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Occupational Health and Safety Act

R.R.O. 1990, REGULATION 840

Amended to O. Reg. 106/04

DESIGNATED SUBSTANCE — COKE OVEN EMISSIONS

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

*This notice is usually current to within two business days of accessing this document. For more current amendment information, see the [Table of Regulations – Legislative History Overview](#).

This is the English version of a bilingual regulation.

1. In this Regulation,

“coke oven emissions” means the benzene soluble fraction of total particulate matter (BSFTPM) of the substances emitted into the atmosphere from metallurgical coke ovens including condensed vapours and solid particulates; (“fumées de four à coke”)

“joint health and safety committee” includes a joint health and safety committee established under section 9 of the Act, a committee of like nature and the workers or their representatives who participate in an arrangement, program or system conforming to subsection 9 (4) of the Act; (“comité mixte sur la santé et la sécurité”)

“metallurgical coke ovens” means a coke oven battery, including topside and its machinery, coke side and its machinery, pusher side and its machinery, the battery ends, the wharf and the screening station. (“fours à coke métallurgique”) R.R.O. 1990, Reg. 840, s. 1.

2. Coke oven emissions are prescribed as a designated substance. R.R.O. 1990, Reg. 840, s. 2.

3. (1) Subject to subsection (3), this Regulation applies to every employer and worker who works at a metallurgical coke oven and who is likely to be exposed to coke oven emissions.

(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 coke oven emissions 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 18 of this Regulation do not apply to a constructor, an employer who is carrying out a project or a worker working on or at a project. R.R.O. 1990, Reg. 840, 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 coke oven emissions shall not exceed 0.15 milligrams coke oven emissions per cubic metre of air.

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

(3) The time-weighted average exposure of a worker to coke oven emissions shall be calculated in accordance with Schedule 1 and the result of the calculation of the exposure may be certified by an inspector.

(4) Every worker shall work in compliance with the work practices and hygiene practices in accordance with the provisions of the coke oven emissions control program.

(5) On a prosecution for a failure to comply with subsection (1), it shall be a defence for an employer to prove that the employer has complied with subsection (1) and that a breach of subsection (1) occurred solely because a worker failed to work in compliance with the work practices and hygiene practices in accordance with the provisions of the coke oven emissions control program and the employer has taken every precaution reasonable in the circumstances to require the worker to do so. R.R.O. 1990, Reg. 840, s. 4.

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

- (a) an emergency exists; or
- (b) the measures and procedures necessary to control the exposure of a worker to coke oven emissions,
 - (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 respiratory equipment is provided by an employer and used by a worker, the respiratory equipment shall be appropriate in the circumstances for the concentration of coke oven emissions and shall meet or exceed the requirements set out in the *Code for Respiratory Equipment for Coke Oven Emissions* dated the 30th day of June, 1982, and issued by the Ministry.

(3) 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. 840, 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 of a worker to coke oven emissions.

(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 metallurgical coking operations;
- (b) the extent and potential extent of the exposure of a worker to coke oven emissions; 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. 840, s. 6.

7. (1) Where the assessment discloses or would, if made in conformity with section 6, disclose that a worker is likely to be exposed to coke oven emissions 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 the worker to coke oven emissions and shall incorporate the same into a coke oven emissions control program.

(2) The coke oven emissions control program shall include provisions for,

- (a) engineering controls, work practices, and hygiene practices and facilities to include those set forth in Schedule 2 to control the exposure of a worker to coke oven emissions;
- (b) methods and procedures to monitor the concentrations of airborne coke oven emissions at the metallurgical coke ovens and the exposure of a worker thereto;
- (c) personal records of the exposure of a worker to coke oven emissions at the workplace including the time-weighted average exposure of the worker and of the concentrations of coke oven emissions 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;
- (d) medical examinations and clinical tests of a worker;
- (e) records of medical examinations and clinical tests of a worker to be maintained by a physician who has examined the worker or under whose direction the examination and tests have been performed;
- (f) a formal training program for supervisors and workers on the health effects of coke oven emissions and the measures and procedures required under the coke oven emissions control program;
- (g) personal protective clothing and equipment as required by the work; and
- (h) adequate eating, changing and washing facilities to minimize exposure to coke oven emissions.

(3) In developing the measures and procedures mentioned in subsection (1) and the coke oven emissions control program, the employer shall consult with the joint health and safety committee and the committee may make recommendations with respect to the same. R.R.O. 1990, Reg. 840, s. 7.

8. (1) Where engineering controls come into existence through the development of knowledge and technology and would, if adopted and implemented by an employer, reduce the exposure of a worker to or below the time-weighted average exposure limit prescribed by this

Regulation, the employer shall adopt and implement the engineering controls where it is reasonable or practical so to do.

