

Does a list of the hazardous chemicals exist in each work area or at a central location?

Are methods the employer will use to inform employees of the hazards of non-routine tasks outlined?

Are employees informed of the hazards associated with chemicals contained in unlabeled pipes in their work areas?

On multi-employer worksites, has the employer provided other employers with information about labeling systems and precautionary measures where the other employers have employees exposed to the initial employer's chemicals?

Is the written program made available to employees and their designated representatives?

If your program adequately addresses the means of communicating information to employees in your workplace, and provides answers to the basic questions outlined above, it will be found to be in compliance with the rule.

5. Checklist for Compliance

The following checklist will help to ensure you are in compliance with the rule:

Obtained a copy of the rule. _____
Read and understood the requirements.

Assigned responsibility for tasks. _____
Prepared an inventory of chemicals. _____
Ensured containers are labeled. _____
Obtained MSDS for each chemical. _____
Prepared written program. _____
Made MSDSs available to workers. _____
Conducted training of workers. _____
Established procedures to maintain current program. _____
Established procedures to evaluate effectiveness. _____

6. Further Assistance

If you have a question regarding compliance with the HCS, you should contact your local OSHA Area Office for assistance. In addition, each OSHA Regional Office has a Hazard Communication Coordinator who can answer your questions. Free consultation services are also available to assist employers, and information regarding these services can be obtained through the Area and Regional offices as well.

The telephone number for the OSHA office closest to you should be listed in your local telephone directory. If you are not able to obtain this information, you may contact OSHA's Office of Information and Consumer Affairs at (202) 219-8151 for further assistance in identifying the appropriate contacts.

[59 FR 6170, Feb. 9, 1994, as amended at 59 FR 17479, Apr. 13, 1994; 59 FR 65948, Dec. 22, 1994; 61 FR 9245, Mar. 7, 1996]

§ 1910.1201 Retention of DOT markings, placards and labels.

(a) Any employer who receives a package of hazardous material which is required to be marked, labeled or placarded in accordance with the U. S. Department of Transportation's Hazardous Materials Regulations (49 CFR Parts 171 through 180) shall retain those markings, labels and placards on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.

(b) Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the Hazardous Materials Regulations shall retain those markings and placards on the freight container, rail freight car, motor vehicle or transport vehicle until the hazardous materials which require the marking or placarding are sufficiently removed to prevent any potential hazards.

(c) Markings, placards and labels shall be maintained in a manner that ensures that they are readily visible.

(d) For non-bulk packages which will not be reshipped, the provisions of this section are met if a label or other acceptable marking is affixed in accordance with the Hazard Communication Standard (29 CFR 1910.1200).

(e) For the purposes of this section, the term "hazardous material" and any other terms not defined in this section have the same definition as in the Hazardous Materials Regulations (49 CFR Parts 171 through 180).

[59 FR 36700, July 19, 1994]

§ 1910.1450 Occupational exposure to hazardous chemicals in laboratories.

(a) *Scope and application.* (1) This section shall apply to all employers engaged in the laboratory use of hazardous chemicals as defined below.

(2) Where this section applies, it shall supersede, for laboratories, the requirements of all other OSHA health standards in 29 CFR part 1910, subpart Z, except as follows:

(i) For any OSHA health standard, only the requirement to limit employee exposure to the specific permissible exposure limit shall apply for laboratories, unless that particular standard states otherwise or unless the conditions of paragraph (a)(2)(iii) of this section apply.

(ii) Prohibition of eye and skin contact where specified by any OSHA health standard shall be observed.

(iii) Where the action level (or in the absence of an action level, the permissible exposure limit) is routinely exceeded for an OSHA regulated substance with exposure monitoring and medical surveillance requirements, paragraphs (d) and (g)(1)(ii) of this section shall apply.

(3) This section shall not apply to:

(i) Uses of hazardous chemicals which do not meet the definition of laboratory use, and in such cases, the employer shall comply with the relevant standard in 29 CFR part 1910, subpart Z, even if such use occurs in a laboratory.

(ii) Laboratory uses of hazardous chemicals which provide no potential for employee exposure. Examples of such conditions might include:

(A) Procedures using chemically-impregnated test media such as Dip-and-Read tests where a reagent strip is dipped into the specimen to be tested and the results are interpreted by comparing the color reaction to a color chart supplied by the manufacturer of the test strip; and

(B) Commercially prepared kits such as those used in performing pregnancy tests in which all of the reagents needed to conduct the test are contained in the kit.

(b) *Definitions*—

Action level means a concentration designated in 29 CFR part 1910 for a specific substance, calculated as an eight (8)-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance.

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

Carcinogen (see *select carcinogen*).

Chemical Hygiene Officer means an employee who is designated by the employer, and who is qualified by training

or experience, to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan. This definition is not intended to place limitations on the position description or job classification that the designated individual shall hold within the employer's organizational structure.

Chemical Hygiene Plan means a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that (i) are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace and (ii) meets the requirements of paragraph (e) of this section.

Combustible liquid means any liquid having a flashpoint at or above 100 °F (37.8 °C), but below 200 °F (93.3 °C), except any mixture having components with flashpoints of 200 °F (93.3 °C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas means:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 °F (21.1 °C); or

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F (54.4 °C) regardless of the pressure at 70 °F (21.1 °C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 °F (37.8 °C) as determined by ASTM D-323-72.

Designated area means an area which may be used for work with "select carcinogens," reproductive toxins or substances which have a high degree of acute toxicity. A designated area may be the entire laboratory, an area of a laboratory or a device such as a laboratory hood.

Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers or failure of control equipment which results in an uncontrolled release of a hazardous chemical into the workplace.

Employee means an individual employed in a laboratory workplace who may be exposed to hazardous chemicals in the course of his or her assignments.

Explosive means a chemical that causes a sudden, almost instantaneous

release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Flammable means a chemical that falls into one of the following categories:

(i) *Aerosol, flammable* means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame protection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) *Gas, flammable* means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit.

(iii) *Liquid, flammable* means any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(iv) *Solid, flammable* means a solid, other than a blasting agent or explosive as defined in §1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flashpoint means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79))-for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100 °F (37.8 °C), that do not contain suspended solids and do not have a tend-

ency to form a surface film under test; or

(ii) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79))-for liquids with a viscosity equal to or greater than 45 SUS at 100 °F (37.8 °C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

(iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)).

Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

Hazardous chemical means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term *health hazard* includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic systems, and agents which damage the lungs, skin, eyes, or mucous membranes.

Appendices A and B of the Hazard Communication Standard (29 CFR 1910.1200) provide further guidance in defining the scope of health hazards and determining whether or not a chemical is to be considered hazardous for purposes of this standard.

Laboratory means a facility where the "laboratory use of hazardous chemicals" occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis.

Laboratory scale means work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person. "Laboratory scale" excludes those workplaces whose function is to produce commercial quantities of materials.

Laboratory-type hood means a device located in a laboratory, enclosure on five sides with a moveable sash or fixed partial enclosed on the remaining side; constructed and maintained to draw air from the laboratory and to prevent or minimize the escape of air contaminants into the laboratory; and allows chemical manipulations to be conducted in the enclosure without insertion of any portion of the employee's body other than hands and arms.

Walk-in hoods with adjustable sashes meet the above definition provided that the sashes are adjusted during use so that the airflow and the exhaust of air contaminants are not compromised and employees do not work inside the enclosure during the release of airborne hazardous chemicals.

Laboratory use of hazardous chemicals means handling or use of such chemicals in which all of the following conditions are met:

- (i) Chemical manipulations are carried out on a "laboratory scale;"
- (ii) Multiple chemical procedures or chemicals are used;
- (iii) The procedures involved are not part of a production process, nor in any way simulate a production process; and
- (iv) "Protective laboratory practices and equipment" are available and in common use to minimize the potential for employee exposure to hazardous chemicals.

Medical consultation means a consultation which takes place between an employee and a licensed physician for the purpose of determining what medical examinations or procedures, if any, are appropriate in cases where a significant exposure to a hazardous chemical may have taken place.

Organic peroxide means an organic compound that contains the bivalent -O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

Oxidizer means a chemical other than a blasting agent or explosive as defined in §1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Protective laboratory practices and equipment means those laboratory procedures, practices and equipment accepted by laboratory health and safety experts as effective, or that the employer can show to be effective, in minimizing the potential for employee exposure to hazardous chemicals.

Reproductive toxins means chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)

Select carcinogen means any substance which meets one of the following criteria:

- (i) It is regulated by OSHA as a carcinogen; or
- (ii) It is listed under the category, "known to be carcinogens," in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or
- (iii) It is listed under Group 1 ("carcinogenic to humans") by the International Agency for Research on Cancer Monographs (IARC) (latest editions); or
- (iv) It is listed in either Group 2A or 2B by IARC or under the category, "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidence in experimental animals in accordance with any of the following criteria:

(A) After inhalation exposure of 6–7 hours per day, 5 days per week, for a significant portion of a lifetime to dosages of less than 10 mg/m³;

(B) After repeated skin application of less than 300 (mg/kg of body weight) per week; or

(C) After oral dosages of less than 50 mg/kg of body weight per day.

Unstable (reactive) means a chemical which is the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Water-reactive means a chemical that reacts with water to release a gas that

is either flammable or presents a health hazard.

(c) *Permissible exposure limits.* For laboratory uses of OSHA regulated substances, the employer shall assure that laboratory employees' exposures to such substances do not exceed the permissible exposure limits specified in 29 CFR part 1910, subpart Z.

(d) *Employee exposure determination—*
(1) *Initial monitoring.* The employer shall measure the employee's exposure to any substance regulated by a standard which requires monitoring if there is reason to believe that exposure levels for that substance routinely exceed the action level (or in the absence of an action level, the PEL).

(2) *Periodic monitoring.* If the initial monitoring prescribed by paragraph (d)(1) of this section discloses employee exposure over the action level (or in the absence of an action level, the PEL), the employer shall immediately comply with the exposure monitoring provisions of the relevant standard.

(3) *Termination of monitoring.* Monitoring may be terminated in accordance with the relevant standard.

(4) *Employee notification of monitoring results.* The employer shall, within 15 working days after the receipt of any monitoring results, notify the employee of these results in writing either individually or by posting results in an appropriate location that is accessible to employees.

(e) *Chemical hygiene plan—General.* (Appendix A of this section is non-mandatory but provides guidance to assist employers in the development of the Chemical Hygiene Plan.)

(1) Where hazardous chemicals as defined by this standard are used in the workplace, the employer shall develop and carry out the provisions of a written Chemical Hygiene Plan which is:

(i) Capable of protecting employees from health hazards associated with hazardous chemicals in that laboratory and

(ii) Capable of keeping exposures below the limits specified in paragraph (c) of this section.

(2) The Chemical Hygiene Plan shall be readily available to employees, employee representatives and, upon request, to the Assistant Secretary.

(3) The Chemical Hygiene Plan shall include each of the following elements and shall indicate specific measures that the employer will take to ensure laboratory employee protection:

(i) Standard operating procedures relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals;

(ii) Criteria that the employer will use to determine and implement control measures to reduce employee exposure to hazardous chemicals including engineering controls, the use of personal protective equipment and hygiene practices; particular attention shall be given to the selection of control measures for chemicals that are known to be extremely hazardous;

(iii) A requirement that fume hoods and other protective equipment are functioning properly and specific measures that shall be taken to ensure proper and adequate performance of such equipment;

(iv) Provisions for employee information and training as prescribed in paragraph (f) of this section;

(v) The circumstances under which a particular laboratory operation, procedure or activity shall require prior approval from the employer or the employer's designee before implementation;

(vi) Provisions for medical consultation and medical examinations in accordance with paragraph (g) of this section;

(vii) Designation of personnel responsible for implementation of the Chemical Hygiene Plan including the assignment of a Chemical Hygiene Officer and, if appropriate, establishment of a Chemical Hygiene Committee; and

(viii) Provisions for additional employee protection for work with particularly hazardous substances. These include "select carcinogens," reproductive toxins and substances which have a high degree of acute toxicity. Specific consideration shall be given to the following provisions which shall be included where appropriate:

(A) Establishment of a designated area;

(B) Use of containment devices such as fume hoods or glove boxes;

(C) Procedures for safe removal of contaminated waste; and

(D) Decontamination procedures.

(4) The employer shall review and evaluate the effectiveness of the Chemical Hygiene Plan at least annually and update it as necessary.

(f) *Employee information and training.*

(1) The employer shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area.

(2) Such information shall be provided at the time of an employee's initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new exposure situations. The frequency of refresher information and training shall be determined by the employer.

(3) *Information.* Employees shall be informed of:

(i) The contents of this standard and its appendices which shall be made available to employees;

(ii) The location and availability of the employer's Chemical Hygiene Plan;

(iii) The permissible exposure limits for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard;

(iv) Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory; and

(v) The location and availability of known reference material on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, Material Safety Data Sheets received from the chemical supplier.

(4) *Training.* (i) Employee training shall include:

(A) Methods and observations that may be used to detect the presence or release of a hazardous chemical (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(B) The physical and health hazards of chemicals in the work area; and

(C) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous

chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

(ii) The employee shall be trained on the applicable details of the employer's written Chemical Hygiene Plan.

(g) *Medical consultation and medical examinations.* (1) The employer shall provide all employees who work with hazardous chemicals an opportunity to receive medical attention, including any follow-up examinations which the examining physician determines to be necessary, under the following circumstances:

(i) Whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory, the employee shall be provided an opportunity to receive an appropriate medical examination.

(ii) Where exposure monitoring reveals an exposure level routinely above the action level (or in the absence of an action level, the PEL) for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements, medical surveillance shall be established for the affected employee as prescribed by the particular standard.

(iii) Whenever an event takes place in the work area such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee shall be provided an opportunity for a medical consultation. Such consultation shall be for the purpose of determining the need for a medical examination.

(2) All medical examinations and consultations shall be performed by or under the direct supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place.

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

(i) The identity of the hazardous chemical(s) to which the employee may have been exposed;

(ii) A description of the conditions under which the exposure occurred including quantitative exposure data, if available; and

(iii) A description of the signs and symptoms of exposure that the employee is experiencing, if any.

(4) *Physician's written opinion.* (i) For examination or consultation required under this standard, the employer shall obtain a written opinion from the examining physician which shall include the following:

(A) Any recommendation for further medical follow-up;

(B) The results of the medical examination and any associated tests;

(C) Any medical condition which may be revealed in the course of the examination which may place the employee at increased risk as a result of exposure to a hazardous chemical found in the workplace; and

(D) A statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.

(ii) The written opinion shall not reveal specific findings of diagnoses unrelated to occupational exposure.

(h) *Hazard identification.* (1) With respect to labels and material safety data sheets:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced.

(ii) Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees.

(2) The following provisions shall apply to chemical substances developed in the laboratory:

(i) If the composition of the chemical substance which is produced exclusively for the laboratory's use is known, the employer shall determine if it is a hazardous chemical as defined in paragraph (b) of this section. If the chemical is determined to be hazardous, the employer shall provide appropriate training as required under paragraph (f) of this section.

(ii) If the chemical produced is a by-product whose composition is not known, the employer shall assume that the substance is hazardous and shall implement paragraph (e) of this section.

(iii) If the chemical substance is produced for another user outside of the laboratory, the employer shall comply with the Hazard Communication Standard (29 CFR 1910.1200) including the requirements for preparation of material safety data sheets and labeling.

(i) *Use of respirators.* Where the use of respirators is necessary to maintain exposure below permissible exposure limits, the employer shall provide, at no cost to the employee, the proper respiratory equipment. Respirators shall be selected and used in accordance with the requirements of 29 CFR 1910.134.

(j) *Recordkeeping.* (1) The employer shall establish and maintain for each employee an accurate record of any measurements taken to monitor employee exposures and any medical consultation and examinations including tests or written opinions required by this standard.

(2) The employer shall assure that such records are kept, transferred, and made available in accordance with 29 CFR 1910.20.

(k) [Reserved]

(l) *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.

APPENDIX A TO §1910.1450—NATIONAL RESEARCH COUNCIL RECOMMENDATIONS CONCERNING CHEMICAL HYGIENE IN LABORATORIES (NON-MANDATORY)

TABLE OF CONTENTS

Foreword

Corresponding Sections of the Standard and This Appendix

A. General Principles

1. Minimize all Chemical Exposures
2. Avoid Underestimation of Risk
3. Provide Adequate Ventilation
4. Institute a Chemical Hygiene Program
5. Observe the PELs and TLVs

B. Responsibilities

1. Chief Executive Officer
2. Supervisor of Administrative Unit
3. Chemical Hygiene Officer
4. Laboratory Supervisor
5. Project Director
6. Laboratory Worker

C. The Laboratory Facility

1. Design
2. Maintenance
3. Usage
4. Ventilation

D. Components of the Chemical Hygiene Plan

1. Basic Rules and Procedures
2. Chemical Procurement, Distribution, and Storage
3. Environmental Monitoring
4. Housekeeping, Maintenance and Inspections
5. Medical Program
6. Personal Protective Apparel and Equipment
7. Records
8. Signs and Labels
9. Spills and Accidents
10. Training and Information
11. Waste Disposal

E. General Procedures for Working With Chemicals

1. General Rules for all Laboratory Work with Chemicals
2. Allergens and Embryotoxins
3. Chemicals of Moderate Chronic or High Acute Toxicity
4. Chemicals of High Chronic Toxicity
5. Animal Work with Chemicals of High Chronic Toxicity

F. Safety Recommendations

G. Material Safety Data Sheets

Foreword

As guidance for each employer's development of an appropriate laboratory Chemical Hygiene Plan, the following non-mandatory recommendations are provided. They were extracted from "Prudent Practices for Handling Hazardous Chemicals in Laboratories" (referred to below as "Prudent Practices"), which was published in 1981 by the National Research Council and is available from the National Academy Press, 2101 Constitution Ave., NW., Washington DC 20418.

"Prudent Practices" is cited because of its wide distribution and acceptance and because of its preparation by members of the laboratory community through the sponsorship of the National Research Council. However, none of the recommendations given here will modify any requirements of the laboratory standard. This Appendix merely presents pertinent recommendations from "Prudent Practices", organized into a form convenient for quick reference during operation of a laboratory facility and during development and application of a Chemical Hygiene Plan. Users of this appendix should consult "Prudent Practices" for a more extended presentation and justification for each recommendation.

"Prudent Practices" deals with both safety and chemical hazards while the laboratory standard is concerned primarily with chemical hazards. Therefore, only those recommendations directed primarily toward control of toxic exposures are cited in this appendix, with the term "chemical hygiene" being substituted for the word "safety". However, since conditions producing or threatening physical injury often pose toxic risks as well, page references concerning major categories of safety hazards in the laboratory are given in section F.

The recommendations from "Prudent Practices" have been paraphrased, combined, or otherwise reorganized, and headings have been added. However, their sense has not been changed.

Corresponding Sections of the Standard and this Appendix

The following table is given for the convenience of those who are developing a Chemical Hygiene Plan which will satisfy the requirements of paragraph (e) of the standard. It indicates those sections of this appendix which are most pertinent to each of the sections of paragraph (e) and related paragraphs.

Paragraph and topic in laboratory standard	Relevant appendix section
(e)(3)(i) Standard operating procedures for handling toxic chemicals.	C, D, E
(e)(3)(ii) Criteria to be used for implementation of measures to reduce exposures.	D
(e)(3)(iii) Fume hood performance	C4b
(e)(3)(iv) Employee information and training (including emergency procedures).	D10, D9
(e)(3)(v) Requirements for prior approval of laboratory activities.	E2b, E4b
(e)(3)(vi) Medical consultation and medical examinations.	D5, E4f
(e)(3)(vii) Chemical hygiene responsibilities	B
(e)(3)(viii) Special precautions for work with particularly hazardous substances.	E2, E3, E4

In this appendix, those recommendations directed primarily at administrators and supervisors are given in sections A-D. Those recommendations of primary concern to employees who are actually handling laboratory chemicals are given in section E. (Reference to page numbers in "Prudent Practices" are given in parentheses.)

A. General Principles for Work with Laboratory Chemicals

In addition to the more detailed recommendations listed below in sections B-E, "Prudent Practices" expresses certain general principles, including the following:

1. *It is prudent to minimize all chemical exposures.* Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals should be adopted, rather than specific guidelines for particular chemicals (2, 10). Skin contact

with chemicals should be avoided as a cardinal rule (198).

2. *Avoid underestimation of risk.* Even for substances of no known significant hazard, exposure should be minimized; for work with substances which present special hazards, special precautions should be taken (10, 37, 38). One should assume that any mixture will be more toxic than its most toxic component (30, 103) and that all substances of unknown toxicity are toxic (3, 34).

3. *Provide adequate ventilation.* The best way to prevent exposure to airborne substances is to prevent their escape into the working atmosphere by use of hoods and other ventilation devices (32, 198).

4. *Institute a chemical hygiene program.* A mandatory chemical hygiene program designed to minimize exposures is needed; it should be a regular, continuing effort, not merely a standby or short-term activity (6, 11). Its recommendations should be followed in academic teaching laboratories as well as by full-time laboratory workers (13).

5. *Observe the PELs, TLVs.* The Permissible Exposure Limits of OSHA and the Threshold Limit Values of the American Conference of Governmental Industrial Hygienists should not be exceeded (13).

B. Chemical Hygiene Responsibilities

Responsibility for chemical hygiene rests at all levels (6, 11, 21) including the:

1. *Chief executive officer,* who has ultimate responsibility for chemical hygiene within the institution and must, with other administrators, provide continuing support for institutional chemical hygiene (7, 11).

2. *Supervisor of the department or other administrative unit,* who is responsible for chemical hygiene in that unit (7).

3. *Chemical hygiene officer(s),* whose appointment is essential (7) and who must:

(a) Work with administrators and other employees to develop and implement appropriate chemical hygiene policies and practices (7);

(b) Monitor procurement, use, and disposal of chemicals used in the lab (8);

(c) See that appropriate audits are maintained (8);

(d) Help project directors develop precautions and adequate facilities (10);

(e) Know the current legal requirements concerning regulated substances (50); and

(f) Seek ways to improve the chemical hygiene program (8, 11).

4. *Laboratory supervisor,* who has overall responsibility for chemical hygiene in the laboratory (21) including responsibility to:

(a) Ensure that workers know and follow the chemical hygiene rules, that protective equipment is available and in working order, and that appropriate training has been provided (21, 22);

(b) Provide regular, formal chemical hygiene and housekeeping inspections includ-

ing routine inspections of emergency equipment (21, 171);

(c) Know the current legal requirements concerning regulated substances (50, 231);

(d) Determine the required levels of protective apparel and equipment (156, 160, 162); and

(e) Ensure that facilities and training for use of any material being ordered are adequate (215).

