;
- (b) noise surveys of worksites and equipment;
- (c) engineering and administrative controls;
- (d) hearing protection for employees;
- (e) audiometric testing; and
- (f) consultation with employees.

AUDIOMETRIC TESTING

9.26 (1) Every employee who works in an environment where the noise level is 80 dBA or greater shall, at the expense of the owner, be given an audiometric test for hearing acuity by a person who is certified, by a body acceptable to the chief inspector, to conduct such tests:

- (a) on commencing employment;
- (b) annually on the anniversary of commencing employment; and
- (c) at any other time when required by the manager or the chief inspector.

(2) The manager shall keep on file a record of the audiometric tests and the record shall be available for examination by an inspector.

(3) The manager shall give the results of an audiometric test of an employee to the employee within three days of receiving the results.

[R-008-2003, s. 94]

SCHEDULE 5 NOISE EXPOSURE

(Section 9.19)

1 (1) In this Schedule:

- (c) "steady state noise" means noise in which variations of peak pressure levels occur in one second or less; and
- (d) "impact noise" means noise in which variations of peak pressure levels occur at intervals greater than one second apart.

(2) For purposes of Table 2, an unweighted peak measurement may be used if an instrument is not available to measure a C-weighted peak.

2 (1) No person may be exposed without hearing protection to:

- (d) steady state noise over 109 dBA;
- (e) a maximum equivalent noise level exceeding 85 dBA for an eight hour shift, or exceeding the equivalent exposure level set out in Table 1; and
- (f) impact noise at a peak pressure level exceeding 140 dBC, or exceeding the maximum levels set out in Table 2.

(2) Where the maximum noise level permitted in paragraph (1)(a), (b) or (c) is exceeded at a worksite, a person shall be provided with and shall use the hearing protection recommended in Table A1 of the standard CAN/CSA Z94.2-94, *Hearing Protectors*.

Table 1 Exposure Limits Equivalent to 85 dBA/8 Hours Shift

Length of Exposure	Average Noise Level
16 hours	82 dBA
12 hours	83 dBA
10 hours	84 dBA
8 hours	85 dBA
4 hours	88 dBA
2 hours	91 dBA

1 hour	94 dBA
½ hour	97 dBA
1/4 hour	100 dBA

Table 2 Impact Noise Exposure Limits

Peak Pressure Level (decibels)	Maximum Permitted (impulses per eight hour day)
120	10,000
130	1,000
140	100
greater than 140	0

Yukon Territories

As made under the Occupational Health and Safety Act, Occupational Health Regulation

NOISE CONTROL

4 (1) When a worker's exposure to steady state noise or impact noise or both exceeds the permissible noise exposure levels the employer shall institute engineering controls to reduce the noise levels to or below the permissible values.

(2) All persons exposed to excessive noise levels shall be provided with and shall wear a hearing protection device.

(3) A worker's exposure to steady state and impact noise shall be limited to the following permissible values:

Steady State Noise

Noise Level (dBA)	Maximum Daily Exposure Time Without Hearing Protection (Hours)
85	8
88	4
91	2
94	1
97	½
100	1/4
over 103	0

Impact Noise

Peak Sound Pressure Level (dB)	Maximum Number of Impacts per 24-Hour Period
118	14400

121	7200
124	3600
127	1800
130	900
133	450
136	225
139	112
140	90
over 140	0

5 (1) Where muff type hearing protectors are worn, the worker shall be responsible for wearing hair and personal apparel in such a manner that the muff maintains an effective seal around the ears.

(2) Workers in any work area shall not wear muff type hearing protectors or headsets which have been designed or modified to accept AM or FM radio or other music sources.

(3) Subsection (2) does not apply to muff type hearing protectors designed and used for the express purpose of two-way radio or speech communication.

(4) Every employer shall post and maintain clearly worded warning signs at entrances to, or on the periphery of, areas where persons are exposed to noise levels in excess of the limits specified in these regulations; these signs shall clearly state that a noise hazard exists and shall describe the protective equipment required.

