

§ 1910.1044 1,2-dibromo-3-chloropropane.

(a) *Scope and application.* (1) This section applies to occupational exposure to 1,2-dibromo-3-chloropropane (DBCP).

(2) This section does not apply to:

(i) Exposure to DBCP which results solely from the application and use of DBCP as a pesticide; or

(ii) The storage, transportation, distribution or sale of DBCP in intact containers sealed in such a manner as to prevent exposure to DBCP vapors or liquid, except for the requirements of paragraphs (i), (n) and (o) of this section.

(b) *Definitions.* *Authorized person* means any person required by his duties to be present in regulated areas and authorized to do so by his employer, by this section, or by the Act. *Authorized person* also includes any person entering such areas as a designated representative of employees exercising an opportunity to observe employee exposure monitoring.

DBCP means 1,2-dibromo-3-chloropropane, Chemical Abstracts Service Registry Number 96-12-8, and includes all forms of DBCP.

Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence such as, but not limited to equipment failure, rupture of containers, or failure of control equipment which may, or does, result in an unexpected release of DBCP.

OSHA Area Office means the Area Office of the Occupational Safety and Health Administration having jurisdiction over the geographic area where the affected workplace is located.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

(c) *Permissible exposure limit* —(1) *Inhalation.* The employer shall assure that no employee is exposed to an airborne concentration of DBCP in excess of 1 part DBCP per billion parts of air (ppb) as an 8-hour time-weighted average.

(2) *Dermal and eye exposure.* The employer shall assure that no employee is exposed to eye or skin contact with DBCP.

(d) [Reserved]

(e) *Regulated areas.* (1) The employer shall establish, within each place of employment, regulated areas wherever DBCP concentrations are in excess of the permissible exposure limit.

(2) The employer shall limit access to regulated areas to authorized persons.

(f) *Exposure monitoring* —(1) *General.* (i) Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to DBCP over an 8-hour period.

(ii) For the purposes of this paragraph, employee exposure is that exposure which would occur if the employee were not using a respirator.

(2) *Initial.* Each employer who has a place of employment in which DBCP is present, shall monitor each workplace and work operation to accurately determine the airborne concentrations of DBCP to which employees may be exposed.

(3) *Frequency.* (i) If the monitoring required by this section reveals employee exposures to be at or below the permissible exposure limit, the employer must repeat these measurements at least every 6 months.

(ii) If the monitoring required by this section reveals employee exposures to be in excess of the permissible exposure limit, the employer must repeat these measurements for each such employee at least quarterly. The employer must continue quarterly monitoring until at least two consecutive measurements, taken at least seven (7) days apart, are at or below the permissible exposure limit. Thereafter the employer must monitor at least every 6 months.

(4) *Additional.* Whenever there has been a production, process, control, or personnel change which may result in any new or additional exposure to DBCP, or whenever the employer has any reason to suspect new or additional exposures to DBCP, the employer shall monitor the employees potentially affected by such change for the purpose of redetermining their exposure.

(5) *Employee notification.* (i) The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

(ii) Whenever the results indicate that employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action being taken to reduce exposure to or below the permissible exposure limit.

(6) *Accuracy of measurement.* The employer shall use a method of measurement which has an accuracy, to a confidence level of 95 percent, of not less than plus or minus 25 percent for concentrations of DBCP at or above the permissible exposure limit.

(g) *Methods of compliance* —(1) *Priority of compliance methods.* The employer shall institute engineering and work practice controls to reduce and maintain employee exposures to DBCP at or below the permissible exposure limit, except to the extent that the employer establishes that such controls are not feasible. Where feasible engineering and work practice controls are not sufficient to reduce employee exposures to within the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest level achievable by these controls, and shall supplement them by use of respiratory protection.

(2) *Compliance program.* (i) The employer shall establish and implement a written program to reduce employee exposures to DBCP to or below the permissible exposure limit solely by means of engineering and work practice controls as required by paragraph (g)(1) of this section.

(ii) The written program shall include a detailed schedule for development and implementation of the engineering and work practice controls. These plans must be revised at least annually to reflect the current status of the program.

(iii) Written plans for these compliance programs shall be submitted upon request to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary, the Director, and any affected employee or designated representative of employees.