5. *Project director or director of other specific operation,* who has primary responsibility for chemical hygiene procedures for that operation (7).

6. *Laboratory worker,* who is responsible for:

(a) Planning and conducting each operation in accordance with the institutional chemical hygiene procedures (7, 21, 22, 230); and

(b) Developing good personal chemical hygiene habits (22).

C. The Laboratory Facility

1. *Design.* The laboratory facility should have:

(a) An appropriate general ventilation system (see C4 below) with air intakes and exhausts located so as to avoid intake of contaminated air (194);

(b) Adequate, well-ventilated stockrooms/storerooms (218, 219);

(c) Laboratory hoods and sinks (12, 162);

(d) Other safety equipment including eye-wash fountains and drench showers (162, 169); and

(e) Arrangements for waste disposal (12, 240).

2. *Maintenance.* Chemical-hygiene-related equipment (hoods, incinerator, etc.) should undergo continuing appraisal and be modified if inadequate (11, 12).

3. *Usage.* The work conducted (10) and its scale (12) must be appropriate to the physical facilities available and, especially, to the quality of ventilation (13).

4. *Ventilation—(a) General laboratory ventilation.* This system should: Provide a source of air for breathing and for input to local ventilation devices (199); it should not be relied on for protection from toxic substances released into the laboratory (198); ensure that laboratory air is continually replaced, preventing increase of air concentrations of toxic substances during the working day (194); direct air flow into the laboratory from non-laboratory areas and out to the exterior of the building (194).

(b) *Hoods.* A laboratory hood with 2.5 linear feet of hood space per person should be provided for every 2 workers if they spend most of their time working with chemicals (199); each hood should have a continuous monitoring device to allow convenient confirmation of adequate hood performance before use (200, 209). If this is not possible, work with substances of unknown toxicity should be avoided (13) or other types of local ventilation devices should be provided (199). See

pp. 201–206 for a discussion of hood design, construction, and evaluation.

(c) *Other local ventilation devices.* Ventilated storage cabinets, canopy hoods, snorkels, etc. should be provided as needed (199). Each canopy hood and snorkel should have a separate exhaust duct (207).

(d) *Special ventilation areas.* Exhaust air from glove boxes and isolation rooms should be passed through scrubbers or other treatment before release into the regular exhaust system (208). Cold rooms and warm rooms should have provisions for rapid escape and for escape in the event of electrical failure (209).

(e) *Modifications.* Any alteration of the ventilation system should be made only if thorough testing indicates that worker protection from airborne toxic substances will continue to be adequate (12, 193, 204).

(f) *Performance.* Rate: 4–12 room air changes/hour is normally adequate general ventilation if local exhaust systems such as hoods are used as the primary method of control (194).

(g) *Quality.* General air flow should not be turbulent and should be relatively uniform throughout the laboratory, with no high velocity or static areas (194, 195); airflow into and within the hood should not be excessively turbulent (200); hood face velocity should be adequate (typically 60–100 lfm) (200, 204).

(h) *Evaluation.* Quality and quantity of ventilation should be evaluated on installation (202), regularly monitored (at least every 3 months) (6, 12, 14, 195), and reevaluated whenever a change in local ventilation devices is made (12, 195, 207). See pp. 195–198 for methods of evaluation and for calculation of estimated airborne contaminant concentrations.

D. Components of the Chemical Hygiene Plan

1. Basic Rules and Procedures (Recommendations for these are given in section E, below)

2. Chemical Procurement, Distribution, and Storage

(a) *Procurement.* Before a substance is received, information on proper handling, storage, and disposal should be known to those who will be involved (215, 216). No container should be accepted without an adequate identifying label (216). Preferably, all substances should be received in a central location (216).

(b) *Stockrooms/storerooms.* Toxic substances should be segregated in a well-identified area with local exhaust ventilation (221). Chemicals which are highly toxic (227) or other chemicals whose containers have been opened should be in unbreakable secondary containers (219). Stored chemicals should be examined periodically (at least annually) for

replacement, deterioration, and container integrity (218–19).

Stockrooms/storerooms should not be used as preparation or repackaging areas, should be open during normal working hours, and should be controlled by one person (219).

(c) *Distribution.* When chemicals are hand carried, the container should be placed in an outside container or bucket. Freight-only elevators should be used if possible (223).

(d) *Laboratory storage.* Amounts permitted should be as small as practical. Storage on bench tops and in hoods is inadvisable. Exposure to heat or direct sunlight should be avoided. Periodic inventories should be conducted, with unneeded items being discarded or returned to the storeroom/stockroom (225–6, 229).

3. Environmental Monitoring

Regular instrumental monitoring of airborne concentrations is not usually justified or practical in laboratories but may be appropriate when testing or redesigning hoods or other ventilation devices (12) or when a highly toxic substance is stored or used regularly (e.g., 3 times/week) (13).

4. Housekeeping, Maintenance, and Inspections

(a) *Cleaning.* Floors should be cleaned regularly (24).

(b) *Inspections.* Formal housekeeping and chemical hygiene inspections should be held at least quarterly (6, 21) for units which have frequent personnel changes and semiannually for others; informal inspections should be continual (21).

(c) *Maintenance.* Eye wash fountains should be inspected at intervals of not less than 3 months (6). Respirators for routine use should be inspected periodically by the laboratory supervisor (169). Safety showers should be tested routinely (169). Other safety equipment should be inspected regularly. (e.g., every 3–6 months) (6, 24, 171). Procedures to prevent restarting of out-of-service equipment should be established (25).

(d) *Passageways.* Stairways and hallways should not be used as storage areas (24). Access to exits, emergency equipment, and utility controls should never be blocked (24).

5. Medical Program

(a) *Compliance with regulations.* Regular medical surveillance should be established to the extent required by regulations (12).

(b) *Routine surveillance.* Anyone whose work involves regular and frequent handling of toxicologically significant quantities of a chemical should consult a qualified physician to determine on an individual basis whether a regular schedule of medical surveillance is desirable (11, 50).

(c) *First aid.* Personnel trained in first aid should be available during working hours

and an emergency room with medical personnel should be nearby (173). See pp. 176-178 for description of some emergency first aid procedures.

6. Protective Apparel and Equipment

These should include for each laboratory:

- (a) Protective apparel compatible with the required degree of protection for substances being handled (158-161);
- (b) An easily accessible drench-type safety shower (162, 169);
- (c) An eyewash fountain (162);
- (d) A fire extinguisher (162-164);
- (e) Respiratory protection (164-9), fire alarm and telephone for emergency use (162) should be available nearby; and
- (f) Other items designated by the laboratory supervisor (156, 160).

7. Records

- (a) Accident records should be written and retained (174).
- (b) Chemical Hygiene Plan records should document that the facilities and precautions were compatible with current knowledge and regulations (7).
- (c) Inventory and usage records for high-risk substances should be kept as specified in sections E3e below.
- (d) Medical records should be retained by the institution in accordance with the requirements of state and federal regulations (12).

8. Signs and Labels

Prominent signs and labels of the following types should be posted:

- (a) Emergency telephone numbers of emergency personnel/facilities, supervisors, and laboratory workers (28);
- (b) Identity labels, showing contents of containers (including waste receptacles) and associated hazards (27, 48);
- (c) Location signs for safety showers, eyewash stations, other safety and first aid equipment, exits (27) and areas where food and beverage consumption and storage are permitted (24); and
- (d) Warnings at areas or equipment where special or unusual hazards exist (27).

9. Spills and Accidents

- (a) A written emergency plan should be established and communicated to all personnel; it should include procedures for ventilation failure (200), evacuation, medical care, reporting, and drills (172).
- (b) There should be an alarm system to alert people in all parts of the facility including isolation areas such as cold rooms (172).
- (c) A spill control policy should be developed and should include consideration of prevention, containment, cleanup, and reporting (175).

- (d) All accidents or near accidents should be carefully analyzed with the results distributed to all who might benefit (8, 28).

10. Information and Training Program

- (a) Aim: To assure that all individuals at risk are adequately informed about the work in the laboratory, its risks, and what to do if an accident occurs (5, 15).
- (b) Emergency and Personal Protection Training: Every laboratory worker should know the location and proper use of available protective apparel and equipment (154, 169).

Some of the full-time personnel of the laboratory should be trained in the proper use of emergency equipment and procedures (6).

Such training as well as first aid instruction should be available to (154) and encouraged for (176) everyone who might need it.

- (c) Receiving and stockroom/storeroom personnel should know about hazards, handling equipment, protective apparel, and relevant regulations (217).
- (d) Frequency of Training: The training and education program should be a regular, continuing activity—not simply an annual presentation (15).
- (e) Literature/Consultation: Literature and consulting advice concerning chemical hygiene should be readily available to laboratory personnel, who should be encouraged to use these information resources (14).

11. Waste Disposal Program

- (a) Aim: To assure that minimal harm to people, other organisms, and the environment will result from the disposal of waste laboratory chemicals (5).
- (b) Content (14, 232, 233, 240): The waste disposal program should specify how waste is to be collected, segregated, stored, and transported and include consideration of what materials can be incinerated. Transport from the institution must be in accordance with DOT regulations (244).
- (c) Discarding Chemical Stocks: Unlabeled containers of chemicals and solutions should undergo prompt disposal; if partially used, they should not be opened (24, 27).

Before a worker's employment in the laboratory ends, chemicals for which that person was responsible should be discarded or returned to storage (226).

- (d) Frequency of Disposal: Waste should be removed from laboratories to a central waste storage area at least once per week and from the central waste storage area at regular intervals (14).
- (e) Method of Disposal: Incineration in an environmentally acceptable manner is the most practical disposal method for combustible laboratory waste (14, 238, 241).

Indiscriminate disposal by pouring waste chemicals down the drain (14, 231, 242) or adding them to mixed refuse for landfill burial is unacceptable (14).

Hoods should not be used as a means of disposal for volatile chemicals (40, 200).

Disposal by recycling (233, 243) or chemical decontamination (40, 230) should be used when possible.

E. Basic Rules and Procedures for Working with Chemicals

The Chemical Hygiene Plan should require that laboratory workers know and follow its rules and procedures. In addition to the procedures of the sub programs mentioned above, these should include the rules listed below.

1. General Rules

The following should be used for essentially all laboratory work with chemicals:

(a) *Accidents and spills*—Eye Contact: Promptly flush eyes with water for a prolonged period (15 minutes) and seek medical attention (33, 172).

Ingestion: Encourage the victim to drink large amounts of water (178).

Skin Contact: Promptly flush the affected area with water (33, 172, 178) and remove any contaminated clothing (172, 178). If symptoms persist after washing, seek medical attention (33).

Clean-up. Promptly clean up spills, using appropriate protective apparel and equipment and proper disposal (24–33). See pp. 233–237 for specific clean-up recommendations.

(b) *Avoidance of "routine" exposure*: Develop and encourage safe habits (23); avoid unnecessary exposure to chemicals by any route (23);

Do not smell or taste chemicals (32). Vent apparatus which may discharge toxic chemicals (vacuum pumps, distillation columns, etc.) into local exhaust devices (199).

Inspect gloves (157) and test glove boxes (208) before use.

Do not allow release of toxic substances in cold rooms and warm rooms, since these have contained recirculated atmospheres (209).

(c) *Choice of chemicals*: Use only those chemicals for which the quality of the available ventilation system is appropriate (13).

(d) *Eating, smoking, etc.*: Avoid eating, drinking, smoking, gum chewing, or application of cosmetics in areas where laboratory chemicals are present (22, 24, 32, 40); wash hands before conducting these activities (23, 24).

Avoid storage, handling or consumption of food or beverages in storage areas, refrigerators, glassware or utensils which are also used for laboratory operations (23, 24, 226).

(e) *Equipment and glassware*: Handle and store laboratory glassware with care to

avoid damage; do not use damaged glassware (25). Use extra care with Dewar flasks and other evacuated glass apparatus; shield or wrap them to contain chemicals and fragments should implosion occur (25). Use equipment only for its designed purpose (23, 26).

(f) *Exiting*: Wash areas of exposed skin well before leaving the laboratory (23).

(g) *Horseplay*: Avoid practical jokes or other behavior which might confuse, startle or distract another worker (23).

(h) *Mouth suction*: Do not use mouth suction for pipeting or starting a siphon (23, 32).

(i) *Personal apparel*: Confine long hair and loose clothing (23, 158). Wear shoes at all times in the laboratory but do not wear sandals, perforated shoes, or sneakers (158).

(j) *Personal housekeeping*: Keep the work area clean and uncluttered, with chemicals and equipment being properly labeled and stored; clean up the work area on completion of an operation or at the end of each day (24).

(k) *Personal protection*: Assure that appropriate eye protection (154–156) is worn by all persons, including visitors, where chemicals are stored or handled (22, 23, 33, 154).

Wear appropriate gloves when the potential for contact with toxic materials exists (157); inspect the gloves before each use, wash them before removal, and replace them periodically (157). (A table of resistance to chemicals of common glove materials is given p. 159).

Use appropriate (164–168) respiratory equipment when air contaminant concentrations are not sufficiently restricted by engineering controls (164–5), inspecting the respirator before use (169).

Use any other protective and emergency apparel and equipment as appropriate (22, 157–162).

Avoid use of contact lenses in the laboratory unless necessary; if they are used, inform supervisor so special precautions can be taken (155).

Remove laboratory coats immediately on significant contamination (161).

(l) *Planning*: Seek information and advice about hazards (7), plan appropriate protective procedures, and plan positioning of equipment before beginning any new operation (22, 23).

(m) *Unattended operations*: Leave lights on, place an appropriate sign on the door, and provide for containment of toxic substances in the event of failure of a utility service (such as cooling water) to an unattended operation (27, 128).

(n) *Use of hood*: Use the hood for operations which might result in release of toxic chemical vapors or dust (198–9).

As a rule of thumb, use a hood or other local ventilation device when working with any appreciably volatile substance with a TLV of less than 50 ppm (13).

Confirm adequate hood performance before use; keep hood closed at all times except when adjustments within the hood are being made (200); keep materials stored in hoods to a minimum and do not allow them to block vents or air flow (200).

Leave the hood "on" when it is not in active use if toxic substances are stored in it or if it is uncertain whether adequate general laboratory ventilation will be maintained when it is "off" (200).

(o) *Vigilance*: Be alert to unsafe conditions and see that they are corrected when detected (22).

(p) *Waste disposal*: Assure that the plan for each laboratory operation includes plans and training for waste disposal (230).

Deposit chemical waste in appropriately labeled receptacles and follow all other waste disposal procedures of the Chemical Hygiene Plan (22, 24).

Do not discharge to the sewer concentrated acids or bases (231); highly toxic, malodorous, or lachrymatory substances (231); or any substances which might interfere with the biological activity of waste water treatment plants, create fire or explosion hazards, cause structural damage or obstruct flow (242).

(q) *Working alone*: Avoid working alone in a building; do not work alone in a laboratory if the procedures being conducted are hazardous (28).

2. Working with Allergens and Embryotoxins

(a) *Allergens* (examples: diazomethane, isocyanates, bichromates): Wear suitable gloves to prevent hand contact with allergens or substances of unknown allergenic activity (35).

(b) *Embryotoxins* (34-5) (examples: organomercurials, lead compounds, formamide): If you are a woman of childbearing age, handle these substances only in a hood whose satisfactory performance has been confirmed, using appropriate protective apparel (especially gloves) to prevent skin contact.

Review each use of these materials with the research supervisor and review continuing uses annually or whenever a procedural change is made.

Store these substances, properly labeled, in an adequately ventilated area in an unbreakable secondary container.

Notify supervisors of all incidents of exposure or spills; consult a qualified physician when appropriate.

3. Work with Chemicals of Moderate Chronic or High Acute Toxicity

EXAMPLES: diisopropylfluorophosphate (41), hydrofluoric acid (43), hydrogen cyanide (45).

Supplemental rules to be followed in addition to those mentioned above (Procedure B of "Prudent Practices", pp. 39-41):

(a) *Aim*: To minimize exposure to these toxic substances by any route using all reasonable precautions (39).

(b) *Applicability*: These precautions are appropriate for substances with moderate chronic or high acute toxicity used in significant quantities (39).

(c) *Location*: Use and store these substances only in areas of restricted access with special warning signs (40, 229).

Always use a hood (previously evaluated to confirm adequate performance with a face velocity of at least 60 linear feet per minute) (40) or other containment device for procedures which may result in the generation of aerosols or vapors containing the substance (39); trap released vapors to prevent their discharge with the hood exhaust (40).

(d) *Personal protection*: Always avoid skin contact by use of gloves and long sleeves (and other protective apparel as appropriate) (39). Always wash hands and arms immediately after working with these materials (40).

(e) *Records*: Maintain records of the amounts of these materials on hand, amounts used, and the names of the workers involved (40, 229).

(f) *Prevention of spills and accidents*: Be prepared for accidents and spills (41).

Assure that at least 2 people are present at all times if a compound in use is highly toxic or of unknown toxicity (39).

Store breakable containers of these substances in chemically resistant trays; also work and mount apparatus above such trays or cover work and storage surfaces with removable, absorbent, plastic backed paper (40).

If a major spill occurs outside the hood, evacuate the area; assure that cleanup personnel wear suitable protective apparel and equipment (41).

(g) *Waste*: Thoroughly decontaminate or incinerate contaminated clothing or shoes (41). If possible, chemically decontaminate by chemical conversion (40).

Store contaminated waste in closed, suitably labeled, impervious containers (for liquids, in glass or plastic bottles half-filled with vermiculite) (40).

4. Work with Chemicals of High Chronic Toxicity

(Examples: dimethylmercury and nickel carbonyl (48), benzo-a-pyrene (51), Nitrosodiethylamine (54), other human carcinogens or substances with high carcinogenic potency in animals (38).)

Further supplemental rules to be followed, in addition to all these mentioned above, for work with substances of known high chronic toxicity (in quantities above a few milligrams to a few grams, depending on the substance) (47). (Procedure A of "Prudent Practices" pp. 47-50).

(a) *Access*: Conduct all transfers and work with these substances in a "controlled area": a restricted access hood, glove box, or portion of a lab, designated for use of highly toxic substances, for which all people with access are aware of the substances being used and necessary precautions (48).

(b) *Approvals*: Prepare a plan for use and disposal of these materials and obtain the approval of the laboratory supervisor (48).

(c) *Non-contamination/Decontamination*: Protect vacuum pumps against contamination by scrubbers or HEPA filters and vent them into the hood (49). Decontaminate vacuum pumps or other contaminated equipment, including glassware, in the hood before removing them from the controlled area (49, 50).

Decontaminate the controlled area before normal work is resumed there (50).

(d) *Exiting*: On leaving a controlled area, remove any protective apparel (placing it in an appropriate, labeled container) and thoroughly wash hands, forearms, face, and neck (49).

(e) *Housekeeping*: Use a wet mop or a vacuum cleaner equipped with a HEPA filter instead of dry sweeping if the toxic substance was a dry powder (50).

(f) *Medical surveillance*: If using toxicologically significant quantities of such a substance on a regular basis (e.g., 3 times per week), consult a qualified physician concerning desirability of regular medical surveillance (50).

(g) *Records*: Keep accurate records of the amounts of these substances stored (229) and used, the dates of use, and names of users (48).

(h) *Signs and labels*: Assure that the controlled area is conspicuously marked with warning and restricted access signs (49) and that all containers of these substances are appropriately labeled with identity and warning labels (48).

(i) *Spills*: Assure that contingency plans, equipment, and materials to minimize exposures of people and property in case of accident are available (233-4).

(j) *Storage*: Store containers of these chemicals only in a ventilated, limited access (48, 227, 229) area in appropriately labeled, unbreakable, chemically resistant, secondary containers (48, 229).

(k) *Glove boxes*: For a negative pressure glove box, ventilation rate must be at least 2 volume changes/hour and pressure at least 0.5 inches of water (48). For a positive pressure glove box, thoroughly check for leaks before each use (49). In either case, trap the exit gases or filter them through a HEPA filter and then release them into the hood (49).

(l) *Waste*: Use chemical decontamination whenever possible; ensure that containers of contaminated waste (including washings from contaminated flasks) are transferred from the controlled area in a secondary con-

tainer under the supervision of authorized personnel (49, 50, 233).

5. Animal Work with Chemicals of High Chronic Toxicity

(a) *Access*: For large scale studies, special facilities with restricted access are preferable (56).

(b) *Administration of the toxic substance*: When possible, administer the substance by injection or gavage instead of in the diet. If administration is in the diet, use a caging system under negative pressure or under laminar air flow directed toward HEPA filters (56).

(c) *Aerosol suppression*: Devise procedures which minimize formation and dispersal of contaminated aerosols, including those from food, urine, and feces (e.g., use HEPA filtered vacuum equipment for cleaning, moisten contaminated bedding before removal from the cage, mix diets in closed containers in a hood) (55, 56).

(d) *Personal protection*: When working in the animal room, wear plastic or rubber gloves, fully buttoned laboratory coat or jumpsuit and, if needed because of incomplete suppression of aerosols, other apparel and equipment (shoe and head coverings, respirator) (56).

(e) *Waste disposal*: Dispose of contaminated animal tissues and excreta by incineration if the available incinerator can convert the contaminant to non-toxic products (238); otherwise, package the waste appropriately for burial in an EPA-approved site (239).

F. Safety Recommendations

The above recommendations from "Prudent Practices" do not include those which are directed primarily toward prevention of physical injury rather than toxic exposure. However, failure of precautions against injury will often have the secondary effect of causing toxic exposures. Therefore, we list below page references for recommendations concerning some of the major categories of safety hazards which also have implications for chemical hygiene:

1. Corrosive agents: (35-6)
2. Electrically powered laboratory apparatus: (179-92)
3. Fires, explosions: (26, 57-74, 162-4, 174-5, 219-20, 226-7)
4. Low temperature procedures: (26, 88)
5. Pressurized and vacuum operations (including use of compressed gas cylinders): (27, 75-101)

G. Material Safety Data Sheets

Material safety data sheets are presented in "Prudent Practices" for the chemicals listed below. (Asterisks denote that comprehensive material safety data sheets are provided).