6 (1) In any place of employment at which workers are exposed to noise in excess of the criteria stated in these regulations, the employer shall be responsible for the establishment and maintenance of an audiometric test program for those workers routinely exposed to noise levels in excess of the following:

- (a) 80 dBA steady state noise for 8 hours; or
- (b) impact noise of:

Table

Peak Sound Pressure Level (dB)	Maximum Number of Impacts per 24-Hour Period
over 135	0
135	90
134	112
131	225
128	450
125	900
122	1800
119	3600

116	7200
113	14400

(2) The audiometric testing program shall include the following requirements:

- (a) every worker exposed to noise levels in excess of those listed in subsection (1) shall receive an annual audiometric examination;
- (b) each new worker who will be exposed to noise in excess of levels listed in clause (1) shall receive an audiometric examination within 6 months of the commencement of employment;
- (c) a worker shall receive additional periodic follow-up examinations in any of the following circumstances;
 - (i) where a worker has been exposed to an unusually loud noise, such as an explosion,
 - (ii) where an ear infection, head injury, or complaint related to the ear has occurred,
 - (iii) where an audiogram has been classified as "abnormal change".

(3) Each hearing test shall be administered by a physician, an audiologist or a certified audiometric technician.

(4) Audiometric tests shall be conducted within a facility where the octave band sound pressure levels do not exceed those specified in the following table:

Table

Octave-Band Centre Frequency	Octave-Band Sound Pressure Level (Decibels)
500	30
1000	30
2000	35
4000	42
8000	45

(5) Each initial hearing test shall include a personal medical history of the worker; such medical history records shall not be duplicated or copies kept by the employer and shall be maintained confidentially by the Director.

(6) Every employer conducting an audiometric testing program shall maintain a record of the audiometric test in respect of each worker, and shall keep a record of the test, for so long as the worker remains employed by that employer.

(7) The authorized tester shall record the hearing tests in a manner set by the Director and submit the test results to the Director; other persons may receive a copy of the test results with the permission of the worker:

- (i) where in the opinion of the person conducting the hearing surveillance program the hearing of a worker has been impaired by excessive exposure to sound,
- (ii) where audiometric examination of a worker discloses a hearing level in either ear averaging 25 decibels or more at 1,000, 2,000, 3,000 and 4,000 Hertz on a baseline audiogram,
- (iii) where audiometric examination of a worker discloses a threshold shift from the baseline audiogram of 15 decibels or more in either ear at any audiometric test frequency from 1,000 Hertz to 6,000 Hertz inclusive; the person conducting the audiometric testing program shall within 30 calendar days refer the worker to a supervising physician or to an audiologist engaged by the employer to conduct diagnostic tests and to review the worker's health history and the assessment of the worker's exposure to sound.

NOISE PREVENTION ACT

1 In this Act:

"premises" includes the land appertaining to a building or other structure and land that does not have any building or other structure located on it;

"sound amplification device" includes radios, televisions, record players, tape players, disc players, electronically amplified musical instruments and public address systems.

PERSON MAKING NOISE

2 Between the hours of 11 o'clock in the afternoon and seven o'clock of the forenoon next following, no person shall, by operating any sound amplification device, or by fighting, screaming, shouting, swearing, singing, or using insulting or obscene language, make in any premises or vehicle noise that disturbs the peace and quiet of persons outside the premises or vehicle in which the noise is made.

OWNER OR OCCUPIER OF PREMISES

3 (1) Between the hours of 11 o'clock in the afternoon and seven o'clock of the forenoon next following, no owner or occupier of premises or a vehicle shall permit any other person to make in the premises or vehicle, by operating any sound amplification device, or by fighting, screaming, shouting, swearing, singing, or using insulting or obscene language, noise that disturbs the peace and quiet of persons outside the premises or vehicle in which the noise is made.

