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Occupational Health and Safety Act

R.R.O. 1990, REGULATION 841

Amended to O. Reg. 107/04

DESIGNATED SUBSTANCE — ETHYLENE OXIDE

Notice of Currency:* This document is up to date.

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This is the English version of a bilingual regulation.

1. In this Regulation,

“control program” means an ethylene oxide control program as required by this Regulation;
 (“programme de contrôle”)

“emergency program” means an ethylene oxide emergency program as required by this Regulation; (“programme d’urgence”)

“joint health and safety committee” includes a joint health and safety committee established under section 9 of the Act, or a committee of like nature or an arrangement, program or system in which the workers participate that conforms to subsection 9 (4) of the Act. (“comité mixte sur la santé et la sécurité”) R.R.O. 1990, Reg. 841, s. 1; O. Reg. 515/92, s. 1.

2. Ethylene oxide is prescribed as a designated substance. R.R.O. 1990, Reg. 841, s. 2.

3. (1) Subject to subsection (3), this Regulation applies to every employer and worker at a workplace where ethylene oxide is present.

(2) Subject to subsection (3), an employer to whom this Regulation applies shall take every precaution reasonable in the circumstances to ensure that every worker who is not an employee of the employer but who is working in the workplace of the employer and is exposed to ethylene oxide and whose health is likely to be affected thereby is protected and the worker shall comply with the requirements of the employer.

(3) Subsection (2) and sections 4 to 17 of this Regulation do not apply to an employer who primarily carries on the business of construction or to the workers of such an employer. R.R.O. 1990, Reg. 841, s. 3.

4. (1) Every employer shall take all necessary measures and procedures by means of engineering controls, work practices and hygiene practices and facilities to ensure that the time-weighted average exposure of a worker to airborne ethylene oxide is reduced to the lowest practical level and in any case does not exceed one part of ethylene oxide per million parts of air by volume or 1.8 milligrams of ethylene oxide per cubic metre of air.

(2) Despite subsection (1), an employer shall ensure that the exposure of a worker to

ethylene oxide does not exceed a short-term exposure concentration, measured over fifteen minutes, of ten parts of ethylene oxide per million parts of air by volume or 18 milligrams of ethylene oxide per cubic metre of air.

(3) Subject to section 5, every employer shall comply with subsections (1) and (2) without requiring a worker to wear and use respiratory equipment.

(4) The time-weighted average exposure of a worker to airborne ethylene oxide shall be calculated in accordance with the Schedule and the result of the calculation of the exposure may be certified by an inspector.

(5) Every worker shall comply with the work practices and hygiene practices of the control program or the emergency program for the workplace to which the program applies.

(6) On a prosecution for a failure to comply with subsection (1) or (2), it shall be a defence for an employer to prove that the employer has complied with subsection (1) or (2) and that a breach of subsection (1) or (2) occurred solely because a worker failed to work in compliance with the work practices and hygiene practices of the control program or the emergency program for the workplace and the employer has taken every precaution reasonable in the circumstances to require the worker to do so. R.R.O. 1990, Reg. 841, s. 4.

5. (1) Where the strict duty imposed by subsection 4 (1) or (2) cannot be complied with because,

- (a) an emergency exists; or
- (b) the measures and procedures necessary to control the exposure of a worker to airborne ethylene oxide,
 - (i) do not exist or are unavailable,
 - (ii) are not reasonable or practical for the length of time or frequency of exposure or the nature of the process, operation or work, or
 - (iii) are not effective because of a temporary breakdown of equipment,

the employer shall provide a worker with respiratory equipment which shall be used by the worker.

(2) Where a worker is exposed to airborne ethylene oxide, the worker may request a respirator regardless of the level of exposure and the respirator shall be provided by the employer and used by the worker.