*Acetyl peroxide (105)

*Acrolein (106)
 *Acrylonitrile (107)
 Ammonia (anhydrous) (91)
 *Aniline (109)
 *Benzene (110)
 *Benzo[a]pyrene (112)
 *Bis(chloromethyl) ether (113)
 Boron trichloride (91)
 Boron trifluoride (92)
 Bromine (114)
 *Tert-butyl hydroperoxide (148)
 *Carbon disulfide (116)
 Carbon monoxide (92)
 *Carbon tetrachloride (118)
 *Chlorine (119)
 Chlorine trifluoride (94)
 *Chloroform (121)
 Chloromethane (93)
 *Diethyl ether (122)
 Diisopropyl fluorophosphate (41)
 *Dimethylformamide (123)
 *Dimethyl sulfate (125)
 *Dioxane (126)
 *Ethylene dibromide (128)
 *Fluorine (95)
 *Formaldehyde (130)
 *Hydrazine and salts (132)
 Hydrofluoric acid (43)
 Hydrogen bromide (98)
 Hydrogen chloride (98)
 *Hydrogen cyanide (133)
 *Hydrogen sulfide (135)
 Mercury and compounds (52)
 *Methanol (137)
 *Morpholine (138)
 *Nickel carbonyl (99)
 *Nitrobenzene (139)
 Nitrogen dioxide (100)
 N-nitrosodiethylamine (54)
 *Peracetic acid (141)
 *Phenol (142)
 *Phosgene (143)
 *Pyridine (144)
 *Sodium azide (145)
 *Sodium cyanide (147)
 Sulfur dioxide (101)
 *Trichloroethylene (149)
 *Vinyl chloride (150)

APPENDIX B TO § 1910.1450—REFERENCES (NON-MANDATORY)

The following references are provided to assist the employer in the development of a Chemical Hygiene Plan. The materials listed below are offered as non-mandatory guidance. References listed here do not imply specific endorsement of a book, opinion, technique, policy or a specific solution for a safety or health problem. Other references not listed here may better meet the needs of a specific laboratory. (a) Materials for the development of the Chemical Hygiene Plan:

1. American Chemical Society, Safety in Academic Chemistry Laboratories, 4th edition, 1985.
2. Fawcett, H.H. and W. S. Wood, Safety and Accident Prevention in Chemical Oper-

ations, 2nd edition, Wiley-Interscience, New York, 1982.

3. Flury, Patricia A., Environmental Health and Safety in the Hospital Laboratory, Charles C. Thomas Publisher, Springfield IL, 1978.

4. Green, Michael E. and Turk, Amos, Safety in Working with Chemicals, Macmillan Publishing Co., NY, 1978.

5. Kaufman, James A., Laboratory Safety Guidelines, Dow Chemical Co., Box 1713, Midland, MI 48640, 1977.

6. National Institutes of Health, NIH Guidelines for the Laboratory use of Chemical Carcinogens, NIH Pub. No. 81-2385, GPO, Washington, DC 20402, 1981.

7. National Research Council, Prudent Practices for Disposal of Chemicals from Laboratories, National Academy Press, Washington, DC, 1983.

8. National Research Council, Prudent Practices for Handling Hazardous Chemicals in Laboratories, National Academy Press, Washington, DC, 1981.

9. Renfrew, Malcolm, Ed., Safety in the Chemical Laboratory, Vol. IV, *J. Chem. Ed.*, American Chemical Society, Easlton, PA, 1981.

10. Steere, Norman V., Ed., Safety in the Chemical Laboratory, *J. Chem. Ed.* American Chemical Society, Easlton, PA, 18042, Vol. I, 1967, Vol. II, 1971, Vol. III 1974.

11. Steere, Norman V., Handbook of Laboratory Safety, the Chemical Rubber Company Cleveland, OH, 1971.

12. Young, Jay A., Ed., Improving Safety in the Chemical Laboratory, John Wiley & Sons, Inc. New York, 1987.

(b) Hazardous Substances Information:

1. American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes, 6500 Glenway Avenue, Bldg. D-7 Cincinnati, OH 45211-4438 (latest edition).

2. Annual Report on Carcinogens, National Toxicology Program U.S. Department of Health and Human Services, Public Health Service, U.S. Government Printing Office, Washington, DC, (latest edition).

3. Best Company, Best Safety Directory, Vols. I and II, Oldwick, N.J., 1981.

4. Bretherick, L., Handbook of Reactive Chemical Hazards, 2nd edition, Butterworths, London, 1979.

5. Bretherick, L., Hazards in the Chemical Laboratory, 3rd edition, Royal Society of Chemistry, London, 1986.

6. Code of Federal Regulations, 29 CFR part 1910 subpart Z. U.S. Govt. Printing Office, Washington, DC 20402 (latest edition).

7. IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, World Health Organization Publications Center, 49 Sheridan Avenue, Albany, New York 12210 (latest editions).

§ 1910.1450

29 CFR Ch. XVII (7-1-10 Edition)

8. NIOSH/OSHA Pocket Guide to Chemical Hazards. NIOSH Pub. No. 85-114, U.S. Government Printing Office, Washington, DC, 1985 (or latest edition).

9. Occupational Health Guidelines, NIOSH/OSHA NIOSH Pub. No. 81-123 U.S. Government Printing Office, Washington, DC, 1981.

10. Patty, F.A., Industrial Hygiene and Toxicology. John Wiley & Sons, Inc., New York, NY (Five Volumes).

11. Registry of Toxic Effects of Chemical Substances, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, Revised Annually, for sale from Superintendent of Documents U.S. Govt. Printing Office, Washington, DC 20402.

12. The Merck Index: An Encyclopedia of Chemicals and Drugs. Merck and Company Inc. Rahway, N.J., 1976 (or latest edition).

13. Sax, N.I. Dangerous Properties of Industrial Materials, 5th edition, Van Nostrand Reinhold, NY., 1979.

14. Sittig, Marshall, Handbook of Toxic and Hazardous Chemicals, Noyes Publications, Park Ridge, NJ, 1981.

(c) Information on Ventilation:

1. American Conference of Governmental Industrial Hygienists Industrial Ventilation (latest edition), 6500 Glenway Avenue, Bldg. D-7, Cincinnati, Ohio 45211-4438.

2. American National Standards Institute, Inc. American National Standards Fun-

damentals Governing the Design and Operation of Local Exhaust Systems ANSI Z 9.2-1979 American National Standards Institute, N.Y. 1979.

3. Imad, A.P. and Watson, C.L. Ventilation Index: An Easy Way to Decide about Hazardous Liquids, Professional Safety pp 15-18, April 1980.

4. National Fire Protection Association, Fire Protection for Laboratories Using Chemicals NFPA-45, 1982.

Safety Standard for Laboratories in Health Related Institutions, NFPA, 56c, 1980.

Fire Protection Guide on Hazardous Materials, 7th edition, 1978.

National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

5. Scientific Apparatus Makers Association (SAMA), Standard for Laboratory Fume Hoods, SAMA LF7-1980, 1101 16th Street, NW., Washington, DC 20036.

(d) Information on Availability of Referenced Material:

1. American National Standards Institute (ANSI), 1430 Broadway, New York, NY 10018.

2. American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103.

[55 FR 3327, Jan. 31, 1990; 55 FR 7967, Mar. 6, 1990; 55 FR 12111, Mar. 30, 1990; 57 FR 29204, July 1, 1992; 61 FR 5508, Feb. 13, 1996; 71 FR 16674, Apr. 3, 2006]

Subject Index for 29 CFR Part 1910—Occupational Safety and Health Standards

EDITORIAL NOTE: This listing is provided for information purposes only. It is compiled and kept up-to-date by the Department of Labor. This index is updated as of July 1, 2006.

Subject term	Section No.	Subject term	Section No.
A-Frame Derricks: (see also Derricks)	.181	Effective Dates .....	.149(a)
AIDS (see Bloodborne pathogens) .....	.1030	Standards Sources .....	.150
Aboveground storage tanks, flammable and combustible liquid.	.106(b)(2)	2-Acetylaminofluorene .....	.1003
Spacing .....	.106(b)(2)(ii)	Area requirements .....	.1003(c)
Venting .....	.106(b)(2) (iv), (v), (vi)	Closed system operation .....	.1003(c)(2)
Spill control .....	.106(b)(2) (viii)	Isolated systems .....	.1003(c)(1)
Abrasive Blasting: (see also Ventilation).	.94	Maintenance and decontamination activities.	.1003(c)(5)
Air Compressors, Breathing Air ....	.94(a)(6)	Open-vessel system operations.	.1003(c)(3)
Air Supply, Breathing .....	.94(a)(6)	Transfer from a closed operation.	.1003(c)(4)
Blast Cleaning Enclosures .....	.94(a)(3)	Medical surveillance .....	.1003(g)
Cleaning Nozzles .....	.244(b)	Examinations .....	.1003(g)(1)
Dust Hazards .....	.94(a)(2)	Records .....	.1003(g)(2)
Abrasive Wheel Machinery:		Regulated area requirements .....	.1003(d)
Blotters .....	.215(c)(6)	Contamination control .....	.1003(d)(4)
Definitions .....	.211(b)	Emergencies .....	.1003(d)(2)
Effective Dates .....	.220	Hygiene facilities and practices.	.1003(d)(3)
Excluded Machinery .....	.215(a)(5)	Reports .....	.1003(f)
Flanges .....	.215(a)(3), (c)	Incidents .....	.1003(f)(2)
Guard Design .....	.215(a)(2)	Operations .....	.1003(f)(1)
Specifications .....	.215(b)(12)	Signs, information, and training ....	.1003(e)
Guard Exposure Angles .....	.215(b)(2)	Container contents identification.	.1003(e)(2)
Band Type .....	.215(b)(11)	Lettering .....	.1003(e)(3)
Bench and Floor Stands .....	.215(b)(3)	Prohibited statements .....	.1003(e)(4)
Cup Wheels .....	.215(b)(1)	Signs .....	.1003(e)(1)
Cylindrical Grinders .....	.215(b)(4)	Training and indoctrination ....	.1003(e)(5)
Dimensions .....	.215(b)(10)	Acetylene .....	.102
Material Requirements .....	.215(b)(10)	Cylinders .....	.102(a), (c)
Snagging Machines .....	.215(b)(7)	Generators .....	.102(c)
Surface Grinding .....	.215(b)(5)	Pipe Systems .....	.102(b)
Swing Frame .....	.215(b)(6)	Acetylene Generators .....	.253(f)
Guarding .....	.215(a)(1), (b)	Approval .....	.253(f)(1)
Mounting .....	.215(d)	Location .....	.253(f)(3)
Arbor Size .....	.215(d)(2)	Maintenance .....	.253(f)(7)
Blotters .....	.215(d)(5)	Marking .....	.253(f)(1)
Bushings .....	.215(d)(4)	Operation .....	.253(f)(7)
Inspections .....	.215(d)(1)	Portable .....	.253(f)(5)
Multiple Wheel .....	.215(d)(6)	Pressure Limits .....	.253(f)(2)
Ring Test .....	.215(d)(1)	Rating .....	.253(f)(2)
Surface Conditions .....	.215(d)(3)	Stationary .....	.253(f)(4)
Standards Sources .....	.221	Houses and Rooms .....	.253(f)(6)
Work Rests .....	.215(a)(4)	Acid Carboys .....	.262(nn)
Abrasive Wheel Machinery, Portable:		Acrylonitrile .....	.1045
Definitions .....	.241(b)	Emergency situations .....	.1045(i)
Guarding .....	.243(c)	Employee information and training .....	.1045(o)
Cup Wheels .....	.243(c)(2)	Exposure monitoring .....	.1045(e)
General Requirements .....	.243(c)(1)	Housekeeping .....	.1045(k)
Other Type Grinders .....	.243(c)(4)	Hygiene facilities and practices ....	.1045(m)
Vertical Grinders .....	.243(c)(3)	Medical surveillance .....	.1045(n)
Inspection .....	.243(c)(5)	Methods of compliance .....	.1045(g)
Mounting .....	.243(c)(5)	Notification of regulated areas and emergencies.	.1045(d)
Abrasive Wheels: (see Abrasive Wheel Machinery)		Observation and monitoring .....	.1045(r)
Access:		Permissible exposure limit .....	.1045(c)
Bulk Oxygen Systems .....	.104(b)(2)(ii)	Protective clothing and equipment .....	.1045(j)
Cranes .....	.179(c)(2)	Recordkeeping .....	.1045(q)
Exposure and medical records ....	.1020	Regulated areas .....	.1045(f)
Industrial Plants .....	.106(e)(9)(ii)	Respiratory protection .....	.1045(h)
Powered Platforms .....	.66	Signs and labels .....	.1045(p)
Processing Plants .....	.106(h)(8)(ii)	Waste disposal .....	.1045(l)
Spraying Operations, Vents .....	.107(d)(10)	Adjustments:	
Sprinkler valve .....	.107(f)(2)	Cranes .....	.179(l)(3)
Accident Prevention Signs and Tags: (see also Signs and Tags).	.145		

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Derricks .....	.181(f)(2), (3)
AEC Licensees .....	.96(p)
Agricultural Operations .....	.267
Air Compressors, Abrasive Blasting .....	.94(a)(6), .134(d)(2)(ii)
Air Contaminants .....	.1000, .1001
Effective Dates .....	.98, .1000
Exposure Limits .....	.1000, .1001
Permissible exposure limits .....	.1000
Standards Sources .....	.99
Air Controlling Equipment, Power Presses .....	.217(b)(10)
Air Lift Hammers, Forging .....	.218(e)(1)
Air Quality .....	.134(d)
Air Receivers:	
Application .....	.169(a)(1)
Compressed Air .....	.169
Equipment:	
Drains .....	.169(b)(2)
Installation .....	.169(b)(1)
Pressure Gages .....	.169(b)(3)
Traps .....	.169(b)(2)
Valves .....	.169(b)(3)
Standards Sources .....	.169(a)(2), .170
Air Supply .....	.94(a)(6), .134(d)
Airborne Radioactive Materials Exposure Limits .....	.96(c)
Airhoses .....	.243(b)(2)
Aisles:	
Working Surfaces .....	.22(b)
Alarms: (see also Fire Alarms, Sprinklers, Warning Devices)	
Employee alarm systems .....	.165
Mills and Calenders .....	.216(g)
Rubber and Plastics .....	.216(g)
4-Aminodiphenyl .....	.1003
Area requirements .....	.1003(c)
Closed system operation .....	.1003(c)(2)
Isolated systems .....	.1003(c)(1)
Maintenance and decontamination activities .....	.1003(c)(5)
Open-vessel system operations .....	.1003(c)(3)
Transfer from a closed operation .....	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated area requirements .....	.1003(d)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices .....	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, information, and training .....	.1003(e)
Container contents identification .....	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and indoctrination .....	.1003(e)(5)
Ammonia, Anhydrous: (see also Anhydrous Ammonia) .....	.111
Ammonium Nitrate .....	.109(i)
Bulk Storage .....	.109(i)(4)
Containers .....	.109(i)(3)
Contaminants .....	.109(i)(5)
Electrical Installations .....	.109(i)(6)
Fire Protection .....	.109(i)(7)
Separation Walls .....	.109(i)(5)
Warehouses .....	.109(i)(4)
Anchoring Fixed Machinery .....	.212(a)(5), (b)

Subject term	Section No.
Anhydrous Ammonia:	
Containers:	
Appurtenances .....	.111(b)(6)
Charging .....	.111(b)(11)
DOT .....	.111(e)
Farm Vehicles .....	.111(g), (h)
Location .....	.111(b)(5)
Motor Vehicle .....	.111(f)
Markings .....	.111(b)(3)
Non-Refrigerated .....	.111(b)(2), (c)
Refrigerated .....	.111(d)
Markings .....	.111(b)(4)
Safety Relief Devices .....	.111(b)(9), (c)(3), (d)(4), (f)(5)
Electrical Systems .....	.111(b)(16)
Fittings .....	.111(b)(7)
Handling .....	.111
Hoses .....	.111(b)(8)
Liquid Level Gaging Devices .....	.111(b)(14)
Liquid Transfer .....	.111(b)(12), (f)(6)
Piping .....	.111(b)(7)
Standards Sources .....	.115
Storage .....	.111
Tank Car Unloading .....	.111(b)(13)
Tubing .....	.111(b)(7)
Appliances:	
Electric .....	.306(d)(1)
Liquefied Petroleum Gases .....	.110(b)(20), (g)(11)
Arbor Grinding Wheels .....	.215(d)(2)
Arc Welding .....	.254
Environmental Conditions .....	.254(b)(2)
Equipment:	
Design .....	.254(b)(4)
Disconnecting Means .....	.305(j)(3)
Grounding .....	.254(c)(2)
Installation .....	.254(c)
Maintenance .....	.254(d)(9)
Operation .....	.254(d)
Personnel Protection .....	.252(b)
Protection from Rays .....	.252(b)(2)(iii)
Supply Connections .....	.254(c)(3), (d)(3)
Health Protection .....	.252(c)
Ventilation .....	.252(b)(4)(ii), (c)
Voltage .....	.254(b)(3)
Arsenic, Inorganic .....	.1018
Asbestos:	
Airborne Concentration .....	.1001(c)
Caution Signs and Labels .....	.1001(g)
Change Rooms .....	.1001(d)(4)
Compliance .....	.1001(f)
Definitions .....	.1001(a)
Exposure, Permissible .....	.1001(c)
Fibers Exposure, Permissible .....	.1001(b)
Hazard Communication .....	.1001(j)
Housekeeping .....	.1001(k)
Hygiene Facilities and Practices .....	.1001(i)
Medical Surveillance .....	.1001(l)
Measurements .....	.1001(e)
Medical Examinations .....	.1001(j)
Monitoring .....	.1001(d)
Personal Protective Equipment .....	.1001(h)
Recordkeeping .....	.1001(m)
Regulated Areas .....	.1001(e)
Respiratory protection .....	.1001(g)
Special Clothing .....	.1001(d)(3)
Waste Disposal .....	.1001(h)(2)
Atmospheric Contaminants: (see Air Contaminants)	
Atmospheric Tanks .....	.106(b)(1)(iii)
Attendants:	
Liquefied Hydrogen Systems .....	.103(c)(4)(ii)
Liquefied Petroleum Gases .....	.110(b)(14)
Automatic Sprinkler Systems: (see also Sprinkler Systems, Automatic) .....	.159

Subject term	Section No.	Subject term	Section No.
Automobile Undercoatings .....	.107(k)	Emergencies .....	.1003(d)(2)
Baffle Plates:		Hygiene facilities and practices.	.1003(d)(3)
Spray Booths .....	.107(b)(4)	Reports .....	.1003(f)
Bakery Equipment .....	.263(k)	Incidents .....	.1003(f)(2)
Air Conditioning .....	.268(i)(14)	Operations .....	.1003(f)(1)
Bag Chutes and Lifts .....	.263(d)(2)	Signs, information, and training ....	.1003(e)
Biscuit Equipment .....	.263(k)	Container contents identification.	.1003(e)(2)
Blenders .....	.263(d)(3)	Lettering .....	.1003(e)(3)
Bolting Reels .....	.263(d)(5)	Prohibited statements .....	.1003(e)(4)
Conveyors .....	.263(d)(7), (i)(7)	Signs .....	.1003(e)(1)
Cracker Equipment .....	.263(k)	Training and indoctrination ....	.1003(e)(5)
Dividers .....	.263(f)	Beryllium .....	.1000, Table Z-2
Dough Brakes .....	.263(h)	Bins, Bulk Storage of Explosives .....	.109(g)(4)
Dumpbins .....	.263(d)(3)	Biological Hazards Signs and Tags ....	.145(e)(4), (f)(8)
Flour Elevators .....	.263(d)(4)	Blades Exposure .....	.212(a)(5)
Flour Handling Equipment .....	.263(d)	Blankets, Rubber Insulating .....	.137
Machine Guarding .....	.263(c)	Blasting Agents (see also Explosives and Blasting Agents).	.109(g), (k) (1), (2), .119
Miscellaneous Equipment .....	.263(i)	Bulk Delivery .....	.109(g)(3), (h)(4)
Mixers .....	.263(e)	Bulk Storage Bins .....	.109(g)(4)
Moulders .....	.263(g)	Effective Dates .....	.114
Ovens .....	.263(i)	Mixing, Fixed Location .....	.109(g)(2), (h)(3)
Pulverizers .....	.263(k)(2)	Mixing Vehicles .....	.109(g)(3), (h)(4)
Scales, Flour .....	.263(d)(9)	Slurries .....	.109(h)
Sifters .....	.263(d)(8)	Standards Sources .....	.115
Slicers .....	.263(j)	Storage .....	.109(g)(5)
Storage Bins .....	.263(d)(6)	Transportation .....	.109(g)(6)
Wrappers .....	.263(j)	Use .....	.109(g)(7)
Ballast, Cranes .....	.180(i)(2)	Water Gels .....	.109(h)
Band Saws and Resaws .....	.213(i)	Bleaching:	
Barking Devices:		Pulp and Paper Mills .....	.261(h)
Hydraulic .....	.261(e)(14)	Textiles .....	.262(p)
Pulp Wood and Chips .....	.261(c), (e)(8)	Bloodborne pathogens .....	.1030
Sawmills .....	.265(d)(4)	Effective dates .....	.1030(i)
Barrels:		Engineering and work-practice controls.	.1030(d)(2)
Guarding .....	.212(a)(4)	Housekeeping .....	.1030(d)(4)
Basket Derricks: (see Derricks) .....	.181	Laboratories and production facilities, HIV and HBV research.	.1030(e)
Bathing Facilities:		Personal protective equipment ....	.1030(c)(2)(ii), (d)(2)(i), (3)
Labor Camps .....	.142(f)	Recordkeeping .....	.1030(f)(6), (h)
Battery Changing and Charging .....	.178(g), .305(j)(7)	Training .....	.1030(e)(5), (g)(2)
Bearings .....	.219(j), (p)(3)	Vaccinations, HBV .....	.1030(f)
Belts:		Warning labels and signs .....	.1030(g)(1)
Definitions .....	.211(f)(1)-(3)	Blotters .....	.215(c)(1)(v), (c)(6), (d)(5)
Manlifts .....	.68(c)(1)	Board Drop Hammers .....	.218(e)(2)
Power Transmission Apparatus ....	.219(e)(1), (o)(3), (p)(6)	Boatswain's Chair Scaffolds .....	.28(j)
Bench and Floor Stands Guarding .....	.215(b)(3)	Employee Protection .....	.28(j)(4)
Benzene .....	.1028	Fiber Ropes .....	.28(j)(2)
Communication of benzene hazards to employees.	.1028(j)	Life Belts .....	.28(j)(4)
Exposure monitoring and measurement.	.1028(e)	Roof Irons, Hooks .....	.28(j)(6)
Medical surveillance .....	.1028(i)	Seat Slings .....	.28(j)(3)
Methods of compliance .....	.1028(f)	Size .....	.28(j)(1)
Observation of monitoring .....	.1028(l)	Tackle .....	.28(j)(5)
Permissible exposure limit .....	.1028(c)	Boom Guards:	
Protective clothing and equipment .....	.1028(h)	Cranes .....	.180(j)(2)
Recordkeeping .....	.1028(k)	Derricks .....	.181(j)(5)(ii)
Regulated areas .....	.1028(d)	Booms, Derricks .....	.181(i)(6)
Respiratory protection .....	.1028(g)	Boring Machines .....	.213(l)
Benzidine .....	.1003	Brakes:	
Area requirements .....	.1003(c)	Bandsaws .....	.213(j)(1)
Closed system operation .....	.1003(c)(2)	Bridges .....	.179(f)(4), (6)
Isolated systems .....	.1003(c)(1)	Control .....	.179(f)(3)
Maintenance and decontamination activities.	.1003(c)(5)	Cranes .....	.179(f)
Open-vessel system operations.	.1003(c)(3)	Friction, Power Presses .....	.217(b)(2)
Transfer from a closed operation.	.1003(c)(4)	Hoists .....	.179(f)(1)
Medical surveillance .....	.1003(g)	Holding .....	.179(f)(2)
Examinations .....	.1003(g)(1)	Industrial Trucks .....	.178(g), (h), (m)(5)
Records .....	.1003(g)(2)	Manlifts .....	.68(c)(1)(f)
Regulated area requirements .....	.1003(d)	Power Control .....	.179(f)(3)
Contamination control .....	.1003(d)(4)		