(2) For the purposes of subsection (1):

- (a) a person whose name is shown on a certificate of title in the land titles office as an owner of an interest in land on which the premises are located shall be

presumed to be an owner of the premises in the absence of evidence to the contrary;

- (b) a person who is in possession of premises pursuant to a lease or tenancy agreement, whether written or not, shall be presumed to be an occupier of the premises in the absence of evidence to the contrary;
- (c) subject to paragraph (d), the person in whose name a motor vehicle is registered under the Motor Vehicles Act shall be presumed to be the owner of the vehicle in the absence of evidence to the contrary; and
- (d) in the case of a motor vehicle rented or leased from a person in the business of renting or leasing motor vehicles, the owner of the vehicle shall be presumed to be the person to whom the vehicle is rented or leased.

OFFENCE AND PENALTY

4 Every person who contravenes this Act commits an offence and is liable on summary conviction to a penalty not exceeding \$1,000 or to imprisonment for a term not exceeding six months, or to both fine and imprisonment.

ARREST

5 (1) If a peace officer has reasonable and probable grounds to believe and does believe that a person is committing an offence under this Act, the peace officer may arrest that person without warrant in order to establish the identity of the person, and shall release that person on establishing their identity.

(2) Subsection (1) shall not be construed to authorize a peace officer to enter without warrant a place that the peace officer may lawfully enter only with a warrant.

COMMAND TO STOP CONDUCT

6 (1) If a peace officer finds a person committing an offence against this Act the peace officer may command that person to stop the conduct that gives rise to the offence.

(2) A person who has been commanded under subsection (1) to stop conduct that gives rise to an offence against this Act shall stop the conduct.

INJUNCTION

7 The Minister or a person affected by a contravention of this Act may apply to a judge of the Supreme Court and the judge may grant an injunction to restrain a contravention of this Act.

NOT TO BAR CIVIL ACTION

8 Nothing in this Act limits or interferes with the right of any person to bring and maintain a civil action for damage occasioned by any noise or sound from a public address

system, loudspeaker, or amplifier or by any nuisance arising from that noise or sound.

Federal Sector

As made under the Canada Labour Code, Canada Occupational Safety and Health Regulations

LEVELS OF SOUND

7.1 In this Part:

"A-weighted sound pressure level" means a sound pressure level as determined by a measurement system which includes an A-weighting filter that meets the requirements set out in the International Electrotechnical Commission Standard 651 (1979), Sound Level Meters, as amended from time to time;

"dBA" means decibel A-weighted and is a unit of A-weighted sound pressure level;

"large truck" Repealed. [SOR/98-589, s. 1]

"noise exposure level (Lex,8)" means 10 times the logarithm to the base 10 of the time integral over any 24 hour period of a squared A- weighted sound pressure divided by 8, the reference sound pressure being 20 μ Pa;

"sound level meter" means a device for measuring sound pressure level that meets the performance requirements for a Type 2 instrument as specified in the International Electrotechnical Commission Standard 651 (1979), Sound Level Meters, as amended from time to time;

"sound pressure level" means 20 times the logarithm to the base 10 of the ratio of the root mean square pressure of a sound to the reference sound pressure of 20 μ Pa, expressed in decibels.

MEASUREMENT AND CALCULATION OF EXPOSURE

7.2 (1) For the purposes of this Part, the exposure of an employee to sound shall be measured using an instrument that:

- (a) is recommended for that measurement in clause 4.3 of CSA Standard CAN/CSA-Z107.56-M86, Procedures for the Measurement of Occupational Noise Exposure, as amended from time to time; and
- (b) meets the requirements for such an instrument set out in clause 4 of the Standard referred to in paragraph (a).

(2) The exposure of an employee to sound shall be measured in accordance with

clauses 5, 6.4.1, 6.4.4, 6.5.2, 6.5.4, 6.6.2 and 6.6.4 of the Standard referred to in paragraph (1)(a).

(3) For the purposes of this Part, the measurement and calculation of the noise exposure level (Lex,8) to which an employee is exposed shall take into account the exposure of the employee to A-weighted sound pressure levels of 74 dBA and greater.

(4) The measurement and calculation of the noise exposure level (Lex,8) referred to in subsection (3) may also take into account the exposure of the employee to A-weighted sound pressure levels that are less than 74 dBA.