(3) Where respiratory equipment is provided by an employer and used by a worker, the respiratory equipment,

- (a) shall be appropriate in the circumstances for the concentration of airborne ethylene oxide;
- (b) shall meet or exceed the requirements set out in the *Code for Respiratory Equipment for Ethylene Oxide* dated the 28th day of February, 1986 and issued by the Ministry; and
- (c) shall be used in accordance with the requirements of the Code.

(4) The employer shall provide training and instruction to a worker in the proper care and use of respiratory equipment provided by the employer. R.R.O. 1990, Reg. 841, s. 5.

6. (1) Every employer to whom this Regulation applies shall cause an assessment to be made in writing of the exposure or likelihood of exposure in a workplace of a worker to the inhalation, absorption or contact with ethylene oxide.

(2) In causing the assessment to be made, the employer shall consider and take into account such matters as,

- (a) the methods and procedures used or to be used in the production, processing, use, handling or storage of ethylene oxide;
- (b) the extent and potential extent of the exposure of a worker to the inhalation, absorption or contact with ethylene oxide; and
- (c) the measures and procedures necessary to control such exposure by means of engineering controls, work practices and hygiene practices and facilities.

(3) In causing the assessment to be made, the employer shall consult thereon with the joint health and safety committee and the committee may make recommendations with respect to the assessment.

(4) A copy of the assessment made by an employer shall be given by the employer to each member of the joint health and safety committee. R.R.O. 1990, Reg. 841, s. 6.

7. (1) Except where section 8 applies, if an assessment discloses or would disclose, if made in conformity with section 6, that a worker is likely to inhale, absorb or come into contact with ethylene oxide and that the health of the worker may be affected thereby, the employer shall develop, establish, put into effect and maintain measures and procedures to control the exposure of workers to ethylene oxide and shall incorporate the same into an ethylene oxide control program.

(2) The control program shall include provisions for,

- (a) engineering controls, work practices and hygiene practices and facilities to control the exposure of a worker to ethylene oxide;
- (b) methods and procedures to monitor the concentrations of airborne ethylene oxide in the workplace and the exposure of a worker thereto;
- (c) personal records of the exposure of a worker to ethylene oxide at the workplace, including the time-weighted average exposure of the worker and of the concentrations of ethylene oxide and the times in which such concentrations were taken to be representative of the exposure of the worker and used in calculating the average exposure to be maintained by the employer; and
- (d) a training program for supervisors and workers on the health effects of ethylene oxide and the measures and procedures required under the control program.

(3) In developing the measures and procedures mentioned in subsection (1) and the control program, the employer shall consult with the joint health and safety committee and the committee may make recommendations with respect thereto. R.R.O. 1990, Reg. 841, s. 7.

8. (1) Where ethylene oxide is handled or stored only in closed cylinders and is not otherwise present in the workplace and an assessment discloses or would disclose, if made in conformity with section 6, that a worker is likely to inhale, absorb or come into contact with

ethylene oxide in the case of an accident or leak and that the health of the worker may be affected thereby, the employer shall develop, establish, put into effect and maintain measures and procedures to protect workers in case of an accident or leak and shall incorporate the same into an emergency program.

(2) The emergency program shall include provisions for,

- (a) identifying, by means of easily visible warning signs, each area where an ethylene oxide cylinder is present;
- (b) an effective evacuation system;
- (c) the location and supply of respiratory equipment to be used during an emergency;
- (d) the testing and evaluation, where practical, of the atmosphere to determine the presence or absence of ethylene oxide during and following an emergency; and
- (e) a training program to familiarize supervisors and workers with the health effects of ethylene oxide and the measures and procedures to be taken in case of an emergency.

(3) In developing the measures and procedures mentioned in subsection (1) and the emergency program, the employer shall consult with the joint health and safety committee and the committee may make recommendations with respect thereto. R.R.O. 1990, Reg. 841, s. 8.