(2) Where a change is made in metallurgical coking operations and the change could result in a significant difference in the exposure of a worker to coke oven emissions, the employer shall cause a further assessment to be made forthwith and the provisions of sections 6 and 7 apply to the further assessment. R.R.O. 1990, Reg. 840, s. 8.

9. (1) Where disputes arise between an employer and a joint health and safety committee as to an assessment required under section 6 or subsection 8 (2) or as to the measures and procedures mentioned in subsection 7 (1) or the coke oven emissions control program or its provisions required under section 7 or 8, 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, or 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. 840, s. 9.

10. (1) A copy of the coke oven emissions control program put into effect by the 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 coke oven emissions control program with its provisions.

(2) A copy of the coke oven emissions control 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. 840, s. 10.

11. Subject to section 17, the procedures for monitoring, sampling and determining the concentrations of coke oven emissions and the exposure of a worker thereto shall be those set out in the Code for Measuring Coke Oven Emissions dated the 30th day of June, 1982, and issued by the Ministry. R.R.O. 1990, Reg. 840, s. 11.

12. The results of monitoring for coke oven emissions and the exposure of a worker thereto as provided by the coke oven emissions 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, 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. 840, s. 12.

13. (1) A worker shall, at the expense of the employer, undergo the medical examinations and clinical tests required under the coke oven emissions control program.

(2) The medical examinations and clinical tests required under the coke oven emissions control program shall make provisions for,

- (a) pre-employment and pre-placement medical examinations to include,
 - (i) a medical history,

- (ii) a physical examination, and
 - (iii) clinical tests as required by the examining physician; and
- (b) periodic medical examinations and clinical tests consisting of the items prescribed by clause (a).

(3) The medical history, physical examination and clinical tests shall meet the provisions of the Code for Medical Surveillance of Workers Exposed to Coke Oven Emissions dated the 30th day of June, 1982, and issued by the Ministry. R.R.O. 1990, Reg. 840, s. 13.

14. (1) The records of the exposure of each worker to coke oven emissions to be maintained as provided by the coke oven emissions 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 coke oven emissions in the worker's work area and the use by the worker of respiratory equipment and its type.

(2) The employer shall provide a copy of the records of the exposures of the worker to coke oven emissions as provided by the coke oven emissions control program to the physician who examines the worker and under whose supervision the clinical tests of the worker are performed. R.R.O. 1990, Reg. 840, s. 14.

15. (1) The records of medical examinations and clinical tests of a worker obtained and made under this Regulation and of the exposures of the worker to coke oven emissions furnished by the employer under subsection 14 (2) shall be kept in a secure place by the physician who has conducted the examinations and tests or under whose supervision the examinations and tests have been made for the longer of,

- (a) the period of forty years from the time such records were first made; or
- (b) the period of twenty years from the time the last of such records were made. R.R.O. 1990, Reg. 840, s. 15 (1).

(2) Where the physician is no longer able or willing to keep the records, the records shall be forwarded to the Provincial Physician, Ministry of Labour, or to a physician designated by the Provincial Physician and the provisions of subsection (1) shall, with necessary modifications, apply thereto. R.R.O. 1990, Reg. 840, s. 15 (2); O. Reg. 512/92, s. 1.

16. (1) The physician conducting the physical examination or clinical tests or under whose supervision the examination or tests are made 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 coke oven emissions is fit with limitations or unfit for work in coke oven emissions exposure without giving or disclosing to the employer the records or results of the examination or tests, and in advising that the worker is fit with limitations or unfit, the physician shall be governed by the provisions of the Code for Medical Surveillance of Workers Exposed to Coke Oven Emissions referred to in subsection 13 (3). R.R.O. 1990, Reg. 840, s. 16 (1).

(2) Where a worker is removed from exposure to coke oven emissions because a physical examination or clinical test discloses that the worker may have or has a condition resulting from exposure to coke oven emissions 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. 840, s. 16 (2); O. Reg. 106/04, s. 1.

(3) Upon advising the employer and the worker that a worker because of a condition resulting from exposure to coke oven emissions is fit with limitations or unfit for work in coke oven emissions 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. 840, s. 16 (3).

(4) Copies of the exposure records and the records and results of physical examinations and clinical tests of a worker shall be given by the physician conducting the examinations or tests,

(a) to the worker or his or her physician upon the request in writing of the worker; and

(b) in the case of a deceased worker, to the next of kin or personal representative of the worker, upon the request in writing of such next of kin or personal representative,

and any authorization of another person by the worker or his or her next of kin or personal representative is of no effect. R.R.O. 1990, Reg. 840, s. 16 (4).