HAZARD INVESTIGATION

7.3 (1) Where an employee in a work place may be exposed to an A- weighted sound pressure level equal to or greater than 84 dBA for a duration that is likely to endanger the employee's hearing, the employer shall, without delay:

- (a) appoint a qualified person to carry out an investigation of the degree of exposure; and
- (b) notify the work place committee or the health and safety representative of the investigation and the name of the person appointed to carry out the investigation.

(2) Repealed. [SOR/98-589, s. 2]

(3) For the purposes of subsection (1), the measurement of the A-weighted sound pressure level in a work place shall be performed instantaneously, during normal working conditions, using the slow response setting of a sound level meter.

(4) In the investigation referred to in subsection (1), the following matters shall be considered:

- (a) the sources of sound in the work place;
- (b) the A-weighted sound pressure levels to which the employee is likely to be exposed and the duration of such exposure;
- (c) the methods being used to reduce this exposure;
- (d) whether the exposure of the employee is likely to exceed the limits prescribed by section 7.4; and
- (e) whether the employee is likely to be exposed to a noise exposure level (Lex,8) equal to or greater than 84 dBA.

(5) On completion of the investigation and after consultation with the work place committee or the health and safety representative, the person appointed to carry out the investigation shall set out in a written report signed and dated by the person:

- (a) observations respecting the matters considered in accordance with subsection (4);

- (b) recommendations respecting the measures that should be taken in order to comply with sections 7.4 to 7.8; and
- (c) recommendations respecting the use of hearing protectors by employees who are exposed to a noise exposure level (Lex,8) equal to or greater than 84 dBA and not greater than 87 dBA.

(6) The report shall be kept by the employer at the work place in respect of which it applies for a period of ten years after the date of the report.

(7) Where it is stated in the report that an employee is likely to be exposed to a noise exposure level (Lex,8) equal to or greater than 84 dBA, the employer shall, without delay:

- (a) post and keep posted a copy of the report in a conspicuous place in the work place in respect of which it applies; and
- (b) provide the employee with written information describing the hazards associated with exposure to high levels of sound.

[SOR/98-589, s. 2; SOR/2002-208, s. 10]

LIMITS OF EXPOSURE

7.4 No employee in a work place shall, in any 24 hour period, be exposed to:

- (a) an A-weighted sound pressure level set out in column I of the schedule for a duration of exposure exceeding the applicable duration set out in column II; or
- (b) a noise exposure level (Lex 8) that exceeds 87 dBA.

[SOR/98-589, s. 3]

REDUCTION OF SOUND EXPOSURE

7.5 Insofar as is reasonably practicable, every employer shall, by engineering controls or other physical means other than hearing protectors, reduce the exposure to sound of employees to a level that does not exceed the limits prescribed by section 7.4.

[SOR/98-589, s. 4]

REPORT TO REGIONAL HEALTH AND SAFETY OFFICER

7.6 Where it is not reasonably practicable, without providing hearing protectors, for an employer to maintain the exposure to sound of an employee to whom section 7.4 applies at a level that does not exceed the limits prescribed by that section, the employer shall, without delay:

- (a) make a report in writing to the regional health and safety officer setting out the reasons why it is not reasonably practicable to do so; and
- (b) provide a copy of the report to the work place committee or the health and safety representative.

[SOR/98-589, s. 5; SOR/2002-208, ss. 11, 12]

HEARING PROTECTION

7.7 (1) Where an employer is required to make a report pursuant to section 7.6, the employer shall, as soon as is reasonably practicable, provide every employee whose exposure to sound is likely to exceed the limits prescribed by section 7.4 with a hearing protector that:

- (a) meets the requirements set out in CSA Standard Z94.2-M1984, Hearing Protectors, as amended from time to time; and
- (b) prevents the employee using the hearing protector from being exposed to a level of sound that exceeds the limits prescribed by section 7.4.

(2) Where an employer provides a hearing protector to an employee pursuant to subsection (1), the employer shall:

- (a) in consultation with the work place committee or the health and safety representative, formulate a program to train the employee in the fit, care and use of the hearing protector; and
- (b) implement the program.