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.	Subject term	Section No.
Trolleys .....	.179(f)(4), (5)	1,3 Butadiene:	
Brazing: (see also Welding) .....	.252	Permissible Exposure Limits .....	.1051(c)
Definitions .....	.251	Exposure Monitoring .....	.1051(d)
Standards Sources .....	.256	Regulated Areas .....	.1051(e)
Breast Derricks: (see also Derricks) ....	.181(a)(4)	Methods of Compliance .....	.1051(f)
Bricklayers' Square Scaffolds .....	.28(l)	Exposure Goal Program .....	.1051(g)
Bridge Bumpers, Cranes .....	.179(e)(2)	Respiratory Protection .....	.1051(h)
Bridge Plates: (see also Dockboards) ..	.30(a)	Protective Clothing and Equipment ..	.1051(i)
Buffing: (see Grinding, Polishing and		Emergency Situations .....	.1051(j)
Buffing)		Medical Screening and Surveil-	.1051(k)
Building Maintenance Powered Plat-	.66	lance.	
forms.		Communication of BD Hazards to	.1051(l)
Buildings, Sawmills .....	.265(c)	Employees.	
Bulk Delivery:		Recordkeeping .....	.1051(m)
Blasting Agents .....	.109(g)(3), (h)(4)	Cabinets, Flammable and Combustible	.106(d)(3)
Explosives .....	.109(h)(4)	Liquid storage.	
Bulk Oxygen Systems .....	.104	Size .....	.106(d)(3)(i)
Accessibility .....	.104(b)(2)(ii)	Fire resistance .....	.106(d)(3)(ii)
Cleaning .....	.104(b)(8)(i)	Cabs:	
Clear Zone .....	.104(b)(10)(ii)	Cranes .....	.179(c), (o)(2);
Containers .....	.104(b)(4), (6)	180(i)(3)	
Gaseous .....	.104(b)(4)(iii)	Derricks .....	.181(j)(6)
Liquid .....	.104(b)(4)(ii)	Cadmium .....	.252(c)(9)
Dikes .....	.104(b)(2)(v)	Airborne Concentration .....	.1027(c)
Distances from Hazards .....	.104(b)(3)	Compliance .....	.1027(f)
Combustible Liquids .....	.104(b)(3)(vii), (viii)	Confined Spaces .....	.252(c)(9)(ii)
Combustible Materials .....	.104(b)(3)(x)	Emergency Situations .....	.1027(h)
Combustible Structures .....	.104(b)(3)(ii)	Exposure, Permissible .....	.1027(c)
Congested Areas .....	.104(b)(3)(xiii)	Hazard Communication .....	.1027(m)
Fire Resistant Structures .....	.104(b)(3)(iii)	Housekeeping .....	.1027(k)
Flammable Gases .....	.104(b)(3)(ix)	Hygiene Areas and Practices .....	.1027(j)
Flammable Liquids .....	.104(b)(3)(v), (vi)	Indoors .....	.252(c)(9)(i)
Openings .....	.104(b)(3)(iv)	Medical Surveillance .....	.1027(l)
Slow-Burning Materials .....	.104(b)(3)(xi)	Monitoring .....	.1027(d)
Electrical Wiring .....	.104(b)(8)(ix)	Personal Protective Equipment ....	.1027(i)
Firewalls .....	.104(b)(3)(viii)	Clothing .....	.1027(i)
Fittings .....	.104(b)(5)	Recordkeeping .....	.1027(n)
Inspection .....	.104(b)(10)(i)	Regulated Areas .....	.1027(e)
Installation .....	.104(b)(8)(iv)	Respiratory protection .....	.1027(g)
Joints .....	.104(b)(8)(ii)	Warning Labels .....	.252(c)(1)(v).
Leakage .....	.104(b)(2)(iii)	Calcium Carbide:	
Liquid Oxygen Vaporizers .....	.104(b)(7)	Indoors .....	.253(g)(2)
Grounding .....	.104(b)(7)(iv)	Packaging .....	.253(g)(1)
Location .....	.104(b)(2)	Storage .....	.253(g)(2), (3)
Maintenance .....	.104(b)(10)	Calenders .....	.262(ee)
Marking .....	.104(b)(8)(viii)	Rubber and Plastics Industry:	
Operating Instructions .....	.104(b)(9)	Alarms .....	.216(g)
Piping .....	.104(b)(5)	Location Protection .....	.216(d)(2)
Placarding .....	.104(b)(8)(viii)	Safety Controls .....	.216(c)
Safety Relief Devices .....	.104(b)(6), (7)(ii)	Stopping Limits .....	.216(f)(1), (3)
All Containers .....	.104(b)(6)(i)	Switches, Trip and Emer-	.216(e)
ASME Containers .....	.104(b)(6)(iii)	gency.	
DOT Containers .....	.104(b)(6)(ii)	Textiles .....	.262(ee)
Security .....	.104(b)(8)(vi)	Canisters, Gas Mask: (see Gas Mask	
Storage Containers .....	.104(b)(4), (6)	Canisters, Respirators)	
Testing .....	.104(b)(8)(v)	Cantilever Gantry Cranes: (see Gantry	
Tubing .....	.104(b)(5)	Cranes)	
Vaporizers .....	.104(b)(7)	Carpenters' Bracket Scaffolds .....	.28(k)
Ventilation .....	.104(b)(3)(xii)	Bracket Attachment .....	.28(k)(2)
Venting .....	.104(b)(8)(vii)	Bracket Dimensions .....	.28(k)(1)
Bulk Plants, Flammable and Combust-	.106(f)	Employee Protection .....	.28(k)(3)
ble Liquids.		Guardrails .....	.28(k)(5)
Buildings .....	.106(f)(2)	Platform Size .....	.28(k)(4)
Drainage .....	.106(f)(7)	Caustics .....	.262(oo)
Electrical Equipment .....	.106(f)(5)	Emergency Showers .....	.261(g)(18)(i)
Fire Protection .....	.106(f)(8)	Pipeline Identification .....	.261(h)(3)(vi)
Ignition Sources .....	.106(f)(6)	Caution Signs and Labels .....	.145(c)(2), (d)(4)
Liquid Storage .....	.106(f)(1)	Asbestos .....	.1001(g)
Loading .....	.106(f)(3)	Fluorides .....	.252(c)(1)(iv)
Waste Disposal .....	.106(f)(7)	Ionizing Radiation .....	.96(e), (g), (h)
Wharves .....	.106(f)(4)	Welding .....	.252(c)(1)(iv)
Bumpers:		Ceiling Workers' Scaffolds: (see also	.28(o)
Bridge .....	.179(e)(2)	Plasterers' Scaffolds).	
Trolley .....	.179(e)(3)	Chain Guarding .....	.219(f)

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

Subject term	Section No.	Subject term	Section No.
Change Rooms:		Powder Coatings .....	.107(l)(4)(i)
Asbestos .....	.1001(d)(4)	Powered Platforms .....	.66(e)(7)
Drying Facilities .....	.141(f)	Respirators .....	.134(f)(3)
Separate Facilities .....	.141(e)	Solvents .....	.107(g)(5)
Charge Initiation .....	.109(e)(4)	Spray Booths .....	.107(b)(9)
Chemical Plants: (see also Refineries, Chemical Plants and Distilleries).	.106(i)	Spraying Operations .....	.107(g)(2)
Chemicals, hazard communication .....	.1200	Cleaning Compounds .....	.252(c)(11)
Chemicals, hazardous; occupational exposure in laboratories:		Degreasing .....	.252(c)(11)(ii)
Chemical Hygiene Plan .....	.1450(e)	Manufacturer's Instructions .....	.252(c)(11)(i)
Exposure determination, moni- toring .....	.1450(d)	Cleaning Solvents:	
Hazard identification .....	.1450(h)	Spraying .....	.107(g)(5)
Hygiene recommendations .....	.1450, App. A	Clear Zones:	
Medical consultations and exami- nations .....	.1450(g)	Bulk Oxygen Systems .....	.104(b)(10)
Permissible exposure limits .....	.1450(c)	Industrial Plants .....	.106(e)(9)(iv)
Recordkeeping .....	.1450(j)	Liquefied Hydrogen Systems .....	.103(c)(5)(ii)
Respirator use .....	.1450(i)	Processing Plants .....	.106(h)(8)(iv)
Training .....	.1450(f)	Clearances:	
Chemicals, highly hazardous; process safety management.	.119	Cranes .....	.179(b)(6), .180(j)(1)
Chemicals, toxic and reactive, threshold list .....	.119, App. A	Derricks .....	.181(j)(5)
Compliance guidelines .....	.119, App. A	Fixed Ladders .....	.27(c)
Contractor, employer responsibil- ities .....	.119(h)	Back .....	.27(c)(4)
Emergency planning and response Hot work (welding) permits .....	.119(h)	Climbing Side .....	.27(c)(1)
Trade secrets .....	.119(p)	Grab Bars .....	.27(c)(5)
Training .....	.119(g)	Hatch Covers .....	.27(c)(7)
Chicago Boom Derricks: (see also Der- ricks).	.181	Step-Across Distance .....	.27(c)(6)
Chicken Ladders: (see also Crawling Boards).	.28(t)	With Cages or Baskets .....	.27(c)(3)
bis-Chloromethyl ether .....	.1003	Without Cages or Wells .....	.27(c)(2)
Area requirements .....	.1003(c)	Manlifts .....	.68(b)(11)
Closed system operation .....	.1003(c)(2)	Spraying Discharges .....	.107(d)(8)
Isolated systems .....	.1003(c)(l)	Stairs .....	.24(i)
Maintenance and decon- tamination activities .....	.1003(c)(5)	Clothing, Protective: (see also Per- sonal Protective Equipment).	.252(b)(3), .132
Open-vessel system oper- ations .....	.1003(c)(3)	Asbestos .....	.1001(d)(3)
Transfer from a closed oper- ation .....	.1003(c)(4)	Body .....	.156(e)(3)
Medical surveillance .....	.1003(g)	Electrical .....	.137
Examinations .....	.1003(g)(1)	Eye .....	.133, .156(e)(5)
Records .....	.1003(g)(2)	Face .....	.133, .156(e)(5)
Regulated area requirements .....	.1003(d)	Fire brigade .....	.156
Contamination control .....	.1003(d)(4)	Footwear .....	.136, .156(e)(2)
Emergencies .....	.1003(d)(2)	Goggles .....	.133
Hygiene facilities and prac- tices .....	.1003(d)(3)	Hand .....	.156(e)(4)
Reports .....	.1003(f)	Head .....	.135, .156(e)(5)
Incidents .....	.1003(f)(2)	Helmets .....	.135
Operations .....	.1003(f)(1)	Leg .....	.156(e)(3)
Signs, information, and training .....	.1003(e)	Rubber .....	.137
Container contents identifica- tion .....	.1003(e)(2)	Storage .....	.107(g)(4)
Lettering .....	.1003(e)(3)	Welders .....	.252(b)(3)
Prohibited statements .....	.1003(e)(4)	Clutches .....	.217(b)(3), (7)
Signs .....	.1003(e)(1)	Definition .....	.180(a)(19)
Training and indoctrination .....	.1003(e)(5)	Power Transmission Apparatus .....	.219(k)
Chute Openings .....	.23(a)(2)	Coatings, Spray:	
Circular Resaws .....	.213(e)	Dual Component .....	.107(m)
Circular Saws .....	.213(f)	Organic Peroxide .....	.107(m)
Arbors .....	.213(s)(4)	Powder .....	.107(l)
Portable .....	.243(a)(1)	Undercoatings .....	.107(k)
Clean Air, Spray Finishing .....	.94(c)(7)	Collars .....	.219(i)
Cleaning:		Coke oven emissions .....	.1029
Air Receivers .....	.169	Employee information and training .....	.1029(k)
Bulk Oxygen Systems .....	.104(b)(8)(i)	Exposure monitoring and meas- urement .....	.1029(e)
Compressed Air .....	.242(b)	Hygiene facilities and practices .....	.1029(i)
		Medical surveillance .....	.1029(j)
		Methods of compliance .....	.1029(f)
		Observation of monitoring .....	.1029(n)
		Permissible exposure limit .....	.1029(c)
		Protective clothing and equipment .....	.1029(h)
		Precautionary signs and labels .....	.1029(l)
		Recordkeeping .....	.1029(m)
		Regulated areas .....	.1029(d)
		Respiratory protection .....	.1029(g)
		Color Codes:	
		Air Contaminants .....	.134(g)(6)
		Danger .....	.144(a)(1)(ii), .145(d)(2)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Effective Dates	.149
Gas Mask Canisters	.134(g)(6)
Physical Hazards, Colors	.144(a), .145(d)(2)
Respirators	.134(g)(6)
Standards Sources	.150
Stop	.144(a)(1)(iii)
Combustible Dusts, Trucks Used	.178(c)(2)(vi)
Combustible Liquids: (see also Flammable and Combustible Liquids)	.106
Effective Dates	.114
Standards Sources	.115
Combustible Materials:	
Welding	.252(a)(2)
Communicable Diseases Reporting:	
Labor Camps	.142(l)
Communications, Powered Platforms	.66(e)(11)(vi)
Compressed Air, Cleaning	.242(b)
Compressed Air Equipment: (see also Compressed Gas Equipment)	
Air Receivers	.169
Compressed Gas Cylinders: (see also Compressed Gases)	.253(a)(2)
Approval	.252(b)(1)
Inspection	.101(a)
Manifolding	.253(c)
Markings	.253(b)(1)
Operating Procedures	.253(b)(5)
Oxygen Manifolds	.253(c)(2), (3)
Public Protection	.101(c), .252(a)(8)
Safety Relief Valves	.101(c)
Standards Sources	.170
Storage	.253(b)(2)–(4)
Compressed Gas Equipment: (see Compressed Gas Cylinders)	
Compressed Gases: (see also Compressed Gas Cylinders)	.101
Effective Dates	.114
Handling	.101(b)
Safety Relief Devices	.101(c)
Standards Sources	.115
Storage	.101(b)
Conductors: (see also Electric Wiring)	
Cranes	.179(g)(1)(iv), (6)
General Wiring	.305(f)
Confined Spaces, Hazardous work	.120(b)(4)(ii)(l), (c)(3)
Electrical safety-related work practices.	.333(c)(5)
Confined Spaces:	
Atmospheric testing flow charts	.146, App. B
Attendant duties	.146(i)
Authorized entrant duties	.146(h)
Entry supervisor duties	.146(j)
Flow chart, decisions	.146, App. A
Instruction of employees relating to.	.21(b)(6)
Permit samples	.146, App. D
Program examples	.146, App. C
Rescue and emergency services	.146(k)
Sewer system entry	.146, App. E
Training	.146(g)
Welding and Cutting	.353(b), .352(g)
Containers: (see also Tank Storage, Portable)	
Ammonium Nitrate	.109(i)(3)
Bulk Oxygen Systems	.104(b)(4), (6)
Gaseous	.104(b)(4)(iii)
Liquid	.104(b)(4)(ii)
Flammable and Combustible Liquids.	.106(d)
Design	.106(d)(2)
Bulk plants, storage	.106(f)
Industrial plants, storage	.106(e)(2)(ii)
Service stations, storage	.106(g)(1)

Subject term	Section No.
Processing plants	.106(h)(4)
Gaseous Hydrogen Systems	.103(b)(1)(i)
Guarding	.212(a)(4)
Liquefied Hydrogen Systems	.103(c)(1)(i)
Liquefied Petroleum Gases	.110
Spraying	.107(e)(3), (5)
Welding, Gas	.253(a), (b)
Containers, Liquefied Petroleum Gases	.110
Accessories	.110(b)(7); (c)(6); (d)(3), (8); (e)(5)
Awaiting Use or Resale	.110(f)
Capacity	.110(d)(6), (h)(5)
Charging Plants	.110(d)(13)
Construction	.110(b)(3)
Cylinder Systems	.110(c)
Accessories	.110(c)(6)
Indoor	.110(c)(5)
Markings	.110(c)(2)
Outdoor	.110(c)(4)
Valves	.110(c)(6)
Filling Densities	.110(b)(12)
Fire Protection	.110(d)(14)
Fittings	.110(b)(8); (e)(6); (h)(7), (9)
Hoses	.110(b)(9)
Industrial Plants	.110(d)(12)
Installation	.110(e)(4), (h)(6)
Lighting	.110(d)(16)
Location	.110(b)(6), (f)(5)
Markings	.110(b)(5), (c)(2)
Non-DOT Containers	.110(d)
Accessories	.110(d)(3)
Capacity	.110(d)(6)
Installation	.110(d)(7)
Pipes	.110(d)(3)
Pressure, Design	.110(d)(2)
Reinstallation	.110(d)(5)
Safety Relief Devices	.110(d)(4)
Valves	.110(d)(3)
Original Testing	.110(b)(4)
Piping	.110(b)(8), (d)(3), (e)(6), (h)(10), (h)(9)
Pressure Design	.110(d)(2), (e)(3)
Safety Relief Devices	.110(b)(10), (c)(7), (d)(4), (e)(7), (h)(4)
Tubing	.110(b)(8), (e)(6)
Valves	.110(b)(7), (c)(6), (d)(3), (e)(5), (h)(9)
Vaporizers	.110(b)(11), (d)(17), (e)(8)
Welding	.110(b)(4)
Controllers:	
Cranes	.179(g)(3)
Conveyors:	
Bakeries	.263(d)(7), (i)(7)
Electrostatic Spraying	.107(h)(7)
Forging Machines	.218(j)(3)
Sawmills	.265(c)(18)
Spray Booths	.107(b)(7)
Corrosion Protection:	
Piping, Valves and Fittings	.106(c)(5)
Storage Tanks	.106(b)(1)(vi)
Underground Tanks	.106(b)(3)(iii)
Cotton Dust	.1043
Counterbalances	.217(b)(9)
Counterweights:	
Cranes	.180(i)(2)
Covers, Openings:	
Working Surfaces	.22(e); 23(a)(1), (3)(i), (5), (6), (8)(ii), (9)

Subject term	Section No.	Subject term	Section No.
Cranes:		Signs and labels .....	.1044(o)
Crawler .....	.180	Dead-Man Controls .....	.243(a)(2)
Definitions .....	.179(a)	Decorators' Scaffolds: (see also Plas-	.28(o)
Effective Dates .....	.179(b)(2), .180(b)(2), .182	Degreasing:	
Electric .....	.306(b)	Cleaning Compounds .....	.252(c)(11)(ii)
Gantry .....	.179	Derricks:	
Locomotive .....	.180	Adjustments .....	.181(f)(3)
Overhead .....	.179	Cabs .....	.181(j)(6)
Pulp and Paper Mills .....	.261(c)(8)	Electric Power Lines .....	.181(j)(5)
Standards Sources .....	.183	Fire Extinguishers .....	.181(j)(3)
Truck .....	.180	Guards .....	.181(j)(1)
Crawler Cranes: (see also Crawler, Lo-	.180	Hooks .....	.181(j)(2)
comotive and Truck Cranes).		Inspections .....	.181(d) and (g)
Crawler, Locomotive and Truck Cranes	.180	Load Handling .....	.181(i)
Cabs .....	.180(i)(3)	Load Ratings .....	.181(c)
Electric Power Lines .....	.180(j)	Maintenance .....	.181(f)
Fire Extinguishers .....	.180(i)(5)	Operations .....	.181(h)
Inspections .....	.180(d)	Refueling .....	.181(j)(4)
Frequent .....	.180(d)(3)	Repairs .....	.181(f)(3)
Idle (Irregular) .....	.180(d)(5)	Rope Inspections .....	.181(g)
Initial .....	.180(d)(1)	Standards Sources .....	.183
Periodic .....	.180(d)(4)	Testing .....	.181(e)
Records .....	.180(d)(6)	3,3'-Dichlorobenzidine (and its salts) ...	.1003
Ropes .....	.180(g)	Area requirements .....	.1003(c)
Load Handling .....	.180(h)	Closed system operation .....	.1003(c)(2)
Load Ratings .....	.180(c)	Isolated systems .....	.1003(c)(1)
Maintenance .....	.180(f)	Maintenance and decon-	.1003(c)(5)
Refueling .....	.180(i)(4)	tamination activities.	
Rope Inspection .....	.180(g)	Open-vessel system oper-	.1003(c)(3)
Standards Sources .....	.183	ations.	
Swinging Locomotives .....	.180(i)(6)	Transfer from a closed oper-	.1003(c)(4)
Testing .....	.180(e)	ation.	
Crawling Boards .....	.28(t)	Medical surveillance .....	.1003(g)
Crosscut Table Saws .....	.213(d)	Examinations .....	.1003(g)(1)
Cup Wheels .....	.243(c)(2)	Records .....	.1003(g)(2)
Flaring-Cup, Type 11 .....	.241(b)(8)	Regulated area requirements .....	.1003(d)
Straight-Cup, Type 6 .....	.241(b)(9)	Contamination control .....	.1003(d)(4)
Straight, Type 1 .....	.241(b)(10)	Emergencies .....	.1003(d)(2)
Curing Apparatus: (see Drying, Curing		Hygiene facilities and prac-	.1003(d)(3)
and Fusion Apparatus)		tices.	
Cutting: (see also Welding) .....	.252	Reports .....	.1003(f)
Containers .....	.252(a)(3)	Incidents .....	.1003(f)(2)
Definitions .....	.251	Operations .....	.1003(f)(1)
Ventilation .....	.252(c)	Signs, information, and training ...	.1003(e)
Cutting-Off Machines .....	.215(b)(5)	Container contents identifica-	.1003(e)(2)
Cutoff Couplings .....	.219(k)(1)	tion.	
Cutoff Saws, Swing .....	.213(g)	Lettering .....	.1003(e)(3)
Cylinders, Welding Gas .....	.253(b)	Prohibited statements .....	.1003(e)(4)
Manifolding .....	.253(c)	Signs .....	.1003(e)(1)
Operating Procedures .....	.253(b)(5)	Training and Indoctrination ...	.1003(e)(5)
Storage .....	.253(b)(2)-(4)	Dies .....	.217(d)
Cylindrical Grinders .....	.215(b)(4)	Changing .....	.218(h)(5)
Danger:		Fastening .....	.217(d)(7)
Color Codes .....	.144(a)(1)(ii)	Guide Post Hazards .....	.217(d)(4)
Signs .....	.145(c)(1), (d)(2)	Handling .....	.217(d)(3), (8)
Tag .....	.145(f)(5)	Requirements .....	.217(d)(1)
Dates, Effective: (see Effective Dates)		Scrap:	
DBCP (1,2-Dibromo 3-	.1044	Ejecting .....	.217(d)(2)
Chloropropane).		Handling .....	.217(d)(3)
Emergency situations .....	.1044(i)	Selling .....	.217(d)(9)
Employee information and training	.1044(n)	Stroke .....	.217(d)(6)
Exposure monitoring .....	.1044(f)	Tonnage .....	.217(d)(6)
Housekeeping .....	.1044(k)	Unitized Tooling .....	.217(d)(5)
Hygiene facilities and practices ....	.1044(l)	Weight .....	.217(d)(6)
Medical surveillance .....	.1044(m)	Diesel Powered Trucks .....	.178(b)(1)-(3)
Methods of compliance .....	.1044(g)	Dikes:	
Notification of use .....	.1044(d)	Bulk Oxygen Systems .....	.104(b)(2)(v)
Observation of monitoring .....	.1044(q)	Storage Tanks .....	.106(b)(2)(vii), (c)
Permissible exposure limit .....	.1044(c)	4-Dimethylaminoazobenzene .....	.1003
Protective clothing and equipment	.1044(j)	Area Requirements .....	.1003(c)
Recordkeeping .....	.1044(p)	Closed System Operation .....	.1003(c)(2)
Regulated areas .....	.1044(e)	Isolated Systems .....	.1003(c)(1)
Respirators .....	.1044(h)	Maintenance and decon-	.1003(c)(5)
		tamination activities.	