9. Where a change is made in a process involving ethylene oxide or in the methods and procedures in the production, use, handling or storage of ethylene oxide and the change could result in a significant difference in the exposure of a worker to the inhalation, absorption or contact with ethylene oxide, the employer shall cause a further assessment to be made forthwith and the provisions of sections 6 and 7 or sections 6 and 8 apply to the further assessment. R.R.O. 1990, Reg. 841, s. 9.

10. (1) Where disputes arise between an employer and a joint health and safety committee as to,

- (a) the assessment required under section 6 or 9;
- (b) the measures and procedures mentioned in subsection 7 (1) or 8 (1);
- (c) the control program or its provisions required under section 7 or 9; or
- (d) the emergency program or its provisions required under section 8 or 9,

the employer, a member of the joint health and safety committee or the committee may notify an inspector thereof who shall investigate and give a decision in writing to the employer, the member and the committee.

(2) Nothing in subsection (1) applies so as to affect the power of an inspector to issue an order for a contravention of this Regulation. R.R.O. 1990, Reg. 841, s. 10.

11. (1) A copy of the control program or the emergency program put into effect by an employer shall be given by the employer to each member of the joint health and safety committee and the employer shall acquaint every worker affected by the control program or the emergency program with its provisions.

(2) A copy of the control program or the emergency program put into effect by the employer shall be made available by the employer in English and in the majority language of the

workplace. R.R.O. 1990, Reg. 841, s. 11.

12. Subject to section 17, the procedures for monitoring, sampling and determining the concentrations of airborne ethylene oxide in the atmosphere of a workplace and the exposure of a worker thereto shall be those set out in the Code for Measuring Airborne Ethylene Oxide dated the 28th day of February, 1986 and issued by the Ministry. R.R.O. 1990, Reg. 841, s. 12.

13. The results of monitoring the concentrations of airborne ethylene oxide in the workplace and the exposure of a worker thereto as provided by the control program shall be,

- (a) posted forthwith by the employer, as soon as the results are available, in a conspicuous place or places at the workplace where they are most likely to come to the attention of the workers affected thereby, and the employer shall keep the results posted for a period of at least fourteen days;
- (b) furnished to the joint health and safety committee; and
- (c) kept by the employer for a period of at least five years. R.R.O. 1990, Reg. 841, s. 13.

14. (1) The record of exposure of a worker to airborne ethylene oxide at a workplace required under a control program shall identify the worker, including the worker's date of birth, the worker's jobs or occupations at the workplace, the results of monitoring for exposure to airborne ethylene oxide in the worker's work area and the use by the worker of respiratory equipment and its type.

(2) The employer shall keep the records referred to in subsection (1) in a secure place for the longer of,

- (a) forty years from the time such records were first made with respect to the worker; or
- (b) twenty years from the time the last of such records were made with respect to the worker. R.R.O. 1990, Reg. 841, s. 14 (1, 2).

(3) If the employer is unable to keep the records referred to in subsection (1), the employer shall forward them to the Provincial Physician, Ministry of Labour, who shall keep them until the end of the period described in subsection (2). R.R.O. 1990, Reg. 841, s. 14 (3); O. Reg. 515/92, s. 2.

15. (1) Subject to subsection (2), where a worker has been exposed to ethylene oxide and,

- (a) the worker or the worker's physician has reason to believe that the worker's health may be affected by the exposure and the worker or the worker's physician has notified the employer;
- (b) the employer has reason to believe that the worker's health may be affected by the exposure and the employer has so notified the worker; or
- (c) the Provincial Physician, Ministry of Labour, so requires,

the worker shall, at the expense of the employer, undergo medical examinations and clinical tests to determine whether the worker has an occupational illness because of the exposure and whether the worker is fit, fit with limitations or unfit to continue working in ethylene oxide exposure. R.R.O. 1990, Reg. 841, s. 15 (1); O. Reg. 515/92, s. 3.

(2) A notice under clause (1) (a) or (b) shall be in writing and a notice under clause (1) (b) shall notify the worker that the worker may dispute whether he or she must undergo medical examinations and clinical tests by giving notice of the dispute to an inspector.