(3) Every employer shall ensure that every person, other than an employee, to whom the employer grants access to a work place where the person is likely to be exposed to a level of sound that exceeds the limits set out in section 7.4 uses a hearing protector that meets the standard referred to in paragraph (1)(a).

[SOR/94-33, s. 3; SOR/98-589, s. 6;
SOR/2002-208, s. 13]

WARNING SIGNS

7.8 (1) At every work place where an employee may be exposed to an A-weighted sound pressure level greater than 87 dBA, the employer shall, at conspicuous locations within the work place, post and keep posted signs warning of a potentially hazardous level of sound in the work place.

(2) For the purposes of subsection (1), the measurement of the A-weighted sound pressure level in a work place shall be performed instantaneously, during normal working conditions, using the slow response setting of a sound level meter.

[SOR/98-589, s. 7]

AVIATION OCCUPATIONAL SAFETY AND HEALTH REGULATIONS

This document has been repealed and replaced by Aviation Occupational Health and Safety Regulations SOR/2011-87.

Maritime Occupational Safety and Health Regulations

APPLICATION

158 The following provisions do not apply in respect of vessels constructed before the day on which the MLC 2006 comes into force in Canada:

- (a) section 160; and
- (b) subsection 161(5).

INTERPRETATION

159 The following definitions apply in this Part:

"A-weighted sound pressure level" means a sound pressure level as determined by a measurement system which includes an A-weighting filter that meets the requirements set out in the International Electrotechnical Commission International Standard IEC 61672-1:2002(E), 1st edition 2002-2005 Electroacoustics - Sound Level Meters;

"dBA" means decibel A-weighted and is a unit of A-weighted sound pressure level;

"noise exposure level (Lex,8)" means 10 times the logarithm to the base 10 of the time integral over any 24-hour period of a squared A-weighted sound pressure divided by 8, the reference sound pressure being 20 µPa;

"sound level meter" means an instrument for measuring levels of sound and impulse sound that meets the standards set out in CSA Standard CAN/CSA-Z107.56-06, Procedures for the Measurement of Occupational Noise Exposure;

"sound pressure level" means 20 times the logarithm to the base 10 of the ratio of the root mean square pressure of a sound to the reference sound pressure of 20 µPa, expressed in decibels.

GENERAL

160 (1) Accommodation and recreational and catering facilities must be located as far as practicable from the engines, steering gear rooms, deck winches, ventilation, heating and air conditioning equipment and other noisy machinery and apparatus.

(2) Acoustic insulation or other appropriate sound-absorbing materials and self-closing noise-isolating doors for machinery spaces must be used in the construction and finishing of bulkheads, deckheads and decks within the sound-producing spaces.

(3) Engine rooms and other machinery spaces must be provided, wherever practicable, with soundproof centralized control rooms for engine-room personnel.

(4) Working spaces, such as the machine shop, must be insulated, as far as practicable, from the general engine-room noise and measures must be taken to reduce noise in the operation of machinery.

(5) Accommodation or recreational or catering facilities must not be exposed to excessive vibration.

LEVELS OF SOUND

161 (1) Subject to subsections (2) to (4), the level of sound in a work place must be less than 85 dB.

(2) Subject to subsection (3), if it is not reasonably practicable for an employer to maintain the level of sound in the work place at less than 85 dB, an employee must not be exposed in any 24-hour period:

- (a) to a level of sound set out in column 1 of the table to this section for a number of hours that is more than the number set out in column 2; or
- (b) to any combination of the different levels of sound set out in column 1 of the table to this section, if the number of hours of exposure to each level of sound divided by the maximum number of hours of exposure for that level per 24-hour period set out in column 2 of the table to this section is more than one.

(3) An employee must not be exposed to a continuous level of sound in crew accommodation that is more than 75 dB.

(4) If the level of impulse sound in a work place is more than 140 dB, the employer must provide every employee entering the work place with a hearing protector that:

- (a) meets the standards set out in CSA Standard CAN/CSA-Z94.2-02 (R2007), Hearing Protection Devices - Performance, Selection, Care and Use; and
- (b) reduces the peak level of impulse sound reaching the employee's ears to 140 dB or less.