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Open-vessel System Operations.	.1003(c)(3)
Transfer from a closed operation.	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated Area Requirements .....	.1003(d)
Contamination Control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices.	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, Information, and Training ...	.1003(e)
Container Contents Identification.	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited Statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and Indoctrination ....	.1003(e)(5)
Dining Facilities: (see also Lunchrooms)	
Labor Camps .....	.142(i)
Dip Tanks: .....	.123–126
Application .....	.123(a)
Bottom Drains .....	.125(c)
Construction .....	.124(a), .125(a)
Conveyors .....	.125(d), .126(g)(2)
Covers .....	.125(f)(3)
Electrical Ignition Sources .....	.125(e)(1)
Electrostatic Apparatus .....	.126(g)
Fire Extinguishers .....	.125(f)(2)(i)
Fire Protection .....	.125(f)
Flow Coating .....	.126(b)
Hardening .....	.126(a)(1)(i),(ii)
Heating .....	.125(g)
Ignition Sources .....	.125(e)
Inspections .....	.124(j)(1),(3)
Liquid Storage .....	.125(e)(2)
Maintenance .....	.125(e)(4)
Overflow Pipes .....	.125(b)
Sprinklers .....	.125(f)
Tempering .....	.126(a)
Ventilation .....	.124(b), .125(d)(2)
Warning Signs .....	.125(e)(2)
Waste Cans .....	.125(e)(4)(ii),(iii)
Disposal Systems: (see Waste Disposal Systems)	
Distances From Hazards:	
Ammonium Nitrate .....	.109(i)(5)
Bulk Oxygen Systems .....	.104(b)(3)
Electrostatic Spraying .....	.107(h)(6)
Explosives Storage .....	.109(c)
Ignition Sources, Separation .....	.107(c)(2)
Spray Booths, Separations .....	.107(b)(8)
Distilleries: (see also Refineries, Chemical Plants and Distilleries).	.106(i)
Distribution Plates:	
Spray Booths .....	.107(b)(4)
Dividers, Bakery Equipment .....	.263(f)
Diving, Commercial .....	.401, .410, .411, .420–427, .430, .440, .441
Recreational instructors and guides, alternative requirements.	.401(a)(3)
Scientific .....	.401(iv), 402, Appendix B
Dockboards .....	.30(a)
Dough Brakes, Manually Fed .....	.263(h)
Drag Saws .....	.213(r)
Drainage:	
Bulk Plants .....	.106(f)(7)

Subject term	Section No.
Industrial Plants .....	.106(e)(3)(iii)
Labor Camps .....	.142(a)
Materials Handling .....	.176(d)
Processing Plants .....	.106(h)(3)(ii)
Service Stations .....	.106(g)(7)
Sprinkler Systems .....	.159(c)(7)
Storage Tanks .....	.106(b)(2)(vii)(c)
Drains:	
Air Receivers .....	.169(b)(2)
Dressing Rooms, Personnel .....	.141(e)
Drips, Condensed Gas .....	.110(d)(11)
Drives—Belt, Rope and Chain .....	.219(e), (g), (o)(3)
Belt Tighteners .....	.219(e)(6)
Cone-Pulley Belts .....	.219(e)(5)
Horizontal Belts and Ropes .....	.219(e)(1)(i)
Inclined Belts .....	.219(e)(3)
Overhead Horizontal Belts .....	.219(e)(2)
Vertical Belts .....	.219(e)(3), (4)
Drums .....	.212(a)(4)
Dry Chemical Extinguishing Systems, Fixed.	
Scope and Application .....	.161(a)
Specific Requirements .....	.161(b)
Drying:	
Spraying Operations .....	.107(d)(12)
Drying, Curing, and Fusion Apparatus	
Adjacent System .....	.107(j)(3)
Alternate Use:	
Permitted .....	.107(j)(4)
Prohibited .....	.107(j)(2)
Conformance .....	.107(j)(1)
Powder Coatings .....	.107(l)(3)
Spraying Rooms .....	.107(j)(2)
Dual Component Coatings .....	.107(m)
Dust Hazards:	
Abrasive Blasting .....	.94(a)(2)
Asbestos .....	.19, .93a
Employee Exposure .....	.1000(a)
Grain handling facilities .....	.272
Effective Dates:	
Abrasive Wheels .....	.220
Accident Prevention Signs and Tags.	
Acetylene .....	.114
Air Contaminants .....	.98
Anhydrous Ammonia .....	.114
Asbestos .....	.1001(b)(1), (2); .98
Blasting Agents .....	.114
Clothing, Protective .....	.138
Color Codes .....	.149
Combustible Liquids .....	.114
Compressed Gases .....	.114
Cooperage Machinery .....	.220
Crawler, Locomotive, and Truck Cranes.	
Derricks .....	.181(b)(2), .182
Dies .....	.217(d)(1)
Dip Tanks .....	.114
Environmental Controls .....	.98, .149
Explosives .....	.114
Federal Standards .....	.17
Flammable Liquids .....	.114
Forging .....	.221
Guarding Machinery .....	.220
Hand-Held Equipment .....	.245
Hazardous Materials .....	.114
Hydrogen .....	.114
Indoor Storage .....	.182
Ionizing Radiation .....	.98
Labor Camps .....	.142(d)(7), .149(b)
Liquefied Petroleum Gases .....	.110(b)(19)(i), (i)(3); .11
Machinery .....	.221
Machinery Guarding .....	.220

Subject term	Section No.	Subject term	Section No.
Materials Handling .....	.182	Appliances .....	.305(j)(3)
Mechanical Power Presses .....	.220	Approval .....	.303(a)
Mechanical Power Transmission Apparatus .....	.221	Arcing Parts .....	.303(d)
Mills and Calenders .....	.216(a)(1), (2); .220	Attachment Plugs (Caps) .....	.304(j)(2)
National Electrical Code .....	.309	Boxes .....	.305(b)
Nitrous Oxide .....	.114	Branch Circuits .....	.304(b)
Noise Exposure .....	.98	Bulk Oxygen Systems .....	.104(b)(8)(ix)
Nonionizing Radiation .....	.98	Bulk Plants .....	.106(f)(5)
Nonwater Disposal Systems .....	.149	Cabinets .....	.305(b)
Occupational Health .....	.98	Capacitors .....	.305(i)(6)
Overhead and Gantry Cranes .....	.179(b)(2), .182	Communications Systems .....	.308(e)
Oxygen .....	.114	Conductors .....	.305(f)
Physical Hazards Markings .....	.149	Cranes .....	.179(g), .306(b)
Powered Industrial Trucks .....	.182	Data Processing Systems .....	.306(e)
Powered Tools, Hand and Portable .....	.245	Electrolytic Cells .....	.306(h)
Pulp and Paper Mills .....	.261(n)	Elevators .....	.306(c)
Pulpwood Logging .....	.266(f)	Emergency Systems .....	.308(b)
Safety Color Codes .....	.149	Enclosures for Damp or Wet Locations .....	.305(e)
Sanitation .....	.149	Escalators .....	.306(c)
Sawmills .....	.265(j)	Examination of Equipment .....	.303(b)(1)
Signs and Tags .....	.149	Fire Protective Signaling Circuits .....	.308(d)
Spray Finishing .....	.114	Fittings .....	.305(b)
Standpipe and Hose Systems .....	.165	Fixture Wires .....	.305(i)
Ventilation .....	.98	Flexible Cords and Cables .....	.305(g)
Woodworking .....	.220	General requirements .....	.303
Electric controls, Mechanical Power Presses .....	.217(b)(8)	Grounded and Grounding Conductors, Installation and Use .....	.304(a)
Electric energy, hazardous; control of (see Lockout/tagout)		Grounding .....	.304(f)
Electric Equipment: (see Electrical Wiring)		Guarding Live Parts .....	.303(g)(2), (h)(2)
Electric Ignition Sources: (see Ignition Sources) .....	.107(c), (d)(5)	Hand Spraying .....	.107(i)(5)
Electric Motor Ignition Sources .....	.107(d)(5)	Hazardous (Classified) Locations .....	.307
Electric power generation, transmission, and distribution .....	.269	Heating Equipment .....	.306(g)
Definitions .....	.269(x)	High Voltage (Over 600 Volts):	
Enclosed spaces .....	.269(e)	General .....	.308(a)
Fall protection .....	.269(g)(1)	Grounding .....	.304(f)(7)
Hazardous energy control (Lockout/tagout) .....	.269(d)	Guarding .....	.303(h)(2)
Ladders, platforms, steps, etc .....	.269(h)	Workspace .....	.303(h)(3), (h)(4)
Live-line tools .....	.269(j)	Hoists .....	.306(b)
Materials handling and storage .....	.269(k)	Identification of Disconnecting Means and Circuits .....	.303(f)
Mechanical equipment .....	.269(p)	Ignition Sources .....	.107(c)(4), (6)
Medical services and first aid .....	.269(b)	Industrial Plants .....	.106(e)(7)
Overhead lines .....	.269(q)	Installation and Use of Equipments .....	.303(b)(2)
Personal protective equipment .....	.269(g), (n)(4), (r)(2)(v), (r)(4)(ii)	Irrigation Machines .....	.306(i)
Power tools, hand and portable .....	.269(i)	Lamps .....	.305(j)(1)
Telecommunications facilities .....	.269(s)	Liquefied Hydrogen Systems .....	.103(c)(1)(ix)
Testing and test facilities .....	.269(o)	Liquefied Petroleum Systems .....	.110(b)(17), (18), (h)(13)
Training .....	.269(a)(2), (b)(1), (d)(2), (e)(2), (q)(3)(i), (r)(1)(vi)	Marking .....	.303(e)
Tree trimming, line-clearance .....	.269(r), (a)(1)(E)	Motors .....	.305(j)(4)
Water, work near .....	.269(w)(5)	Moving Walks .....	.306(c)
Electric Power Lines:		Outline Lighting .....	.306(a)
Crane Operations .....	.180(j)	Outside Conductors .....	.304(c)
Boom Guards .....	.180(j)(2)	Overcurrent Protection .....	.304(e)
Clearances .....	.180(j)(1)	Panelboards .....	.305(d)
Notifying Owners .....	.180(j)(3)	Portable Cables .....	.305(h)
Overhead Wires .....	.180(j)(4)	Powder Coatings .....	.107(l)(1)
Derrick Operations .....	.181(j)(5)	Power-Limited Circuits .....	.308(c)
Boom Guards .....	.181(j)(5)(ii)	Processing Plants .....	.106(h)(7)(iii)
Clearances .....	.181(j)(5)(i)	Receptacles .....	.305(j)(2)
Notifying Owners .....	.181(j)(5)(iii)	Remote Control Circuits .....	.308(c)
Overhead Wires .....	.181(j)(5)(iv)	Services .....	.304(d)
Safety-related work practices .....	.333(c)(3)	Service Stations .....	.106(g)(5)
Electric Powered Trucks .....	.178(b)(4)-(7), .120(g)(3)	Signaling Circuits .....	.308(c)
Electric wiring:		Signs .....	.306(a)
Ammonium Nitrate .....	.109(i)(6)	Splices .....	.303(c)
		Spraying Operations .....	.107(c)(4), (6), (i)(1)-(5)
		Storage Batteries .....	.305(j)(7)
		Storage Rooms .....	.106(d)(4)(iii)
		Swimming Pools .....	.306(j)
		Switchboards .....	.305(d)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Switches .....	.305(c)
Transformers .....	.305(j)(5)
Type F Powered Platforms .....	.66(c)(22)
Type T Powered Platforms .....	.66(d)(6)
Welders .....	.306(d)
Wiring Design and Protection .....	.304
Wiring Methods .....	.305(a)
Work practices, safety-related .....	.331–.335
Working Space about Electric Equipment .....	.303(g)(1), (h)(3), (h)(4)
X-Ray Equipment .....	.306(f)
Electrical Installations .....	.301–.399
Electrical Protective Equipment .....	.137, .268(f)
Design .....	.137(a)
Care and use, in-service .....	.137(b)
Electrical safety-related work practices .....	.331–.335
Confined spaces .....	.333(c)(5)
Illumination .....	.333(c)(4)
Ladders, portable .....	.333(c)(7)
Lockout and tags .....	.333(b), .335(b)(1)
Personal protective equipment .....	.333(c)(2), .335(a)
Portable electric equipment .....	.334(a)
Power lines, overhead .....	.333(c)(3)
Training .....	.332
Electromagnetic Radiation:	
Definitions .....	.97(a)(1)
Nonionizing Radiation .....	.97(a)
Protection Guide .....	.97(a)(2)
Warning Symbol .....	.97(a)(3)
Electrostatic Apparatus: (see also Electrostatic Apparatus, Fixed; Electrostatic Hand Spraying Equipment)	
Powder Coatings .....	.107(l)(5)–(7)
Electrostatic Apparatus, Fixed .....	.107(h)
Powder Coatings .....	.107(l)(5)
Spraying:	
Conformance .....	.107(h)(1)
Conveyors .....	.107(h)(7)
Fail-Safe Controls .....	.107(h)(9)
Fire Protection .....	.107(h)(12)
Grounding .....	.107(h)(5)
Guarding .....	.107(h)(10)
Insulators .....	.107(h)(5)
Location .....	.107(h)(3)
Safe Distances .....	.107(h)(6)
Supports .....	.107(h)(4)
Ventilation .....	.107(h)(11)
Electrostatic Hand Spraying Equipment .....	.107(i)
Application .....	.107(i)(1)
Approval .....	.107(i)(3)
Conformance .....	.107(i)(2)
Electrical Support Equipment .....	.107(i)(4)
Grounding .....	.107(i)(5)–(7)
Interlocks .....	.107(i)(8)
Powder Coatings .....	.107(i)(6)
Specifications .....	.107(i)(3), (4)
Spray Gun Grounding .....	.107(i)(5)
Ventilation .....	.107(i)(9)
Elevating Work Platforms: (see Vehicle-Mounted Work Platforms).	.67
Emergency Action Plans .....	.38
Hazardous waste operations and emergency response, exemption .....	.120(l)(1)(ii)
Highly hazardous chemicals, process safety management .....	.119(n)
Emergency Lighting .....	.261(b)(2)
Employee Alarm Systems .....	.165
Installation and Restoration .....	.165(c)
Maintenance and Testing .....	.165(d)
Manual Operation .....	.165(e)
Employee-Owned Protective Equipment .....	.132(b)
Employee Protection: (see also Personal Protective Equipment)	
Engine Room Guardrails .....	.219(k)(2)

Subject term	Section No.
Environmental Controls:	
Accident Prevention Signs and Tags .....	.145
Air Contaminants .....	.93
Asbestos .....	.93a
Effective Dates .....	.98, .149
Labor Camps .....	.142
Marking Physical Hazards .....	.144
Noise Exposure .....	.95
Physical Hazards Markings .....	.144
Radiation:	
Ionizing .....	.96
Nonionizing .....	.97
Safety Color Codes .....	.144
Sanitation .....	.141
Signs and Tags .....	.145
Standards Sources .....	.99, .150
Ventilation .....	.94
Emergency Response, Hazardous Waste .....	.120
Equalizers, Crane Hoists .....	.179(h)(3)
Ethylene Oxide .....	.1047
Ethyleneimine .....	.1003
Area requirements .....	.1003(c)
Closed system operation .....	.1003(c)(2)
Isolated systems .....	.1003(c)(1)
Maintenance and decontamination activities .....	.1003(c)(5)
Open-vessel system operations .....	.1003(c)(3)
Transfer from a closed operation .....	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated area requirements .....	.1003(d)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices .....	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, information, and training .....	.1003(e)
Container contents identification .....	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and indoctrination .....	.1003(e)(5)
Evacuation, Ionizing Radiation .....	.96(f)
Exhaust Air Filters, Spray Booths .....	.107(b)(5)
Exhaust Systems: (see also Ventilation)	
Abrasive Blasting:	
Grinding, Polishing, Buffing .....	.94(b)(4)
Sawmills .....	.265(c)(20)
Exhausts, Spraying Operations .....	.107(d) (3), (7), (9)
Exits Routes:	
Alarm System .....	.37(e)
Capacity .....	.36(f)
Compliance with Life Safety Code .....	.35
Construction, Repairs, Alterations .....	.37(d)
Coverage .....	.34
Definitions .....	.34(c)
Design and Controls .....	.36
Exit Discharge .....	.36(c)
Exit Locking .....	.36(d)
Fire Retardant Paints and Solutions .....	.37(c)
Height and Width Requirements .....	.36(g)
Lighting and Marking of Exits .....	.37(b)
Maintenance, Safeguards and Operational Features .....	.37
Number of Routes .....	.36(b)

Subject term	Section No.	Subject term	Section No.
Outdoor Exits .....	.36(h)	Filters, Spraying .....	.107(b)(5)
Side-Hinged Doors .....	.36(e)	Fire Brigades .....	.156
Emergency Action Plans .....	.38	Fire Fighting Equipment .....	.156(d)
Fire Prevention Plans .....	.39	Organization .....	.156(b)
Manlifts .....	.68(b)(8)	Protective Clothing .....	.156(e)(1)
Explosive-Actuated Fastening Tools ....	.243(d)	Body protection .....	.156(e)(3)
Definitions .....	.241(a)	Foot and Leg Protection .....	.156(e)(2)
Fasteners .....	.243(d)(3)	Hand Protection .....	.156(e)(4)
High-Velocity Tools .....	.243(d)(2)(i)	Head, Eye, Face Protection ..	.156(e)(5)
Inspection .....	.243(d)(2)	Respiratory Protection .....	.156(f)
Loads .....	.243(d)(3)	General Requirements .....	.156(f)(1)
Low-Velocity Tools .....	.243(d)(2)(ii)	Positive-Pressure Breathing	.156(f)(2)
Maintenance .....	.243(d)(2)	Apparatus.	
Explosives and Blasting Agents .....	.109	Selection and Distribution .....	.157(d)
Blast Holes .....	.109(e)(3)	Training and Education .....	.156(c)
Bulk Delivery .....	.109(h)(4)	Fire Prevention Plan .....	.39
Charge Initiation .....	.109(e)(4)	Fire Detection Systems .....	.164
Warning .....	.109(e)(5)	Installation and Restoration .....	.164(b)
Chemicals, highly hazardous,	.119	Maintenance and Testing .....	.164(c)
process safety management.		Number, Location, Spacing .....	.164(f)
Effective Dates .....	.114	Protection of Detectors .....	.164(d)
Hours of Transfer .....	.109(f)(5)	Response Time .....	.164(e)
Loading .....	.109(e)(3)	Fire Extinguishers	
Magazines .....	.109(c)(2)	Cranes .....	.179(c)(3), (i)(5),
Mixing Vehicles .....	.109(h)(4)	(o)(3)	
Piers .....	.109(f)	Derricks .....	.180(j)(5)
Pulpwood Logging .....	.266(c)(7)	Dip Tanks .....	.125(f)(2)(i)
Railroad Cars and Stations .....	.109(f)	Explosives Transportation .....	.109(d)(2)(ii)
Slurries .....	.109(h)	Powered working platforms .....	.66(f)(5)(ii)(i)
Small Arms Ammunition .....	.109(j)	Welding .....	.252(a)(2)(ii)
Smoking .....	.109(e)(1)	Fire Extinguishers, Portable .....	.157
Standards Sources .....	.115	Exemptions .....	.157(b)
Storage .....	.109(c), (f)(4)	General Requirements .....	.157(c)
Transportation .....	.109(d)	Hydrostatic Testing .....	.157(f)
Use .....	.109(e)	Inspection, Maintenance Testing ..	.157(e)
Vessels .....	.109(f)	Selection and Distribution .....	.157(d)
Water Gels .....	.109(h)	Training and Education .....	.157(g)
Exposure:		Fire Prevention Plan .....	.39
Air Contaminants .....	.1000	Fire Protection:	
Airborne Radioactive Material .....	.96(c)	Ammonium Nitrate .....	.109(i)(7)
Asbestos .....	.1001(b)	Blasting Agents .....	.109(i)(7)
Asbestos Fibers .....	.1001(b)	Bulk Plants .....	.106(f)(4)(ix), (8)
Limits (Tables G-1 to G-3) .....	.1000	Chemical Plants .....	.106(i)(5)
Mineral Dusts .....	.1000	Definitions .....	.155
Minors .....	.96(b)(3), (c)(2),	Distilleries .....	.106(i)(5)
	(d)(2)(ii)	Electrostatic Apparatus .....	.107(h)(12)
Noise .....	.95	Explosives .....	.109(i)(7)
Radiation Exposure .....	.96(b)	Flammable Liquids .....	.106(d)(7), (e)(5),
Extension Ladders, Portable:		(f)(8), (g)(9),	
Metal .....	.26(a)(2)	(h)(6), (i)(5)	
Metal, Trestle .....	.26(a)(4)	Industrial Plants .....	.106(e)(5)
Wood .....	.25	Liquified Petroleum Gases .....	.110(d)(14), (f)(7),
Wood, Trestle .....	.25(c)(3)(v)	(h)(14)	
Extension Lamps, Cranes .....	.179(g)(7)	Local Fire Alarms .....	.163
Extractors .....	.262(y)	Processing Plants .....	.106(h)(6)
Eye and Face Protection .....	.133	Refineries .....	.106(i)(5)
Markings .....	.133(a)(4)	Service Stations .....	.106(g)(9)
Optical Corrections .....	.133(a)(3)	Spray Booths .....	.107(f)
Protectors .....	.133(a)(2)	Cleaning .....	.107(f)(3)
Welding .....	.252(b)(2)	Conformance .....	.107(f)(1)
Face Protection: (see also Eye and	.133	Extinguishers, Portable .....	.107(f)(4)
Face Protection; Personal Protective		Valve Access .....	.107(f)(2)
Equipment).		Storage Tanks .....	.106(d)(7)
Facilities, Labor Camps: (see Labor		Trucks .....	.178
Camps, Temporary)		Fire Protection Equipment:	
Fail-Safe Controls, Spraying .....	.107(h)(9)	Color Identification .....	.144(a)(1)
Overhead and Gantry Cranes .....	.179(a)(40),	Fire Brigades .....	.156(d)
	(g)(3)(viii)	Fire Resistance (Rating):	
Fan-Rotating Element .....	.107(d)(4)	Inside Storage Rooms .....	.106(d)(4)(ii)
Farm Vehicles, Anhydrous Ammonia ...	.111(g), (h)	Storage Cabinets .....	.106(d)(3)(ii)
Fasteners .....	.243(d)(3)	Tank Supports .....	.106(b)(5)(ii)
Fastening Tools .....	.243(d)	Fire Watch, Welding .....	.252(a)(2)(iii)
Fibers, Asbestos .....	.1001(b)	Fireworks: (see Pyrotechnics)	
Filling Densities, Liquefied Petroleum	.110(b)(12)	First Aid .....	.262(pp)
Gases.			