(iv) The employer shall institute and maintain at least the controls described in his most recent written compliance program.

(h) *Respiratory protection* —(1) *General.* For employees who are required to use respirators by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used

during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls.

(ii) Maintenance and repair activities for which engineering and work-practice controls are not feasible.

(iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the permissible exposure limit.

(iv) Emergencies.

(2) *Respirator program.* The employer must implement a respiratory protection program in accordance with §1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

(3) *Respirator selection.* Employers must:

(i) Select, and provide to employees, the appropriate atmosphere-supplying respirator specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.

(ii) Provide employees with one of the following respirator options to use for entry into, or escape from, unknown DBCP concentrations:

(A) A combination respirator that includes a supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure or continuous-flow mode, as well as an auxiliary self-contained breathing apparatus (SCBA) operated in a pressure-demand or positive-pressure mode.

(B) An SCBA with a full facepiece operated in a pressure-demand or other positive-pressure mode.

(i) *Emergency situations* —(1) *Written plans.* (i) A written plan for emergency situations shall be developed for each workplace in which DBCP is present.

(ii) Appropriate portions of the plan shall be implemented in the event of an emergency.

(2) Employees engaged in correcting emergency conditions shall be equipped as required in paragraphs (h) and (j) of this section until the emergency is abated.

(3) *Evacuation.* Employees not engaged in correcting the emergency shall be removed and restricted from the area and normal operations in the affected area shall not be resumed until the emergency is abated.

(4) *Alerting employees.* Where there is a possibility of employee exposure to DBCP due to the occurrence of an emergency, a general alarm shall be installed and maintained to promptly alert employees of such occurrences.

(5) *Medical surveillance.* For any employee exposed to DBCP in an emergency situation, the employer shall provide medical surveillance in accordance with paragraph (m)(6) of this section.

(6) *Exposure monitoring.* (i) Following an emergency, the employer shall conduct monitoring which complies with paragraph (f) of this section.

(ii) In workplaces not normally subject to periodic monitoring, the employer may terminate monitoring when two consecutive measurements indicate exposures below the permissible exposure limit.

(j) *Protective clothing and equipments* —(1) *Provision and use.* Where there is any possibility of eye or dermal contact with liquid or solid DBCP, the employer shall provide, at no cost to the employee, and assure that the employee wears impermeable protective clothing and equipment to protect the area of the body which may come in contact with DBCP. Eye and face protection shall meet the requirements of §1910.133 of

this part.

(2) *Removal and storage.* (i) The employer shall assure that employees remove DBCP contaminated work clothing only in change rooms provided in accordance with paragraph (1) (1) of this section.

(ii) The employer shall assure that employees promptly remove any protective clothing and equipment which becomes contaminated with DBCP-containing liquids and solids. This clothing shall not be reworn until the DBCP has been removed from the clothing or equipment.

(iii) The employer shall assure that no employee takes DBCP contaminated protective devices and work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(iv) DBCP-contaminated protective devices and work clothing shall be placed and stored in closed containers which prevent dispersion of the DBCP outside the container.

(v) Containers of DBCP contaminated protective devices or work clothing which are to be taken out of change rooms or the workplace for cleaning, maintenance or disposal, shall bear labels in accordance with paragraph (o)(3) of this section.

(3) *Cleaning and replacement.* (i) The employer shall clean, launder, repair, or replace protective clothing and equipment required by this paragraph to maintain their effectiveness. The employer shall provide clean protective clothing and equipment at least daily to each affected employee.

(ii) The employer shall inform any person who launders or clean DBCP-contaminated protective clothing or equipment of the potentially harmful effects of exposure to DBCP.

(iii) The employer shall prohibit the removal of DBCP from protective clothing and equipment by blowing or shaking.

(k) *Housekeeping* —(1) *Surfaces.* (i) All workplace surfaces shall be maintained free of visible accumulations of DBCP.

(ii) Dry sweeping and the use of compressed air for the cleaning of floors and other surfaces is prohibited where DBCP dusts or liquids are present.

(iii) Where vacuuming methods are selected to clean floors and other surfaces, either portable units or a permanent system may be used.