(5) Unless otherwise specified, the limits for noise levels for working and crew accommodations must comply with the ILO international guidelines on exposure levels, including those in the ILO code of practice, entitled Ambient factors in the workplace, 2001, and, if applicable, the specific protection recommended by the IMO, and with any subsequent amending and supplementary instruments for acceptable noise levels on board vessels.

(6) A copy of the documents in English and in French referred to in subsection (5) must be kept on board the vessel and be made available to employees.

Maximum exposure to levels of sound in the work place

	Column 1	Column 2
Item	Levels of Sound in dB	Maximum Number of Hours of Exposure per Employee per 24-hour Period
1.	85 or more but not more than 90	8
2.	more than 90 but not more than 92	6
3.	more than 92 but not more than 95	4
4.	more than 95 but not more than 97	3
5.	more than 97 but not more than 100	2
6.	more than 100 but not more than 102	1.5
7.	more than 102 but not more than 105	1
8.	more than 105 but not more than 110	0.5
9.	more than 110 but not more than 115	0.25
10.	more than 115	0

HAZARD INVESTIGATION

162 (1) If it is not reasonably practicable for an employer to maintain the exposure of an employee to a level of sound at or below the levels referred to in section 161, the employer must:

- (a) appoint a qualified person to carry out an investigation of the degree of exposure;
- (b) notify the work place committee or the health and safety representative of the investigation and of the name of the person appointed to carry out the investigation; and
- (c) provide every employee entering the work place with a hearing protector that;
 - (i) meets the standards set out in CSA Standard CAN/CSA-Z94.2-02 (R2007), Hearing Protection Devices, Performance, Selection, Care and Use, and
 - (ii) reduces the level of sound reaching the employee's ears to less than 85 dB.

(2) For the purposes of subsection (1), the measurement of the A-weighted sound pressure level in a work place must be performed instantaneously, in normal working conditions, using the slow response setting of a sound level meter.

(3) During the investigation referred to in subsection (1), the following matters must be considered:

- (a) the sources of sound in the work place;
- (b) the A-weighted sound pressure levels to which the employee is likely to be exposed and the duration of that exposure;

- (c) the methods being used to reduce the exposure;
- (d) whether the exposure of the employee is likely to be more than the limits prescribed by section 161; and
- (e) whether the employee is likely to be exposed to a noise exposure level (Lex,8) equal to or greater than 85 dBA.

(4) On completion of the investigation and after consultation with the work place committee or the health and safety representative, as the case may be, the person appointed to carry out the investigation must set out in a written report signed and dated by the person:

- (a) observations respecting the matters considered under subsection (3);
- (b) recommendations respecting the measures that are to be taken in order to comply with section 161; and
- (c) recommendations respecting the use of hearing protectors by employees who are exposed to a noise exposure level (Lex,8) equal to or greater than 85 dBA and not greater than 87 dBA.

(5) The report must be kept by the employer at the work place where it applies for a period of 10 years after the day on which the report is submitted.

(6) If it is stated in the report that employees are likely to be exposed to a noise exposure level (Lex,8) equal to or greater than 85 dBA, the employer must, without delay:

- (a) post and keep posted a copy of the report in a conspicuous place in the work place where it applies; and
- (b) provide the employees with written information describing the hazards associated with exposure to high levels of sound.

SOUND LEVEL MEASUREMENT

163 The levels of sound must be measured by using the slow exponential-time-averaging characteristic and the A-weighting characteristic of a sound level meter.

WARNING SIGNS

164 In a work place where the level of sound is 85 dB or more, the employer must post signs warning persons entering the work place:

- (a) that there is a hazardous level of sound in the work place;
- (b) if applicable, of the maximum number of hours of exposure determined under subsection 161(2); and
- (c) if applicable, of the requirement to wear a hearing protector.