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Eye Flushing .....	.151(c)
Labor Camps .....	.142(k)
Pulpwood Logging .....	.266(c)(1)(vii)
Standards Sources .....	.153
Welding .....	.252(c)(13)
Fittings: (see Piping, Fittings and Tubing; Piping, Valves and Fittings)	
Fixed Extinguishing Systems .....	.160, .161, .162, .163
Dry Chemical Agent Systems .....	.161
Gaseous Agent Systems .....	.162
General Requirements .....	.160(b)
Total Flooding Systems .....	.160(c)
Water Spray and Foam Systems ..	.163
Fixed Industrial Stairs: (see Stairs, Fixed Industrial).	.24
Fixed Ladders: (see Ladders, Fixed) ..	.27
Flammable and Combustible Liquids:	
Bulk Plants .....	.106(f)
Chemical Plants .....	.106(i)
Container Marking, color codes ....	.144(a)(1)(ii)
Containers .....	.106(d)
Dip Tanks .....	.123–.126
Distilleries .....	.106(i)
Effective Dates .....	.114
Hazardous communication .....	.1200
Ignition Sources .....	.106(b)(6), (e)(6), (f)(6), (g)(8), (h)(7)
Industrial Plants .....	.106(e)
Piping, Valves and Fittings .....	.106(c)
Pressure Vessels .....	.106(b)(1)(v)
Process safety management of highly hazardous chemicals.	
Processing Plants .....	.106(h)
Refineries .....	.106(i)
Service Stations .....	.106(g)
Spray Finishing .....	.107
Storage and Handling .....	.107(e)
Conformance .....	.107(e)(1)
Containers .....	.107(e)(3), (5)
Hoses .....	.107(e)(6)
Grounding .....	.107(c)(9), (e)(9)
Liquid Heaters .....	.107(e)(7)
Liquid Transfer .....	.107(e)(4)
Pipes .....	.107(e)(6)
Pump Relief .....	.107(e)(8)
Quantity .....	.107(e)(2)
Safety Relief Devices .....	.107(e)(8)
Spraying Containers .....	.107(e)(5)
Standards Sources .....	.115
Storage Containers .....	.106(d)
Storage Tanks .....	.106(b), (d)
Tanks .....	.106(b), (d)
Flammable Materials, Trucks Used .....	.178(c)(2)
Flanges, Abrasive Wheel Machinery ....	.215(a)(3), (c)
Balance .....	.215(c)(3)
Blotters .....	.215(c)(1)(v), (c)(6), (d)(5)
Diameter Uniformity .....	.215(c)(4)
Dimensions .....	.215(c)(8)
Driving .....	.215(c)(7)
Finish .....	.215(c)(3)
General Requirements .....	.215(c)(1)
Maintenance .....	.215(c)(9)
Recess .....	.215(c)(5)
Repairs .....	.215(c)(9)
Types .....	.215(c)(1)(iv)
Undercut .....	.215(c)(5)
Flash Welding Equipment .....	.255(d)
Fire Curtains .....	.255(d)(2)
Ventilation .....	.255(d)(1)
Float Scaffolds .....	.28(u)
Flooding, Tank Areas .....	.106(b)(5)(vi)

Subject term	Section No.
Floor Loading .....	.22(d)
Floor Openings (Holes) .....	.23(a)
Manlifts .....	.68(b) (5), (7)
Flooring: (see also Floor Openings; Floors)	
Type F Powered Platforms .....	.66(c)(12)
Type T Powered Platforms .....	.66 (b)(5)(iii)(d)
Floors:	
Covers, Hinged .....	.23(a)(3)(i)
Open-Sided .....	.23(c)
Spray Booths .....	.107(b)(3)
Flow Coatings .....	.126(b)
Fluidized Beds .....	.107(l)(7)
Fluorine Compounds, Welding: (see also Air Contaminants).	.252(c)(5)
Foam Extinguishing Systems, Fixed ....	.163
Food Handling .....	.141(h), .120(m)(4)
Foot Pedals, Power Presses .....	.217(b)(4)
Foot Protection .....	.136
Footwalks:	
Cranes .....	.179(d)
Forging Hammers .....	.218(a)(3)
Foot-Operated Devices .....	.218(b)(2)
Gravity .....	.218(e)
Air Lifts .....	.218(e)(1)
Board Drop Hammers .....	.218(e)(2)
Keys .....	.218(b)(1)
Power-Driven .....	.218(d)
Cylinder Draining .....	.218(d)(3)
Pressure Pipes .....	.218(d)(4)
Safety Cylinder Heads .....	.218(d)(1)
Shutoff Valves .....	.218(d)(2)
Forging Machine Area .....	.30(b)
Forging Machines:	
Billet Shears .....	.218(j)(1)
Boltheaded .....	.218(i)(1)
Conveyors .....	.218(j)(3)
Definitions .....	.211(e)
Effective Dates .....	.220
Grinding .....	.218(j)(5)
Hammers .....	.218(a)(3), (b), (d), (e)
Inspections .....	.218(a)(2)
Lead Use .....	.218(a)(1)
Maintenance .....	.218(a)(2)
Presses .....	.218(a)(3), (c), (f), (g)
Rivet Making .....	.218(i)(2)
Saws .....	.218(j)(2)
Shot Blast .....	.218(j)(4)
Standards Sources .....	.221
Upsetters .....	.218(h)
Forging Presses .....	.218(f)
Fork Trucks: (see also Powered Industrial Trucks).	.178
Formaldehyde .....	.1048
Airborne Concentration .....	.1048(c)
Compliance .....	.1048(f)
Emergencies .....	.1048(k)
Exposure, Permissible .....	.1048(c)
Hazard Communication .....	.1048(m)
Housekeeping .....	.1048(j)
Hygiene Protection .....	.1048(i)
Medical Surveillance .....	.1048(l)
Monitoring .....	.1048(d)
Personal Protective Clothing .....	.1048(h)
Recordkeeping .....	.1048(o)
Regulated Areas .....	.1048(e)
Respiratory protection .....	.1048(g)
Training, Employee .....	.1048(n)
Fuel-Gas Systems: (see also Oxygen-Fuel Gas Systems).	.253
Fuels: (see also Refueling)	
Handling and Storage .....	.178(f)

Subject term	Section No.	Subject term	Section No.
Fusion Apparatus: (see Drying, Curing and Fusion Apparatus)		Welding .....	.254(c)(2), (d)(3); .255(b)(9), (c)(6)
Gantry Cranes: (see also Overhead and Gantry Cranes).	.179	Woodworking Tools .....	.243(a)(5)
Garages, Undercoating Operations .....	.107(k)	Guarding: (see also Term to Which It Applies).	.211-.222
Garnett Machines .....	.262(f)	Abrasive Wheels, Portable .....	.243(c)
Gas Cylinder Inspection .....	.101(a)	Floor Openings (Holes) .....	.23(a)
Gaging Devices .....	.110(b)(19)	Hatchways .....	.23(a)(3)
Gas Mask Canisters .....	.134(g)	Ladderways .....	.23(a)(2)
Color Codes .....	.134(g)(6)	Live Parts .....	.303(g)(2), (h)(2)
Labeling .....	.134(g)	Machinery .....	.211-.222
Gaseous agent extinguishing systems; fixed.	.162	Mechanical Power Transmission Apparatus.	.219(m)
Scope and Application .....	.162(a)	Clutches .....	.219(k)
Specific Requirements .....	.162(b)	Friction Drives .....	.219(g)
Gaseous Hydrogen Systems: (see Hydrogen)		Prime Movers .....	.219(b)
Gasoline Powered Trucks .....	.178(b)(8), (9)	Pulleys .....	.219(d)
Gears .....	.219(f)	Open-Sided Floors .....	.23(c)
Gill Boxes .....	.262(k)	Platforms .....	.23(c)
Gin Pole Derricks: (see also Derricks)	.181(a)(6)	Powered Tools, Portable .....	.243
Gloves, Rubber Insulating .....	.137	Railings .....	.23(e)
Glue Spreaders .....	.213(r)	Runways .....	.23(c)
Goggles: (see also Eye Protection; Eye and Face Protection).	.133	Skylight .....	.23(a)(4)
Grain Handling .....	.272	Spraying Equipment .....	.107(h)(10)
Application .....	.272(b)	Stairways .....	.23(a)(1), (d)
Continuous flow bulk raw grain dryers.	.272(o)	Wall Openings (Holes) .....	.23(b)
Contractors .....	.272(h)	Guardrails:	
Emergency action plan .....	.272(d)	Definitions .....	.21(f)(10)
Emergency escape .....	.272(n)	Manlifts .....	.68(b)(8)(i), (10)(iv)
Entry into bins, silos, tanks .....	.272(g)	Power Transmission Apparatus .....	.219(o)(5)
Filter collectors .....	.272(k)	Powered and Working Platforms .....	.66(e)(3), (f)(3)(i)(K), (f)(5)(i)(G), (f)(5)(ii)(K)
Grain stream processing equipment.	.272(m)	Removable .....	.23(a)(3)
Grate openings .....	.272(j)	Working Surfaces .....	.22(c)
Hot work permit .....	.272(f)	Guardrails, Scaffolds: (see Listing Under Specific Type Scaffold)	
Housekeeping .....	.272(i)	Guards: (see also Guardrails)	
Inside bucket elevators .....	.272(p)	Derricks .....	.181(j)(1)
Preventive maintenance .....	.272(l)	Hoisting Ropes .....	.179(e)(5)
Training .....	.272(e)	Manlifts .....	.68(b)(7)-(9)
Gravity Hammers .....	.218(e)	Moving Parts .....	.179(e)(6)
Grinders: (see also Abrasive Wheel)		Trucks .....	.178(e)
Machinery; Cutoff Wheels .....	.243(c)(3), (4)	Guide Posts .....	.217(d)(4)
Grinding, Forging Equipment .....	.218(j)(5)	Gudgeon Pin .....	.181(a)(20)
Grinding Machines:		Guy Derricks .....	.181(a)(7)
Cylindrical .....	.215(b)(4)	Hammers, Forging: (see Forging Hammers)	
Flanges .....	.215(a)(3)	Hand protection .....	.138
Surface Grinders .....	.215(b)(5)	Hand Spraying Equipment: (see Electrostatic Hand Spraying Equipment)	
Swing Frame Grinders .....	.215(b)(6)	Hand Tools .....	.242
Top Grinding .....	.215(b)(8)	Dead-Man Controls .....	.243(a)(2)
Work Rest .....	.215(a)(4)	Pulp and Paper Mills .....	.261(c)(13)
Grinding, Polishing, and Buffing:		Handholds, Manlifts .....	.68(c)(4)
Branch Pipes .....	.94(b)(3)	Handling: (see also Materials Handling and Storage)	
Enclosure Design .....	.94(b)(5)	Anhydrous Ammonia .....	.111
Exhaust Systems .....	.94(b)(4)	Compressed Gases .....	.101(b)
Hoods .....	.94(b)(3), (5)	Liquefied Hydrogen Systems .....	.103(c)(2)(iii)
Grinding, Top .....	.215(b)(8)	Liquefied Petroleum Gases .....	.110
Grounding:		Liquids .....	.106(h)(4)
Bulk Oxygen Systems .....	.104(b)(7)(iv)	Service Stations .....	.106(g)(1)
Circuits .....	.314	Handrails .....	.24(h)
Electrostatic Spraying .....	.107(h)(5), (i)(5)-(7)	Cranes .....	.179(d)(3), (4)(ii)
Flammable and Combustible Liquids.	.106(e)(6)(ii), (f)(3)(iv)	Mobile Ladder Stands .....	.29(f)(4)
General .....	.304(f)	Hangers .....	.219(p)(4)
Hand Spraying .....	.107(i)(5)-(7)	Hardening Tanks .....	.126(a)(1)(i),(ii)
Ignition Sources .....	.107(c)(9)	Hatchways Guarding .....	.23(a)(3)
Liquefied Hydrogen Systems .....	.103(c)(4)(iv)	Hazard Communication, chemical information, transmittal.	.1200
Liquid Transfer .....	.107(e)(9)	Hazard Communication Program ..	.1200(e)
Methods .....	.314(e)	Hazard Determination .....	.1200(d)
Spray Booths .....	.107(h)(10)	Information and Training .....	.1200(h)
Spraying Operations .....	.107(c)(9), (e)(9), (i)(5)-(7)		

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Labels and Warnings .....	.1200(f)
Material Safety Data Sheets .....	.1200(g)
Trade Secrets .....	.1200(i)
Hazardous chemicals, occupational exposure to in laboratories (see Chemicals, hazardous).	.1450
Hazardous chemicals, highly, process safety management (see Chemicals, etc.).	.119
Hazardous energy; control of (see Lockout/tagout)	
Hazardous Materials:	
Acetylene .....	.102
Anhydrous Ammonia .....	.111
Blasting Agents .....	.109
Bulk Oxygen Systems .....	.104
Chemicals (see entries under Chemicals, etc.).	.119
Combustible Liquids .....	.106
Compressed Gases .....	.101
Dip Tanks .....	.108
Effective Dates .....	.114
Explosives .....	.109
Flammable Liquids .....	.106
Hazardous Wastes .....	.120
Hydrogen .....	.103
Liquefied Petroleum Gases .....	.110
Nitrous Oxide .....	.105
Oxygen .....	.104
Packages, transport vehicles, etc., retention of DOT markings.	.1201
Spray Finishing .....	.107
Standards Sources .....	.115
Storage and Handling:	
Anhydrous Ammonia .....	.111
DOT markings, retention .....	.1201
Liquefied Petroleum Gases .....	.110
Trucks Used .....	.178(c)(2)
Hazardous Waste Operations:	
Contractors and Subcontractors .....	.120(b)(1)(iv)
Decontamination .....	.120(k), (p)(4)
Drums and Containers .....	.120(j)
Emergency Response .....	.120(e)(7), (l), (p)(8), (q)
Engineering Controls and Personal Protective Equipment.	.120(g)
Illumination .....	.120(m)
Information Program .....	.120(b)(i)
Laboratory Waste Packs .....	.120(j)(6)
Material Handling .....	.120(j)
Medical Surveillance .....	.120(f), (p)(3), (q)(9)
Monitoring .....	.120(c)(6), (h)
Post-emergency Response .....	.120(l)(5)
Radioactive Wastes .....	.120(j)(4)
Recordkeeping .....	.120(f)(7)
RCRA Facilities .....	.120(p)
Safety and Health Program .....	.120(b)
Sanitation .....	.120(n)
Site Characterization and Analysis .....	.120(c)
Site Control .....	.120(d)
Training .....	.120(e), (p)(8)(iii), (q)(6)
Shock-sensitive Wastes .....	.120(j)(5)
Site Safety and Health Plan .....	.120(b)(4)
Tank and Vault Procedures .....	.120(j)(9)
Totally-encapsulating Chemical Protective Suits.	.120(g)(4)
Uncontrolled sites, emergency responses.	.120(l)
Head Protection .....	.135
Healthcare professions and related industries, exposures to bloodborne pathogens.	.1030
Hearing Conservation Program .....	.95(c)

Subject term	Section No.
Heating:	
Dip Tanks .....	.125(g)
Bulk Plants .....	.106(f)(2)(ii)
Service Stations .....	.106(g)(6)
Helicopters .....	.183
Helmets .....	.135, .252(e)(2), .266(c)(iii)
Hepatitis B (see also Bloodborne pathogens).	.1030
Hinged Floor Covers .....	.23(a)(3)(i)
Hoist Limit Switches .....	.179(n)(4)
Hoisting Equipment:	
Cranes .....	.179(e)(5), (h)
Powered Platforms .....	.66(f)(4), (g)(6)
Rope Guards .....	.179(e)(5)
Holding Brakes .....	.179(f)(2)
Holes: (see also Floor Openings (Holes); Wall Openings (Holes)).	.23
Hooks:	
Cranes .....	.179(h)(4)
Derricks .....	.181(j)(2)
Horse Scaffolds .....	.28(m)
Hoses.	
Flammable Liquids .....	.107(e)(6)
Liquefied Petroleum Gases .....	.110(b)(9)
Semiconductors .....	.109(a)(12)
Sprinkler Systems .....	.159(c)(5)
Standpipe and hose systems .....	.158(c)(3)
Welding and Cutting .....	.253(e)
Hot Sources .....	.107(c)(3)
Hot-work permits, process safety management of highly hazardous chemicals.	.119(k)
Hours of Transfer, Explosives .....	.109(f)(5)
Household Stepladders, Type III .....	.25(c)(2)(iv)
Housekeeping .....	.141(a)(3)
Asbestos .....	.1001(d)
Flammable Liquids .....	.106(e)(9)
Walking-Working Surfaces .....	.22(a)
Hydraulic Barkers .....	.261(e)(14)
Hydraulic Equipment .....	.217(b)(11)
Hydraulically designed sprinkler systems.	.159(c)(11)
Hydrogen .....	.103
Effective Dates .....	.114
Gaseous Hydrogen Systems .....	.103(a)(2)(i), (b)
Clear Zone .....	.103(b)(5)(ii)
Containers .....	.103(b)(1)(i)
Design .....	.103(b)(1)
Equipment Assembly .....	.103(b)(1)(iv)
Fittings .....	.103(b)(1)(iii)
Inspection .....	.103(b)(5)
Location .....	.103(b)(2)
Outdoor .....	.103(b)(3)(i)
Separate Buildings .....	.103(b)(3)(ii)
Operating Instructions .....	.103(b)(4)
Piping .....	.103(b)(1)(iii)
Safety Relief Devices .....	.103(b)(1)(ii)
Testing .....	.103(b)(1)(vi)
Tubing .....	.103(b)(1)(iii)
Liquefied Hydrogen Systems .....	.103(a)(2)(ii), .103(c)
Clear Zone .....	.103(c)(5)(ii)
Containers .....	.103(c)(1)(i)
Design .....	.103(c)(1)
Electrical Systems .....	.103(c)(1)(ix)
Equipment Assembly .....	.103(c)(1)(vi)
Fittings .....	.103(c)(1)(v)
Grounding .....	.103(c)(4)(iv)
Inspection .....	.103(c)(5)(i)
Location .....	.103(c)(2)
Outdoor .....	.103(c)(3)(i)
Separate Buildings .....	.103(c)(3)(ii)
Special Rooms .....	.103(c)(3)(iii)
Maintenance .....	.103(c)(5)