(a) If a portable unit is selected, the exhaust shall be attached to the general workplace exhaust ventilation system or collected within the vacuum unit, equipped with high efficiency filters or other appropriate means of contaminant removal, so that DBCP is not reintroduced into the workplace air; and

(b) Portable vacuum units used to collect DBCP may not be used for other cleaning purposes and shall be labeled as prescribed by paragraph (o)(3) of this section.

(iv) Cleaning of floors and other surfaces contaminated with DBCP-containing dusts shall not be performed by washing down with a hose, unless a fine spray has first been laid down.

(2) *Liquids.* Where DBCP is present in a liquid form, or as a resultant vapor, all containers or vessels containing DBCP shall be enclosed to the maximum extent feasible and tightly covered when not in use.

(3) *Waste disposal.* DBCP waste scrap, debris, containers or equipment, shall be disposed of in sealed bags or other closed containers which prevent dispersion of DBCP outside the container.

(1) *Hygiene facilities and practices* —(1) *Change rooms.* The employer shall provide

clean change rooms equipped with storage facilities for street clothes and separate storage facilities for protective clothing and equipment whenever employees are required to wear protective clothing and equipment in accordance with paragraphs (h) and (j) of this section.

(2) *Showers.* (i) The employer shall assure that employees working in the regulated area shower at the end of the work shift.

(ii) The employer shall assure that employees whose skin becomes contaminated with DBCP-containing liquids or solids immediately wash or shower to remove any DBCP from the skin.

(iii) The employer shall provide shower facilities in accordance with 29 CFR 1910.141(d)(3).

(3) *Lunchrooms.* The employer shall provide lunchroom facilities which have a temperature controlled, positive pressure, filtered air supply, and which are readily accessible to employees working in regulated areas.

(4) *Lavatories.* (i) The employer shall assure that employees working in the regulated area remove protective clothing and wash their hands and face prior to eating.

(ii) The employer shall provide a sufficient number of lavatory facilities which comply with 29 CFR 1910.141(d) (1) and (2).

(5) *Prohibition of activities in regulated areas.* The employer shall assure that, in regulated areas, food or beverages are not present or consumed, smoking products and implements are not present or used, and cosmetics are not present or applied.

(m) *Medical surveillance* —(1) *General.* (i) The employer shall make available a medical surveillance program for employees who work in regulated areas and employees who are subjected to DBCP exposures in an emergency situation.

(ii) All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

(2) *Frequency and content.* At the time of initial assignment, and annually thereafter, the employer shall provide a medical examination for employees who work in regulated areas, which includes at least the following:

(i) A medical and occupational history including reproductive history.

(ii) A physical examination, including examination of the genito-urinary tract, testicle size and body habitus, including a determination of sperm count.

(iii) A serum specimen shall be obtained and the following determinations made by radioimmunoassay techniques utilizing National Institutes of Health (NIH) specific antigen or one of equivalent sensitivity:

(a) Serum follicle stimulating hormone (FSH);

(b) Serum luteinizing hormone (LH); and

(c) Serum total estrogen (females).

(iv) Any other tests deemed appropriate by the examining physician.

(3) *Additional examinations.* If the employee for any reason develops signs or symptoms commonly associated with exposure to DBCP, the employer shall provide the employee with a medical examination which shall include those elements considered appropriate by the examining physician.

(4) *Information provided to the physician.* The employer shall provide the following information to the examining physician:

(i) A copy of this regulation and its appendices;