Oil and Gas Occupational Safety and Health Regulations

INTERPRETATION

8.1 In this Part, "sound level meter" means an instrument for measuring levels of sound and impulse sound that meets the standards set out in ANSI Standard ANSI SI.4-1983, *Specification for Sound Level Meters*, dated February 17, 1983 and is referred to in that Standard as type 0, 1 or 2.

LEVELS OF SOUND

8.2 (1) Subject to subsections (2) and (3) and sections 8.3 and 8.4, the level of sound in a work place shall be less than 85 dB.

(2) Where it is not reasonably practicable for an employer to maintain the level of sound in a work place at less than 85 dB, no employee shall be exposed in any 24 hour period to:

- (a) a level of sound referred to in column I of an item of the schedule to this Part for a number of hours exceeding the number set out in column II of that item; or
- (b) a number of different levels of sound referred to in column I of an item of the schedule to this Part, where the sum of the following quotients exceeds 1;
 - (i) the number of hours of exposure to each level of sound divided by,
 - (ii) the maximum number of hours of exposure per 24 hour period set out in column II of that item.

(3) Where it is not reasonably practicable for an employer to maintain the exposure of an employee to a level of sound at or below the levels referred to in subsection (1) or (2), the employer shall:

- (a) make a report in writing to the regional safety officer at the regional office setting out the reasons why the exposure cannot be so maintained; and
- (b) provide every employee entering the work place with a hearing protector that;
 - (i) meets the standards set out in CSA Standard Z94.2-M1984, *Hearing Protectors*, the English version of which is dated June 1984 and the French version of which is dated February 1985, and
 - (ii) reduces the level of sound reaching the employee's ears to less than 85 dB.

8.3 No employee shall be exposed in sleeping quarters to a level of sound of more than 75 dB.

8.4 Where the level of impulse sound in a work place exceeds 140 dB, the employer shall provide every employee entering the work place with a hearing protector that:

- (a) meets the standards set out in CSA Standard Z94.2-M1984, *Hearing Protectors*, the English version of which is dated June 1984 and the French version of which

- is dated February 1985; and
- (b) reduces the peak level of impulse sound reaching the employee's ears to 140 dB or less.

SOUND LEVEL MEASUREMENT

8.5 The levels of sound referred to in sections 8.2 and 8.3 shall be measured by using the slow exponential-time-averaging characteristic and the A-weighting characteristic of a sound level meter.

8.6 The level of impulse sound referred to in section 8.4 shall be measured by using the impulse exponential-time-averaging characteristic of a sound level meter.

WARNING SIGNS

8.7 In a work place where the level of sound is 85 dB or more where the peak level of impulse sound exceeds 140 dB, the employer shall post signs warning persons entering the work place:

- (a) that there is a hazardous level of sound or impulse sound in the work place;
- (b) if applicable, of the maximum number of hours of exposure determined under subsection 8.2(2); and
- (c) if applicable, of the requirement to wear a hearing protector.

MAXIMUM EXPOSURE TO LEVELS OF SOUND AT WORK PLACE (Subsection 8.2(2))

Table

Item	Column I	Column II
	Levels of Sound in dB	Maximum Number of Hours of Exposure per employee per 24 hour period
1.	85 or more but not more than 90	8
2.	more than 90 but not more than 92	6
3.	more than 92 but not more than 95	4
4.	more than 95 but not more than 97	3
5.	more than 97 but not more than 100	2
6.	more than 100 but not more than 102	1.5
7.	more than 102 but not more than 105	1

8.	more than 105 but not more than 110	0.5
9.	more than 110 but not more than 115	0.25
10.	more than 115	0

On Board Trains Occupational Safety and Health Regulations

INTERPRETATION

4.1 In this Part, "sound level meter" means an instrument for measuring levels of sound and impulse sound that meets the standards set out in American National Standards Institute Standard ANSI S1.4-1983, *Specification for Sound Level Meters*, dated February 17, 1983 and is referred to in that Standard as type 0, 1 or 2.

LEVELS OF SOUND

4.2 (1) Subject to subsections (2) and (3) and section 4.3, the level of sound in a work place shall be less than 87 dB.