Subject term	Section No.	Subject term	Section No.
Markings .....	.103(c)(1)(iii)	Open Surface Tanks .....	.94(d)(11)
Operating Instructions .....	.103(c)(4)	Power Presses .....	.217(e)
Attendants .....	.103(c)(4)(ii)	Powered Platforms .....	.66(g)
Security .....	.103(c)(4)(iii)	Respirators .....	.134(f)
Piping .....	.103(c)(1)(v)	Ropes, Cranes .....	.179(m)
Safety Relief Devices .....	.103(c)(1)(iv)	Woodworking Machines .....	.213(s)
Supports .....	.103(c)(1)(ii)	Instruction Signs, Manlifts .....	.68(c)(7)
Testing .....	.103(c)(1)(vii)	Insulators .....	.107(h)(5)
Tubing .....	.103(c)(1)(v)	Interior Hung Scaffolds .....	.28(p)
Vaporizers .....	.103(c)(1)(viii)	Ionizing Radiation .....	.1096
Standards Sources .....	.115	AEC Licensees .....	.1096(p)
Hydrostatic Tests: (see also Testing)		Airborne Radioactive Materials .....	.1096(c)
Fire Extinguishers .....	.157(f)	Caution Signs and Labels .....	.1096(e)
Piping .....	.106(c)(7)	Employees:	
Ignition Sources:		Disclosure .....	.1096(c)
Bulk Plants .....	.106(f)(6)	Exposure Records .....	.1096(m), (n)
Dip Tanks .....	.125(e)	Incident Reporting .....	.1096(l)
Industrial Plants .....	.106(e)(6)	Instruction Posting .....	.1096(i)
Powder Coatings .....	.107(l)(1)	Evacuation .....	.1096(f)
Processing Plants .....	.106(h)(7)	Exemptions .....	.1096(g), (h)
Service Stations .....	.106(g)(8)	Exposure .....	.1096(b)
Spraying Operations .....	.107(c)	Airborne Radioactive Mate- rials .....	.1096(c)
Combustible Residues .....	.107(c)(5)	Minors .....	.1096(b)(3), (c)(2), (d)(2)(ii)
Conformance .....	.107(c)(1)	Exposure Records .....	.1096(m)—(c)
Electrical Wiring .....	.107(c)(4), (6)	Incident Reporting .....	.1096(l)
Grounding .....	.107(c)(9)	Monitoring .....	.1096(d)
Hot Sources .....	.107(c)(3)	Overexposure Reports .....	.1096(m)
Lamps .....	.107(c)(7), (8)	Personnel Instructions, Posting .....	.1096(i)
Separation Minimum .....	.107(c)(2)	Radioactive Materials:	
Storage Tanks .....	.106(b)(6)	Packaged .....	.1096(h)
Illumination: (see Lighting)		Storage .....	.1096(j)
Indoor Storage:		Warning Signals .....	.1096(f)
Effective Dates .....	.182	Waste Disposal .....	.1096(k)
Flammable and Combustible Liq- uids .....	.106(b)(4), (d)(4), (d)(5), (e)(5), (g)(1)(iii), (h)(4)(i)	Jacks:	
Rooms .....	.106(d)(4)	Definitions .....	.241(d)
Standards Sources .....	.183	Fixed Truck .....	.178(k)(3)
Industrial Plants:		Loading .....	.244(a)(1)
Flammable and Combustible Liq- uids .....	.106(e)	Marking .....	.244(a)(1)
Electrical Systems .....	.106(e)(7)	Maintenance .....	.244(a)(2)
Fire Protection .....	.106(e)(5)	Truck .....	.178(k)(3)
Housekeeping .....	.106(e)(9)	Joints .....	.213(j)
Incidental Storage .....	.106(e)(2)	Blades .....	.213(s)(12)
Ignition Sources .....	.106(e)(6)	Keys, Projecting .....	.219(h)
Maintenance .....	.106(e)(9)	Kiers .....	.262(q)
Repairs, Equipment .....	.106(e)(8)	Kilns .....	.265(f)
Tank Loading .....	.106(e)(4)	Kitchens, Labor Camps .....	.142(i)
Unit Physical Operations .....	.106(e)(3)	Labeling, Hazardous Chemicals .....	.1200
Liquefied Petroleum .....	.110(d)(12), (f)(4)	Labor Camps, Temporary .....	.142
Industrial Stepladders, Type I .....	.25(c)(2)(ii)	Bathing Facilities .....	.142(f)
Insect Control .....	.141(a)(5)	Bedding .....	.142(b)(3)
Labor Camps .....	.142(j)	Communicable Diseases .....	.142(i)
Inspection: (see also Term to Which It Applies)		Reportings .....	.142(j)
Compressed Gas Cylinders .....	.101(a), .166	Dining Facilities .....	.142(j)
Cranes .....	.179(j), .180(d)	Effective Dates .....	.149
Crawler .....	.180(d)	Facilities .....	.142(b)
Gantry .....	.179(j)	First Aid .....	.142(k)
Ropes .....	.179(m)	Furnishings .....	.142(b)
Locomotive .....	.180(d)	Floors .....	.142(b)(4), (5)
Overhead .....	.179(j)	Grounds .....	.142(a)(3)
Ropes .....	.179(m)	Heating Equipment .....	.142(b)(11)
Truck .....	.180(d)	Insect Control .....	.142(j)
Cylinders .....	.101(a)	Kitchens .....	.142(i)
Derricks .....	.181(d)	Laundry Facilities .....	.142(f)
Fire Extinguishers .....	.157(e)	Lighting .....	.142(g)
Flooding, Tank Areas .....	.106(b)(5)(vi), (v)	Refuse Disposal .....	.142(h)
Gas Cylinders .....	.101(a)	Rodent Control .....	.142(j)
Gaseous Hydrogen .....	.103(b)(5)	Screening .....	.142(b)(8)
Liquefied Hydrogen .....	.103(c)(5)(i)	Sewage Disposal .....	.142(e)
Liquid Oxygen .....	.104(b)(10)(i)	Shelters .....	.142(b)
Manlifts .....	.68(e)	Site .....	.142(a)
		Size .....	.142(a)(2)
		Sleeping .....	.142(b)(2), (3)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.	Subject term	Section No.
Space .....	.142(b)(2), (9)	Landings, Manlifts .....	.68(b) (6), (10)
Standards Sources .....	.150	Lathers' Scaffolds: (see also Plas- terers' Scaffolds).	.28(c)
Stoves .....	.142(b)(10)	Lathes .....	.213(o)
Toilet Facilities .....	.142(d)	Laundry Facilities, Labor Camps .....	.142(f)
Washing .....	.142(f)	Laundry Operations .....	.264
Waste Disposal .....	.142(h)	Miscellaneous Equipment .....	.264(c)(4)
Water Supply .....	.142(c)	Operating Rules .....	.264(d)
Windows .....	.142(b)(7), (8)	Markers .....	.264(d)(1)(iii)
Laboratories, occupational exposures to hazardous chemicals in (see Chemi- cals, hazardous).	.1450	Mechanical Safeguards .....	.264(d)(2)
Laboratories and production facilities, HIV and HBV research.	.1030(e)	Point-of-Operation Guards .....	.264(c)
Ladder-Jack Scaffolds .....	.28(q)	Washroom Machines .....	.264(c)(1)
Ladder Stands, Manual Mobile; (see Work Platforms, Mobile).	.29(f)	Lavatories .....	.141(d)(2)
Ladders:		Lawn Mowers, Power .....	.243(e)
Cranes .....	.179(d)(4), (o)(1)	Definitions .....	.241(c)
Fixed .....	.27	Forging Machines .....	.218(a)(1)
Manlifts .....	.68(b)(12)	General Requirements .....	.243(e)(1)
Portable Metal .....	.26	Riding Rotary .....	.243(e)(2), (4)
Portable Wood .....	.25	Walk-Behind .....	.243(e)(2), (3)
Sawmills .....	.265(c)(10)	Lead .....	.1025, .252(f)(7)
Ladders, Fixed .....	.27	Compliance .....	.1025(e)
Cages .....	.27(c)(3), (d)(1)	Confined Spaces .....	.252(f)(7)(i), (iii)
Clearances .....	.27(c)	Housekeeping .....	.1025(h)
Cleats .....	.27(b)(1)	Hygiene Facilities and Practices ...	.1025(i)
Design .....	.27(a)	Indoors .....	.252(c)(7)(ii), (iii)
Stresses .....	.27(a)(2)	Medical Removal .....	.1025(k)
Deterioration .....	.27(b)(7)	Medical Surveillance .....	.1025(j)
Electrolytic Action .....	.27(b)(5)	Monitoring .....	.1025(d)
Extensions .....	.27(d)(3)	Monitoring, Observation of .....	.1025(o)
Fastenings .....	.27(b)(3)	Protective Equipment and .....	.1025(g)
Grab Bars .....	.27(c)(5), (d)(4)	Clothing .....	.1025(g)
Ladder Extensions .....	.27(d)(3)	Recordkeeping .....	.1025(n)
Landing Platforms .....	.27(d)(2)	Respiratory Protection .....	.1025(f)
Maintenance .....	.27(f)	Signs .....	.1025(m)
Pitch .....	.27(e)	Training, Employee .....	.1025(l)
Rungs .....	.27(b)(1)	Ventilation .....	.252(c)(7)(iii)
Safety Devices .....	.27(d)(5)	Leakage, Bulk Oxygen Systems .....	.104(b)(2)(iii)
Side Rails .....	.27(b)(2)	Levers, Hand-Operated .....	.217(b)(5)
Splices .....	.27(b)(4)	Lifelines: (see also Safety Belts)	
Standards Sources .....	.31	Confined Spaces .....	.252(b)(4)(iv)
Welding .....	.27(b)(6)	Crawling Boards .....	.28(t)(2)
Wells .....	.27(d)(1)	Powered Platforms .....	.66(d)(9), App. C
Ladders, Portable Metal .....	.26	Welding .....	.252(b)(4)(iv)
Care .....	.26(c)(2)	Chicken Ladders .....	.28(t)(2)
Electrical safety-related work prac- tices.	.333(c)(7)	Lighting: (see also Lamps)	
Extension Ladders .....	.26(a)(2), (4)	Container Areas .....	.110(d)(16)
General Requirements .....	.26(a)(1)	Cranes .....	.179(c)(4), (g)(7)
Platform Ladders .....	.26(a)(5)	Electric Equipment, Workspace About.	.303(g)(1)(v), (h)(3)(ii)
Standards Sources .....	.31	Electrical safety-related work prac- tices.	.333(c)(4)
Stepladders .....	.26(a)(3)	Hazardous Waste Operations .....	.120(m)
Straight Ladders .....	.26(a)(2), (4)	Labor Camps .....	.142(g)
Use .....	.26(c)(3)	Machinery, Basement Areas .....	.219(c)(5)
Ladders, Portable Wood .....	.25	Manlifts .....	.68(b)(6)(iii), (14)
Care .....	.25(d)(1)	Operating Areas, Industrial Trucks Pulp and Paper Mills .....	.178(h) .261(b)(2), (c)(10), (k)(21)
Rung Ladders .....	.25(c)(3)	Pulpwood Harvesting .....	.266(e)(15)
Sectional .....	.25(c)(3)(iv)	Sawmills .....	.265(c)(5)(iii), (9), (23)(iii)
Single .....	.25(c)(3)(ii)	Spray Booths .....	.107(b)(10)
Trestle .....	.25(c)(3)(v)	Storage Areas .....	.177(f)(1), .178(h)
Two-Section .....	.25(c)(3)(iii)	Lighting Receptacles:	
Side-Rolling Ladders .....	.25(c)(5)	Cranes .....	.179(g)(7)
Special Purpose Ladders .....	.25(c)(4)	Liquefied Hydrogen Systems: (see Hy- drogen)	
Masons' .....	.25(c)(4)(iii)	Liquefied, Petroleum Gases: (see also Containers, Liquefied Petroleum Gases).	.110, .168(b)(3)(x)
Painters' .....	.25(c)(4)(ii)	Appliances .....	.110(b)(20)
Standards Sources .....	.31	Attendant .....	.110(b)(14)
Stepladders .....	.25(c)(2)	Buildings:	
Trolley Ladders .....	.25(c)(5)	Engines Use .....	.110(e)(11), (12)
Materials .....	.25(b)		
Use .....	.25(d)(2)		
Ladderway Guarding .....	.23(a)(2)		
Lamps: (see also Lighting) .....	.107(c)(7)(8); .305(j)(1)		

Subject term	Section No.	Subject term	Section No.
Industrial Trucks .....	.110(e)(13)	Liquefied Petroleum Gases .....	.110(b)(15)
Inside Storage .....	.110(f)	Processing Plants .....	.106(h)(5)
Piping Into .....	.110(b)(13)	Scaffolds .....	.29(a)(2)
Condensed Gas Drips .....	.110(d)(9)	Lockout/tagout of hazardous energy ....	.147
Definitions .....	.110(a)	Control sequence .....	.147(d)
Effective Dates .....	.110(b)(19)(i), .114	Electrical safety-related work practices.	.333(b)
Electrical Equipment .....	.110(b)(17), (18); (h)(13)	Inspection .....	.147(c)(6)
Engines in Buildings .....	.110(e)(11), (12)	Powered platforms .....	.66(f)(3)(i)(J)
Equipment Approval .....	.110(b)(2)	Release procedures .....	.147(e)
Fire Protection .....	.110(d)(14), (f)(7), (h)(14)	Testing .....	.147(f)(1)
Fuel Handling and Storage .....	.178(f)	Training .....	.147(c)(7)
Gaging Devices .....	.110(b)(19)	Locomotive Cranes: (see also Crawler, Locomotive and Truck Cranes).	.180
Garaging Vehicles .....	.110(e)(14)	Log Handling: (see also Sawmills) .....	.265(d)
Handling .....	.110	Longshoring .....	.16(a)
Liquid Level Gaging Device .....	.110(b)(19)	Looms .....	.262(n)
Liquid Transfer .....	.110(b)(14)	Low Pressure Tanks .....	.106(b)(1)(iv)
Loading .....	.110(b)(15)	LP-Gases: (see Liquefied Petroleum Gases)	
Motor Fuel .....	.110(e)	Lumber Handling .....	.265(c)(27), (28)
Odorizing Gases .....	.110(b)(1)	Lunchrooms .....	.141(g)
Pits and Drains .....	.110(d)(11)	Location .....	.141(g)(1), (2)
Regulating Equipment .....	.110(b)(6); (c)(5); (d)(9); (e)(9)	Waste Disposal Containers .....	.141(g)(3)
Indoor .....	.110(c)(5)	Machine Guarding: (see Machine(ry) Guarding)	
Location .....	.110(b)(6)	Machine(ry) Guarding .....	.211--222
Outdoor .....	.110(c)(4)	Abrasive Wheel Machinery .....	.215
Service Stations .....	.110(h)	Anchoring Fixed Machinery .....	.212(a), (b)
Standards Sources .....	.115	Bakeries .....	.263(c)
Storage .....	.110	Barrels .....	.212(a)(4)
Tank Car Loading .....	.110(b)(15)	Blades Exposure .....	.212(a)(5)
Transport Trucks .....	.110(b)(15)	Calendars .....	.216
Trucks .....	.178(b)(10), (11)	Containers .....	.212(a)(4)
Trucks Conversion .....	.178(d), (q)(12)	Definitions .....	.211
Liquid Fuels:		Drums .....	.212(a)(4)
Handling and Storage .....	.178(f)	Effective Dates .....	.220
Service Stations .....	.106(g)	Forging Machines .....	.218
Liquid Heaters, Spray .....	.107(e)(7)	Mills .....	.216
Liquid Transfer:		Point of Operation .....	.212(a)(3)
Anhydrous Ammonia .....	.111(b)(12), (f)(6)	Power Presses .....	.217
Flammable Liquids .....	.106(e)(2)(iv), (e)(3)(vi), (f)(3)(vi), (g), (h)(4), .107(e)(4), (9)	Power Transmission Equipment ...	.219
Liquefied Petroleum Gases .....	.110(b)(14)	Standards Sources .....	.221
Load Handling:		Types .....	.212(a)(1)
Crawler, Locomotive and Truck Cranes.	.180(h)	Woodworking Machinery .....	.213
Attaching .....	.180(h)(2)	Machines:	
Holding .....	.180(h)(4)	Abrasive Wheels .....	.215
Moving .....	.180(h)(3)	Definitions .....	.211
Size .....	.180(h)(1)	Forging .....	.218
Derricks .....	.181	Laundry .....	.264
Attaching .....	.181(i)(2)	Mills and Calenders .....	.216
Boom Securing .....	.181(i)(6)	Power Transmission, Mechanical	.219
Holding .....	.181(i)(4)	Presses, Mechanical .....	.217
Moving .....	.181(i)(3)	Textiles .....	.262
Size .....	.181(i)(1)	Woodworking .....	.213
Winch Heads .....	.181(i)(5)	Magazines, Explosives .....	.109(c)(2)
Overhead and Gantry Cranes .....	.179(n)	Class I .....	.109(c)(3)
Attaching .....	.179(n)(2)	Class II .....	.109(c)(4)
Hoist Limit Switches .....	.179(n)(4)	Class III .....	.109(c)(5)
Moving .....	.179(n)(3)	Maintenance: (see also Term to Which It Applies)	
Size .....	.179(n)(1)	Bulk Oxygen Systems .....	.104(b)(10)
Load Ratings:		Cranes .....	.179(i), .180(f)
Cranes .....	.180(c)	Derricks .....	.181(f)
Derricks .....	.181(c)	Fire Alarm Systems .....	.163(c)
Overhead and Gantry Cranes .....	.179(b)(5)	Fire Extinguishers:	.157(e)
Powered Platforms .....	.66(c)(7)	Gaseous Hydrogen Systems .....	.103(b)(5)
Loading:		Industrial Plants .....	.106(e)(9)
Bulk Plants .....	.106(f)(3)	Liquefied Hydrogen Systems .....	.103(c)(5)
Explosives .....	.109(e)(3)	Powder Coatings .....	.107(i)(4)
Industrial Plants .....	.106(e)(4)	Powered Industrial Trucks .....	.178(q)
		Powered Platforms .....	.66(e)(6)
		Processing Plants .....	.106(h)(8)
		Respirators .....	.134(f)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Standpipe and Hose System .....	.158(e)
Sprinkler Systems .....	.159(c)(2)
Type F Powered Platforms .....	.66(c)(5)
Manifolding Gas Cylinders .....	.253(c)
Fuel-Gas .....	.253(c)(1)
Operating Procedures .....	.253(c)(5)
Oxygen .....	.253(c)(2), (3)
Portable Outlet Headers .....	.253(c)(4)
Manholes .....	.23(a)(6), .268(o)
Manlifts .....	.68
Belts .....	.68(c)(1)(ii)
Brakes .....	.68(c)(1)(i)
Clearances .....	.68(b)(11)
Design .....	.68(b)(3)
Exit Protection .....	.68(b)(8)
Floor Openings .....	.68(b)(5), (7)
Guardrails .....	.68(b)(8)(i), (10)(iv)
Guards .....	.68(b)(7), (9)
Handholds .....	.68(c)(4)
Inspections .....	.68(e)
Instruction Signs .....	.68(c)(7)
Ladders .....	.68(b)(12)
Landings .....	.68(b)(6)
Lighting .....	.68(b)(6)(iii), (14)
Machinery .....	.68(c)
Mechanical Requirements .....	.68(c)
Operating Rules .....	.68(d)
Platforms .....	.68(c)(3)
Speed .....	.68(c)(2)
Standards Sources .....	.68(b)(4), .69
Steps .....	.68(c)(3)
Stops .....	.68(c)(5), (6)
Warning Signs .....	.68(c)(7)
Weather Protection .....	.68(b)(15)
Marine Service Stations .....	.106(g)(4)
Marine Terminals .....	.16(b)
Marking Physical Hazards .....	.144
Sawmills .....	.265(c)(11)
Markings: (see also Signs and Tags)	
Bulk Oxygen Systems .....	.104(b)(8)(viii)
Compressed Gas Cylinders .....	.253(b)(1)
Electric equipment:	
General .....	.303(e)
Hazardous locations .....	.307(b)(2)(ii)
Explosive Actuated Tools .....	.243(d)(3)
Explosives .....	.109(d)(2)(ii)
Eye and Face Protection .....	.133(a)(4)
Gaseous Hydrogen Systems .....	.103(b)(1)(v)
Hazardous materials, retention of DOT markings.	.1201
Liquefied Hydrogen Systems .....	.103(c)(1)(iii)
Liquefied Petroleum Gases .....	.110(b)(5), (c)
Load Ratings:	
Cranes .....	.180(c)(2)
Derricks .....	.181(c)
Powered Industrial Trucks .....	.178(a)(3)
Powered Platforms .....	.66(f)(7)
Physical Hazards .....	.144
Respirators .....	.134(g)
Sawmills .....	.265(c)(11)
Mason's Adjustable Multiple Point Suspension Scaffolds.	.28(f)
Masons' Ladders .....	.25(c)(4)(iii)
Matching Machines .....	.213(n)
Material Safety Data Sheets, chemical hazards information.	.1200
Materials Handling and Storage:	
Aisles and Passageways .....	.176(a)
Clearance Signs .....	.176(e)
Cranes—Crawler, Locomotive and Truck.	.180
Cranes, Overhead and Gantry .....	.179
Derricks .....	.181
Effective Dates .....	.182

Subject term	Section No.
Guarding Openings .....	.176(g)
Hazardous materials, retention of DOT markings.	.1201
Hazardous Waste Operations .....	.120(j), (p)(6)
Housekeeping .....	.176(c)
Mechanical Equipment .....	.176(a)
Powered Industrial Trucks .....	.178
Pulp and Paper Mills .....	.261(c), (d), (m)
Railroad Car Blocks .....	.176(f)
Securing .....	.176(b)
Standards Sources .....	.183
Maximum Allowable Concentration:	
Fluorine .....	.252(c)(5)(ii)
Welding Contamination .....	.252(c)(1)(iii)
Mechanical Handling Equipment:	
Clearances .....	.176(a)
Powered Industrial Trucks .....	.177(e), .178
Mechanical Power Presses:	
Air Controlling Equipment .....	.217(b)(10)
Brakes, Friction .....	.217(b)(2)
Clearances, Work Area .....	.217(f)(3)
Clutches:	
Full Revolution .....	.217(b)(3)
Part Revolution .....	.217(b)(7)
Definitions .....	.211(d)
Dies .....	.217(d)
Effective Dates .....	.220
Electrical Controls .....	.217(b)(8)
Excluded Machines .....	.217(a)(5)
Foot Pedals .....	.217(b)(4)
Guarding .....	.217(b)
Guide Posts .....	.217(d)(4)
Hand Feeding Tools .....	.217(c)(4)
Hazards:	
Guide Posts .....	.217(d)(4)
Personnel .....	.217(b)(1)
Hydraulic Equipment .....	.217(b)(11)
Inspection, Records .....	.217(e)(1)
Instructions .....	.217(f)(2)
Lever, Hand-Operated .....	.217(b)(5)
Maintenance:	
Records .....	.217(e)(1)
Training Personnel .....	.217(e)(3)
Modifications .....	.217(a)(4), (e)(2)
Operating Instructions .....	.217(f)(2)
Overloading .....	.217(f)(4)
Point of Operation .....	.217(c)
Pressure Vessels .....	.217(b)(12)
Slide Counterbalances .....	.217(b)(9)
Air .....	.217(b)(9)(iii)–(v)
Spring .....	.217(b)(9)(i), (ii)
Standards Sources .....	.221
Training Maintenance Personnel ..	.217(e)(3)
Treadles .....	.217(b)(4)
Trips, Two-Hand .....	.217(b)(6)
Unitized Tooling .....	.217(d)(5)
Mechanical Power Transmission Apparatus.	.219
Bearings .....	.219(j), (p)(3)
Belts:	
Care .....	.219(p)(6)
Fasteners .....	.219(l)(4)
Perches .....	.219(l)(3)
Shifters .....	.219(l)(1)
Shippers .....	.219(l)(2)
Chains .....	.219(f)
Clutches .....	.219(k), (l)
Collars .....	.219(i)
Couplings .....	.219(i), (k)(1)
Cutoff Couplings .....	.219(k)(1)
Definitions .....	.211(f)
Drives:	
Belt, Rope, and Chain .....	.219(e)
Friction .....	.219(g)