(3) Where a dispute arises between an employer and a worker under clause (1) (a) or (b) as to whether a worker must undergo medical examinations or clinical tests, the employer or the worker may notify an inspector thereof who shall cause an investigation to be made and give a decision in writing to the employer and the worker.

(4) The employer shall provide the physician who examines the worker or under whose supervision clinical tests are performed with a copy of the records, if any, of the exposure of the worker to ethylene oxide. R.R.O. 1990, Reg. 841, s. 15 (2-4).

16. (1) A physician conducting a medical examination or clinical tests under section 15 shall advise the employer, who shall act thereon, and the worker whether the worker is fit or, because of a condition resulting from exposure to ethylene oxide, is fit with limitations or unfit for work in ethylene oxide exposure without giving or disclosing to the employer the records or results of the examination or tests. R.R.O. 1990, Reg. 841, s. 16 (1).

(2) Where a worker is removed from ethylene oxide exposure because a medical examination or clinical test under section 15 discloses that the worker may have or has a condition resulting from exposure to ethylene oxide and suffers a loss of earnings occasioned thereby, the worker is entitled to compensation for the loss in the manner and to the extent provided by the Workplace Safety and Insurance Act, 1997. R.R.O. 1990, Reg. 841, s. 16 (2); O. Reg. 107/04, s. 1.

(3) Upon advising the employer and the worker that a worker, because of a condition resulting from exposure to ethylene oxide, is fit with limitations or unfit for work in ethylene oxide exposure, the physician shall advise in writing upon a confidential basis the joint health and safety committee thereof and in giving such advice shall indicate his or her opinion as to the interpretation to be placed thereon. R.R.O. 1990, Reg. 841, s. 16 (3).

(4) Where the physician advises the employer that a worker, because of a condition resulting from exposure to ethylene oxide, is fit with limitations or is unfit for work in ethylene oxide exposure, the physician shall forthwith communicate that advice to the Provincial Physician, Ministry of Labour. R.R.O. 1990, Reg. 841, s. 16 (4); O. Reg. 515/92, s. 4.

17. For the purposes of this Regulation, the methods and procedures that may be used or adopted may vary from the Codes issued by the Ministry if the protection afforded thereby or the factors of accuracy and precision used or adopted are equal to or exceed the protection or the factors of accuracy and precision in the Codes issued by the Ministry. R.R.O. 1990, Reg. 841, s. 17.

SCHEDULE

The time-weighted average exposure of a worker to airborne ethylene oxide shall be calculated for a forty-hour week and an eight-hour day as follows:

1. The average concentrations of ethylene oxide to which a worker is exposed shall be determined from analyses of air samples taken as being representative of the exposure of the worker to ethylene oxide during work operations as set out in the Code mentioned in section 12.

2. The results of the analyses are the concentrations of ethylene oxide expressed as parts ethylene oxide per million parts of air by volume or as milligrams ethylene oxide per cubic metre of air.
3. The concentrations shall be multiplied by the time in hours to which the worker is taken to be exposed to such concentrations.
4. The weekly exposure shall be calculated as follows:

$$C_1T_1 + C_2T_2 + \dots + C_nT_n = \text{cumulative weekly exposure}$$

where,

C_1 is the concentration found in an air sample, and

T_1 is the total time in hours to which the worker is taken to be exposed to concentration C_1 in a week.

5. The weekly time-weighted average exposure shall be calculated by dividing the cumulative weekly exposure by 40.
6. The daily exposure shall be calculated as follows:

$$C_1T_1 + C_2T_2 + \dots + C_nT_n = \text{cumulative daily exposure}$$

where,

C_1 is the concentration found in an air sample, and

T_1 is the total time in hours to which the worker is taken to be exposed to concentration C_1 in a day.

7. The daily time-weighted average exposure shall be calculated by dividing the cumulative daily exposure by 8.

R.R.O. 1990, Reg. 841, Sched.

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