(5) Where the physician advises the employer that a worker, because of a condition resulting from exposure to coke oven emissions, is fit with limitations or is unfit for work in coke oven emissions exposure, the physician shall forthwith communicate such advice to the Provincial Physician, Ministry of Labour. R.R.O. 1990, Reg. 840, s. 16 (5); O. Reg. 512/92, s. 2.

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. 840, s. 17.

18. For the purposes of this Regulation, the engineering controls, work practices and hygiene practices and facilities that may be used or adopted may vary or differ from those set forth in Schedule 2 if the protection afforded thereby is equal to or exceeds the protection afforded by those set forth in Schedule 2. R.R.O. 1990, Reg. 840, s. 18.

SCHEDULE 1

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

1. The average concentrations of coke oven emissions to which a worker is exposed shall be determined from analyses of air samples representative of the exposure of the worker to coke oven emissions during work operations as set out in the Code mentioned in section 11.
2. The results of the analyses are the concentrations expressed as BSFTPM of coke oven emissions in milligrams 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. 840, Sched. 1.

SCHEDULE 2

The following controls, practices and facilities shall be included in a coke oven emissions control program pursuant to clause 7 (2) (a) of this Regulation:

I. Engineering Controls

1. Charging

(1) The charging operation shall be conducted in one of the following ways:

1. Stage charging.
2. Sequential charging.
3. Pipeline charging of preheated coal.
4. Chain conveyor charging of preheated coal.

(2) During the charging operation, provision shall be made for the following engineering controls:

1. Drafting from two or more points of the oven chamber by,
 - (i) a double collecting main;
 - (ii) a jumper pipe on the larry car or oven top; or
 - (iii) a separate charging main attached to the larry car.
2. A functional steam aspiration system.
3. Adjustable volumetric controls on the larry car hoppers to provide the appropriate quantity of coal to be charged so as to ensure an adequate free space

for gas evacuation.

4. Stainless steel hopper liners, mechanical vibrators or pneumatic stimulators to allow the proper flow of coal into the oven chamber.
5. Gooseneck and standpipe cleaners as is appropriate in the circumstances.
6. A leveller bar seal to the chuck door opening.
7. Carbon cutter or compressed air roof decarbonization on the pusher ram.

2.Coking

- (1) During the coking operation, provision shall be made for the following engineering controls:
 1. Backpressure control on each battery to ensure uniform collector main pressure.
 2. An adequate number of spare doors readily available and in good condition for the replacement of leaking doors when such replacement is appropriate in the circumstances.
 3. Chuck door gaskets or sealing material to be used when such use is appropriate in the circumstances.

II. Work Practices

1.Charging

- (1) During the charging operation, provision shall be made for the following work practices:
 1. Inspection and cleaning of goosenecks and standpipes prior to each charge to provide an appropriate open area for the passage of gases from the oven to the collecting main.
 2. Inspection and, when appropriate in the circumstances, the removal of roof carbon so as to ensure an adequate free space above the coal charge to allow for the passage of gases to the off-take system.
 3. Routine inspection of the steam aspiration system.
 4. Routine inspection of the flushing liquor sprays.
 5. Cleaning and sealing of standpipe caps as is appropriate in the circumstances.
 6. Filling of the larry car hoppers with an appropriate quantity of coal.
 7. Alignment of the larry car at the oven so that the drop sleeves fit tightly over the charging holes.
 8. Charging of the coal into the oven using the proper sequence for the type of charging operation utilized.
 9. The aspiration system to be turned off only when the charging holes have been closed.

2.Coking

- (1) During the coking operation, provision shall be made for the following work practices:
 1. Repair, replacement or adjustment of oven doors and chuck doors, as well as maintenance of door jambs, as is appropriate in the circumstances, to provide a

gas tight fit.

2. Clean oven doors, chuck doors and door jambs between each coking cycle to provide a gas tight fit.
3. An inspection system and a corrective action program to control door and top side emissions.

3. Pushing

(1) During the pushing operation, provision shall be made for the following work practices:

1. Coke spillage to be cleaned up after each push.
2. Coal spillage on the bench to be collected in the bin on the pusher machine.
3. Coal charge to be heated as uniformly as possible for the set time period before pushing.
4. Heating maintenance to be performed to provide heating which is as uniform as possible.

4. Maintenance and Repair

(1) In order to ensure adequate maintenance and repair, provision shall be made for the following work practices:

1. Regular inspection of all engineering controls which have been installed to decrease coke oven emissions and effective implementation of all necessary repairs thereto.
2. Regular inspection of battery function and prompt and effective implementation of necessary repairs thereto.

III. Hygiene Facilities

(1) Provision shall be made for the following hygiene facilities:

1. Positive pressure, temperature controlled, filtered air for the larry car, pusher machine, door machine and quench car cabs.
2. Positive pressure, temperature controlled, filtered air rest areas for workers.

R.R.O. 1990, Reg. 840, Sched. 2.

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