(2) Subject to subsection (3), where it is not reasonably practicable for an employer to maintain the level of sound in the work place at less than 87 dB, no employee shall be exposed in any 24 hour period:

- (a) to a level of sound referred to in column I of an item of the schedule to this Part for a number of hours exceeding the number set out in column II of that item; or
- (b) to a number of different levels of sound referred to in column I of an item of the schedule to this Part, where the sum of the following quotients exceeds 1;
 - (i) the number of hours of exposure to each level of sound divided by,
 - (ii) the maximum number of hours of exposure per 24 hour period set out in column II of that item.

(3) Where it is not reasonably practicable for an employer to maintain the exposure of an employee to a level of sound at or below the levels referred to in subsection (1) or (2), the employer shall:

- (a) make a report in writing to the regional safety officer setting out the reasons why the exposure cannot be so maintained; and
- (b) provide every employee entering the work place with a hearing protector that;
 - (i) meets the standards set out in CSA Standard Z94.2-M1984, *Hearing Protectors*, the English version of which is dated June, 1984 and the French version of which is dated February, 1985, and
 - (ii) reduces the level of sound reaching the employee's ears to less than 87 dB.

[SOR/95-105, s. 7]

4.3 Where the level of impulse sound in a work place exceeds 140 dB, the employer shall provide every employee entering the work place with a hearing protector that:

- (a) meets the standards set out in CSA Standard Z94.2-M1984, *Hearing Protectors*, the English version of which is dated June, 1984 and the French version of which is dated February, 1985; and
- (b) reduces the peak level of impulse sound reaching the employee's ears to 140 dB or less.

SOUND LEVEL MEASUREMENT

4.4 The levels of sound referred to in section 4.2 shall be measured by using the slow exponential-time-averaging characteristic and the A-weighting characteristic of a sound level meter.

4.5 The level of impulse sound referred to in section 4.3 shall be measured by using the impulse exponential-time-averaging characteristic of a sound level meter.

WARNING SIGNS

4.6 Where in rolling stock that is a work place the level of sound is 87 dB or more or where the peak level of impulse sound exceeds 140 dB, the employer shall post signs in the rolling stock warning persons entering it:

- (a) that there is a hazardous level of sound or impulse sound in the rolling stock;
- (b) if applicable, of the maximum number of hours of exposure determined under subsection 4.2(2); and
- (c) if applicable, of the requirement to wear a hearing protector.

MAXIMUM EXPOSURE TO LEVELS OF SOUND AT WORK PLACE (Subsection 4.2(2))

Table

Item	Column I	Column II
	Levels of Sound in dB	Maximum Number of Hours of Exposure per Employee per 24 hour period
1.	87 or more but less than 90	8
2.	90 or more but less than 92	6
3.	92 or more but less than 95	4
4.	95 or more but less than 97	3
5.	97 or more but less than 100	2

6.	100 or more but less than 102	1.5
7.	102 or more but less than 105	1
8.	105 or more but less than 110	0.5
9.	110 or more but less than 115	0.25
10.	115 or more	0

Comments

See also:

Standards

CSA Z94.2-02, Hearing Protection Devices - Performance, Selection, Care, and Use

CSA Z94.2-1965, Hearing Protectors

CSA Z94.2-1974, Hearing Protectors

CSA Z94.2-94, Hearing Protectors

CSA Z94.2-M1984, Hearing Protectors

CSA Z107.1-1973, Specification for Sound Level Meters

CSA Z107.2-1973, Methods for the Measurement of Sound Pressure Levels

CSA Z107.4-1975, Pure Tone Audiometers for Limited Measurement of Hearing and for Screening

CSA Z107.4-M86, Pure Tone Air Conduction Audiometers for Hearing Conservation and for Screening

CSA Z107.5-1975, Octave, Half-Octave, and Third-Octave Band Filter Sets

CSA Z107.56-06, Procedures for the measurement of occupational noise exposure

CSA Z107.56-94, Procedures for the Measurement of Occupational Noise Exposure

CSA Z107.56-M86, Procedures for the Measurement of Occupational Noise Exposure

Prepared by:

Date:

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