- (ii) A description of the affected employee's duties as they relate to the employee's exposure;
 - (iii) The level of DBCP to which the employee is exposed; and
 - (iv) A description of any personal protective equipment used or to be used.
- (5) *Physician's written opinion.* (i) For each examination under this section, the employer shall obtain and provide the employee with a written opinion from the examining physician which shall include:
- (a) The results of the medical tests performed;
 - (b) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at an increased risk of material impairment of health from exposure to DBCP; and
 - (c) Any recommended limitations upon the employee's exposure to DBCP or upon the use of protective clothing and equipment such as respirators.
- (ii) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.
- (6) *Emergency situations.* If the employee is exposed to DBCP in an emergency situation, the employer shall provide the employee with a sperm count test as soon as practicable, or, if the employee has been vasectomized or is unable to produce a semen specimen, the hormone tests contained in paragraph (m)(2)(iii) of this section. The employer shall provide these same tests three months later.
- (n) *Employee information and training* —(1) *Training program.* (i) The employer shall train each employee who may be exposed to DBCP in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.
- (ii) The employer shall assure that each employee is informed of the following:
- (a) The information contained in Appendix A;
 - (b) The quantity, location, manner of use, release or storage of DBCP and the specific nature of operations which could result in exposure to DBCP as well as any necessary protective steps;
 - (c) The purpose, proper use, and limitations of respirators;
 - (d) The purpose and description of the medical surveillance program required by paragraph (m) of this section; and
 - (e) A review of this standard, including appendices.
- (2) *Access to training materials.* (i) The employer shall make a copy of this standard and its appendices readily available to all affected employees.
- (ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.
- (o) *Signs and labels* —(1) *General.* (i) The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to or in combination with, signs and labels required by this paragraph.
- (ii) The employer shall assure that no statement appears on or near any sign or label required by this paragraph which contradicts or detracts from the required sign or label.
- (2) *Signs.* (i) The employer shall post signs to clearly indicate all regulated areas. These signs shall bear the legend:
- DANGER
1,2-Dibromo-3-chloropropane
(*Insert appropriate trade or common names*)

CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

(3) *Labels.* (i) The employer shall assure that precautionary labels are affixed to all containers of DBCP and of products containing DBCP in the workplace, and that the labels remain affixed when the DBCP or products containing DBCP are sold, distributed, or otherwise leave the employer's workplace. Where DBCP or products containing DBCP are sold, distributed or otherwise leave the employer's workplace bearing appropriate labels required by EPA under the regulations in 40 CFR Part 162, the labels required by this paragraph need not be affixed.

(ii) The employer shall assure that the precautionary labels required by this paragraph are readily visible and legible. The labels shall bear the following legend:

DANGER

1,2-Dibromo-3-chloropropane

CANCER HAZARD

(p) *Recordkeeping* —(1) *Exposure monitoring.* (i) The employer shall establish and maintain an accurate record of all monitoring required by paragraph (f) of this section.

(ii) This record shall include:

(a) The dates, number, duration and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure;

(b) A description of the sampling and analytical methods used;

(c) Type of respiratory protective devices worn, if any; and

(d) Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent.

(iii) The employer shall maintain this record for at least 40 years or the duration of employment plus 20 years, whichever is longer.

(2) *Medical surveillance.* (i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance required by paragraph (m) of this section.

(ii) This record shall include:

(a) The name and social security number of the employee;

(b) A copy of the physician's written opinion;

(c) Any employee medical complaints related to exposure to DBCP;

(d) A copy of the information provided the physician as required by paragraphs (m)(4)(ii) through (m)(4)(iv) of this section; and

(e) A copy of the employee's medical and work history.

(iii) The employer shall maintain this record for at least 40 years or the duration of employment plus 20 years, whichever is longer.

(3) *Availability.* (i) The employer shall assure that all records required to be maintained by this section be made available upon request to the Assistant Secretary and the Director for examination and copying.

(ii) Employee exposure monitoring records and employee medical records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020 (a) through (e) and (g) through (i).

(4) *Transfer of records.* (i) If the employer ceases to do business, the successor employer

shall receive and retain all records required to be maintained by paragraph (p) of this section for the prescribed period.

(ii) If the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall transmit these records by mail to the Director.

(iii) At the expiration of the retention period for the records required to be maintained under paragraph (p) of this section, the employer shall transmit these records by mail to the Director.

(iv) The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

(q) *Observation of monitoring* —(1) *Employee observation*. The employer shall provide affected employees, or their designated representatives, with an opportunity to observe any monitoring of employee exposure to DBCP required by this section.

(2) *Observation procedures*. (i) Whenever observation of the measuring or monitoring of employee exposure to DBCP requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with personal protective clothing or equipment required to be worn by employees working in the area, assure the use of such clothing and equipment, and require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring or measurement, observers shall be entitled to:

(a) Receive an explanation of the measurement procedures;

(b) Observe all steps related to the measurement of airborne concentrations of DBCP performed at the place of exposure; and

(c) Record the results obtained.

(r) *Appendices*. The information contained in the appendices is not intended, by itself, to create any additional obligations not otherwise imposed or to detract from any existing obligation.