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

Subject term	Section No.	Subject term	Section No.
Effective Dates .....	.220	Regulated area requirements .....	.1003(d)
Engine Rooms .....	.219(k)(2)	Contamination control .....	.1003(d)(4)
Equipment Care .....	.219(p)	Emergencies .....	.1003(d)(2)
Excluded Apparatus .....	.219(a)(1)	Hygiene facilities and practices.	.1003(d)(3)
Gears .....	.219(f)	Reports .....	.1003(f)
Guarding .....	.219	Incidents .....	.1003(f)(2)
Guards:		Operations .....	.1003(f)(1)
Disks .....	.219(m)(1)	Signs, information, and training ...	.1003(e)
Horizontal Overhead:		Container contents identification.	.1003(e)(2)
Belts .....	.219(o)(3)	Lettering .....	.1003(e)(3)
Rope and Chain Drives ..	.219(o)(4)	Prohibited statements .....	.1003(e)(4)
Materials .....	.219(m)(1), (o)	Signs .....	.1003(e)(1)
Prime Mover .....	.219(b)	Training and indoctrination ....	.1003(e)(5)
Shields .....	.219(m)(2)	Methylene Chloride:	
Standard .....	.219(m)	Permissible Exposure Limits .....	.1052(c)
Manufacturing Methods		Exposure Monitoring .....	.1052(d)
Materials .....	.219(m)(1)	Regulated Areas .....	.1052(e)
Toeboards .....	.219(o)(5)	Methods of Compliance .....	.1052(f)
U-Guards .....	.219(m)(3)	Respiratory Protection .....	.1052(g)
Wooden .....	.219(o)(2)	Protective Work Clothing and	
Hangers .....	.219(p)(4)	Equipment.	.1052(h)
Keys .....	.219(h)	Hygiene Facilities .....	.1052(i)
Located in Basements, Towers,		Medical Surveillance .....	.1052(j)
and Rooms.		Hazard Communications .....	.1052(k)
Personnel Protection .....	.219(p)(7)	Employee Information and Train-	
Prime Mover Guards:		ing.	.1052(l)
Connecting Rods .....	.219(b)(2)	Recordkeeping .....	.1052(m)
Crankes .....	.219(b)(2)	4,4-Methylenedianiline:	
Extension Piston Rods .....	.219(b)(3)	Airborne Concentration .....	.1050(c)
Flywheels .....	.219(b)(1)	Compliance .....	.1050(g)
Tail Rods .....	.219(b)(3)	Emergency Situations .....	.1050(d)
Projections .....	.219(h)	Hazard Communication .....	.1050(k)
Pulleys .....	.219(d), (k), (p)(5)	Exposure, Permissible .....	.1050(c)
Setscrews .....	.219(h)	Housekeeping .....	.1050(l)
Shafting .....	.219(c)	Hygiene Facilities and Practices ...	.1050(j)
Care .....	.219(p)(2)	Medical Surveillance .....	.1050(m)
Guarding .....	.219(c)(2), (3)	Monitoring .....	.1050(e)
Installation .....	.219(c)(1)	Personal Protective Equipment	
Projecting Shafts .....	.219(c)(4)	Clothing .....	.1050(i)
Sprockets .....	.219(f)	Recordkeeping .....	.1050(n)
Standards Sources .....	.221	Regulated Areas .....	.1050(f)
Textile Industry .....	.219(a)(3)	Respiratory protection .....	.1050(h)
Medical Services: (see also First Aid		Mill Roll Heights .....	.216(a)(4)
Personnel Protective Equipment).	.151	Mills, Pulp, Paper and Paperboard	
Asbestos .....	.1001(j)	(see also Pulp, Paper and Paper-	
First Aid .....	.151	board Mills).	.261
Labor Camps .....	.142(k)	Mills, Rubber and Plastics Industry:	
Pulpwood Logging .....	.266(c)(1)	Definitions .....	.211(c)
Textiles .....	.262(pp)	Location Protection .....	.216(d)(1)
Welding .....	.252(c)(13)	Roll Heights .....	.216(a)(4)
Labor Camps .....	.142(k)	Safety Controls .....	.216(b)
Radiation Exposure Records .....	.96(n)	Auxiliary Equipment .....	.216(b)(3)
Standards Sources .....	.153	Safety Trip Control .....	.216(b)(1)
Medical Surveillance .....	.120(b)(5), (f)	Stopping Limits .....	.216(f)(1), (2)
Mercantile Occupancies .....	.106(d)(5)(iv)	Switches, Trip and Emergency ....	.216(e)
Mercury .....	.252(f)(10)	Minors:	
Exposure Limit .....	.95(b)	Ionizing Radiation Exposure .....	.96(b)(3), (c)(2),
Metal Cutting: (see Cutting and Weld-		(d)(2)(ii)	
ing)		Minors Employment .....	.217(f)(4)
Metal Ladders, Portable: (see also	.26	Mixing:	
Ladders, Portable Metal).		Blasting Agents .....	.109(g)(2), (3);
Methyl chloromethyl ether .....	.1003	(h)(3), (4)	
Area requirements .....	.1003(c)	Explosives .....	.109(h)(3), (4)
Closed system operation .....	.1003(c)(2)	Molding Machines .....	.213(n)
Isolated systems .....	.1003(c)(1)	Monitoring:	
Maintenance and decontamination		Asbestos .....	.1001(f)
activities.	.1003(c)(5)	Ionizing Radiation .....	.96(d)
Open-vessel system operations.	.1003(c)(3)	Mortising Machines .....	.213(e)
Transfer from a closed operation.	.1003(c)(4)	Motor Fuels .....	.110(e)
Medical surveillance .....	.1003(g)	Motor Vehicles:	
Examinations .....	.1003(g)(1)	Anhydrous Ammonia .....	.111(f)
Records .....	.1003(g)(2)	Motorized Hand Trucks: (see also	
		Powered Industrial Trucks).	.178

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Multi-piece Rim Wheels .....	.177
alpha-Naphthylamine .....	.1003
Area requirements .....	.1003(c)
Closed system operation .....	.1003(c)(2)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
General regulated area requirements.	.1003(d)
Hygiene facilities and practices.	.1003(d)(3)
Isolated systems .....	.1003(c)(1)
Maintenance and decontamination activities.	.1003(c)(5)
Open-vessel system operations.	.1003(c)(3)
Transfer from a closed operation.	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated area requirements .....	.1003(d)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices.	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, information, and training ....	.1003(e)
Container contents identification.	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and indoctrination ....	.1003(e)(5)
beta-Naphthylamine .....	.1003
Area requirements .....	.1003(c)
Contamination control .....	.1003(d)(4)
Closed system operation .....	.1003(c)(2)
Emergencies .....	.1003(d)(2)
General regulated area requirements.	.1003(d)
Hygiene facilities and practices.	.1003(d)(3)
Isolated systems .....	.1003(c)(1)
Maintenance and decontamination activities.	.1003(c)(5)
Open-vessel system operations.	.1003(c)(3)
Transfer from a closed operation.	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated area requirements .....	.1003(d)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices.	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, information, and training ....	.1003(e)
Container contents identification.	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and indoctrination ....	.1003(e)(5)
Needle Beam Scaffolds .....	.28(n)
4-Nitrobiphenyl .....	.1003
Area requirements .....	.1003(c)
Closed system operation .....	.1003(c)(2)
Isolated systems .....	.1003(c)(1)

Subject term	Section No.
Maintenance and decontamination activities.	.1003(c)(5)
Open-vessel system operations.	.1003(c)(3)
Transfer from a closed operation.	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated area requirements .....	.1003(d)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices.	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, information, and training ....	.1003(e)
Container contents identification.	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and indoctrination ....	.1003(e)(5)
N-Nitrosodimethylamine .....	.1003
Area requirements .....	.1003(c)
Closed system operation .....	.1003(c)(2)
Isolated systems .....	.1003(c)(1)
Maintenance and decontamination activities.	.1003(c)(5)
Open-vessel system operations.	.1003(c)(3)
Transfer from a closed operation.	.1003(c)(4)
Medical surveillance .....	.1003(g)
Examinations .....	.1003(g)(1)
Records .....	.1003(g)(2)
Regulated area requirements .....	.1003(d)
Contamination control .....	.1003(d)(4)
Emergencies .....	.1003(d)(2)
Hygiene facilities and practices.	.1003(d)(3)
Reports .....	.1003(f)
Incidents .....	.1003(f)(2)
Operations .....	.1003(f)(1)
Signs, information, and training ....	.1003(e)
Container contents identification.	.1003(e)(2)
Lettering .....	.1003(e)(3)
Prohibited statements .....	.1003(e)(4)
Signs .....	.1003(e)(1)
Training and indoctrination ....	.1003(e)(5)
Nitrous Oxide .....	.105
Administrative Controls .....	.95(b)(1)
Effective Dates .....	.114
Engineering Controls .....	.95(b)(1)
Standards Sources .....	.115
Noise Exposure .....	.95
Effective Dates .....	.98
Personal Protective Equipment ....	.95(b)(1), (c), (i), (j)
Pulpwood Logging .....	.266(c)(1)(vi)
Standards Sources .....	.99
Nonionizing Radiation .....	.97
Effective Dates .....	.98
Electromagnetic Radiation .....	.97(a)
Standards Sources .....	.99
Nonpotable Water .....	.120(n)(2)
Noxious Gases, Storage Areas .....	.178(i)
Nozzles:	
Abrasive Blasting .....	.94(a)(2)(iii), .244(b)
Gasoline .....	.106(g)(3)(vi)
Standpipe .....	.158(c)(4)
Occupational Noise Exposure: (see Noise Exposure)	
Odorizing Gases .....	.110(b)(1)

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

Subject term	Section No.	Subject term	Section No.
Open-Sided Floors .....	.23(c)	Piping Systems .....	.253(d)
Open Surface Tanks: (see Tanks: Open Surface)		Protective Equipment .....	.253(e)
Openings: (see also Floor Openings (Holes), Wall Openings (Holes)). Tanks:	.23	Oxygen Manifolds:	
Inside .....	.106(b)(4)(iv)	High Pressure .....	.253(c)(2)
Organic Peroxide Coatings: (see also Dual Component Coatings).	.107(m)	Low Pressure .....	.253(c)(3)
Outdoor Storage:		Painters' Stepladders .....	.25(c)(4)(ii)
Flammable Liquids .....	.106(d)(6)	Paints:	
Outlet Headers, welding .....	.253(c)(4)	Color Code .....	.144
Protective Equipment .....	.253(e)(4)	Paper and Paperboard Mills: (see also Pulp, Paper and Paperboard Mills).	.261
Outrigger Scaffolds .....	.28(e)	Passageways, Working Surfaces .....	.22(b)
Outside Storage Trucks .....	.178(c)(2)(ix), (xi)	Permissible Exposure Limits .....	.1000
Ovens .....	.263(l)	Personal Protection: (see also Personal Protective Equipment).	.219(p)(7)
Direct-Fire .....	.263(l)(10)	Personal Protective Equipment: (see also Lifelines, and Other Terms Listed Below)	
Direct Recirculating .....	.263(l)(11)	Abrasive Blasting .....	.94(a)(5)
Electrical Heating Equipment .....	.263(l)(8)	Asbestos Exposure .....	.1001(d)
General Requirements .....	.263(l)(9)	Clothing .....	.1001(d)(3)
Indirect Recirculating .....	.263(l)(15)	Bloodborne pathogens, exposure to, use of ppe. ....	.1030(c)(2)(ii), (d)(2)(i) and (3)
Location .....	.263(l)(1)	Electrical Protective Equipment ....	.137, .268(f)
Mechanical Parts .....	.263(l)(3)	Electrical safety-related work practices, use of ppe. ....	.333(c)(2), .335(a)
Overflow Pipes, Dip Tanks .....	.125(b)	Emergency Showers and Fountains:	
Overhead Cranes: (see also Overhead and Gantry Cranes).	.179	Pulp, Paper and Paperboard Mills.	.261(g)(5), (18)
Overhead and Gantry Cranes:		Eye Protection .....	.133
Access .....	.179(c)(2)	Face Protection .....	.133
Adjustments .....	.179(l)(3)	Fire Brigades .....	.156
Brakes .....	.179(f)	Foot Protection .....	.136
Bridge Bumpers .....	.179(e)(2)	General Requirements .....	.132
Cabs .....	.179(c)	Hand protection .....	.138
Clearances .....	.179(b)(6)	Hazardous Waste Operations .....	.120(g)
Effective Dates .....	.179(b)(2), .182	Head Protection .....	.135
Electric Equipment .....	.179(g)	Noise Exposure .....	.95(b)(1)
Fire Extinguishers .....	.179(c)(3), (o)(3)	Pulp and Paper Mills .....	.261(g)(2), (i)(4), (k)(3)
Footwalks .....	.179(d)	Pulpwood Logging .....	.266(c)(1)(i)-(v)
Guards .....	.179(e)(5), (6)	Respiratory Protection .....	.134
Handrails .....	.179(d)(3), (4)(ii)	Textiles .....	.262(qq)
Hoisting Equipment .....	.179(h)	Welding .....	.252-.257
Hoisting Rope Guards .....	.179(e)(5)	Booths .....	.252(b)(2)(iii)
Inspections .....	.179(j), (m)	Cable .....	.252(b)(1)(ii)
Ladders .....	.179(d)(4)	Clothing .....	.252(b)(3)
Lighting .....	.179(c)(4)	Eye Protection .....	.252(b)(2)
Load Handling .....	.179(n)	Helmets .....	.252(b)(2)
Maintenance .....	.179(l)	Railing .....	.252(b)(1)(i)
Modifications .....	.179(b)(3)	Shade Numbers, Lenses .....	.252(b)(2)(ii)(H), (b)
Moving Part Guards .....	.179(e)(6)	Physical Hazards Markings: (see also Color Codes, Physical Hazards: Markings).	.144
Rail Clamps .....	.179(b)(4)	Effective Dates .....	.149
Rail Sweeps .....	.179(e)(4)	Standards Sources .....	.150
Rated Load:		Piers and Wharves: (see also Wharves)	
Markings .....	.179(b)(5)	Trucks Used .....	.178(c)(2)(x)
Tests .....	.179(k)(2)	Pipes:	
Repairs .....	.179(l)(3)	Dip Tanks .....	.125(b)
Rope inspection .....	.179(m)	Flammable Liquids .....	.107(e)(6)
Stairways .....	.179(d)(4)	Overflow .....	.125(b)
Standards Sources .....	.183	Piping: (see Piping, Fittings and Tubing; Piping, Valves and Tubing)	
Testing .....	.179(k)	Piping, Fittings and Tubing:	
Toeboards .....	.179(d)(3)	Anhydrous Ammonia .....	.111(b)(7)
Trolley Bumpers .....	.179(e)(3)	Bulk Oxygen Systems .....	.104(b)(5)
Trolley Stops .....	.179(e)(1)	Gaseous Hydrogen Systems .....	.103(b)(1)(ii), (iii)
Warning Devices .....	.179(i)	Liquefied Hydrogen Systems .....	.103(c)(1)(iv), (v)
Wind Indicators .....	.179(b)(4)	Liquefied Petroleum Gases .....	.110(b)(8)
Overhead Wires:		Safety Relief Devices .....	.103(b)(1)(ii), (c)(1)(iv)
Cranes .....	.180(j)(4)	Piping Systems, Oxygen-Fuel .....	.253(d)
Derricks .....	.181(j)(5)(iv)		
Overspray Collectors .....	.107(b)(6)		
Oxygen: (see also Bulk Oxygen Systems).	.104		
Effective Dates .....	.114		
Standards Sources .....	.115		
Storage .....	.252(a)(2)(iv)		
Oxygen-Fuel Gas Systems .....	.253		
Outlet Headers .....	.253(c)(4)		

Pt. 1910, Index

29 CFR Ch. XVII (7-1-10 Edition)

Subject term	Section No.
Fittings	.253(d)(1)
Installation	.253(d)(3)
Painting	.253(d)(4)
Piping	.253(d)(1)
Piping Joints	.253(d)(2)
Pressure Relief Devices	.253(e)(2)
Protective Equipment	.253(e)(3), (4)
Signs	.253(d)(4)
Station Outlets	.253(e)(4)
Testing	.253(d)(5)
X-ray Inspections	.252(d)(1)(vii)
Piping, Valves, and Fittings:	
Flammable and Combustible Liquids.	.106(c)
Corrosion Protection	.106(c)(5)
Design	.106(c)(1)
Joints	.106(c)(3)
Materials	.106(c)(2)
Supports	.106(c)(4)
Testing	.106(c)(7)
Valves	.106(c)(6)
Liquefied Petroleum Gases	.110(h)(7)
Processing Plants	.106(h)(4)(ii)
Pits	.23(a)(5)
Drains	.110(d)(11)
Planing Machines	.213(n)
Plasterers' Scaffolds	.28(o)
Plastics Industry: (see also Mills, Rubber and Plastics Industry)	
Auxiliary Equipment	.216(a)(3)
Effective Dates	.216(a)(1), (2), .220
Installations:	
Existing	.216(a)(2)
New	.216(a)(1)
Mills and Calenders	.216
Standards Sources	.221
Platform Lift Trucks: (see also Powered Industrial Trucks).	.178
Platforms, Scaffolds: (see also Listings Under Specific Type Scaffold)	
Guarding	.23(c)
Manlifts	.68(c)(3)
Pneumatic Powered Tools	.243(b)
Airhoses	.243(b)(2)
Portable	.243(b)(1)
Point of Operation Guarding	.212(a)(3), .217(c)
Polishing: (see Grinding, Polishing and Buffing)	
Portable Fire Extinguishers: (see also Fire Extinguishers, Portable).	.157
Portable Metal Ladders: (see also Ladders, Portable Metal).	.26
Portable Stepladders: (see Stepladders, Portable)	
Portable Tank Storage: (see Tank Storage, Portable)	
Portable Tanks: (see Tanks, Portable)	
Portable Tools: (see also Powered Tools, Hand and Portable).	.244
Portable Welding Machines: (see Welding Machines, Portable)	
Portable Wood Ladders: (see also Ladders, Portable Wood).	.25
Powder Coatings	.107(l)
Power Presses, Mechanical: (see Mechanical Power Presses)	
Powered Industrial Trucks:	
Approval Labels	.178(a)(3), (7)
Batteries	.178(g)
Combustible Dusts	.178(c)(2)(vi)
Conversion	.178(d), (q)(12)
Design and Construction	.178(a)(2)
Designated Locations	.178(c)(1)
Designations, Trucks:	
D	.178(b)(1)

Subject term	Section No.
DS	.178(b)(2)
DY	.178(b)(3)
E	.178(b)(4)
ES	.178(b)(5)
EE	.178(b)(6)
EX	.178(b)(7)
G	.178(b)(8)
GS	.178(b)(9)
LP	.178(b)(10)
LPS	.178(b)(11)
Effective Dates	.182
Fire Protection	.178(a)(1)
Front End Attachments	.178(a)(5)
Fuel Handling	.178(f)
Gases and Fumes	.178(i)
Grain Handling	.178(c)(2)(vi), (b)
Hazardous Materials	.178(c)(2)
Lighting	.178(h)
Loading	.178(o)
Maintenance	.178(q)
Markings	.178(a)(6)
Modifications	.178(a)(4)
Operations	.178(p)
Repairs	.178(q)
Safety Guards	.178(e)
Standards Sources	.183
Training Operators	.178(l)
Traveling	.178(n)
Truck Operations	.178(m)
Powered Platforms	.66-70
Access	.66(f)(3) (i)(K), (ii)(D), (iii)(C)(2), (f)(5)(ii)(J)
Application	.66(b)
Buildings, affected parts	.66(e)
Definitions	.66(d)
Electrical	.66(e)(11), (f)(8)
Equipment	.66(f)
Fall Arrest systems	.66(f)(5)(ii)(L), (M), (iii)(B), (j), App. C
Hoisting Equipment	.66(f)(4), (g)(6)
Inspections	.66(g)
Lockout	.66(f)(3)(i)(J)
Maintenance	.66(e)(5), (10), (g), (h)
Manlifts	.68
Reshacking Hoists	.66(h)(4)
Ropes	.66(f)(7), (g)(5), (h)(3), (4)
Standards Sources	.69
Tests	.66(g)
Vehicle-Mounted	.67
Powered Tools, Hand and Portable:	
Abrasive Wheels	.243(c)
Compressed Air Cleaning	.242(b)
Definitions	.241
Effective Dates	.245
Employees	.242(a)
Explosive Actuated Fastening	.243(d)
Guarding	.243
Lawn Mowers, Power	.243(e)
Pneumatic Powered	.243(b)
Standards Sources	.246
Woodworking	.243(a)
Presses: (see also Mechanical Power Presses)	
Cold Trimming	.218(g)(2)
Forging	.218(f)
Hot Trimming	.218(g)(2)
Hydraulic Forging	.218(f)(2)
Trimming	.218(g)
Pressure Gages, Air Receivers	.169(b)(3)
Pressure Vessels	.106(b)(1)(v), .217(b)(12)

Subject term	Section No.	Subject term	Section No.
Chemical Plants .....	.106(i)(3)	Materials Handling .....	.261(m)
Distilleries .....	.106(i)(3)	Mechanical Pulp Processes .....	.261(i)
Pulp and Paper Mills .....	.216(g)(16), (17)	Personal Protective Equipment ....	.261(d)(1)
Refineries .....	.106(i)(3)	Pulpwood:	
Pressures: (see Safety Relief Devices)		Preparation .....	.261(e)
Prime Mover Guards .....	.219(b)	Removal .....	.261(c)(14)
Primers, Ammunition .....	.109(j)(4)	Rags and Old Paper .....	.261(f)
Process safety management of highly hazardous chemicals (see Chemicals, etc.).	.119	Safe Practices .....	.261(b)
Processing Plants, Flammable and Combustible Liquids.	.106(h)	Signs:	
Application .....	.106(h)(1)	Conveyors .....	.261(c)(16)
Buildings .....	.106(h)(3)	Traffic .....	.261(c)(9)
Fire Protection .....	.106(h)(6)	Standards Sources .....	.261(a)(3), (4); .268
Housekeeping .....	.106(h)(8)	Stock Preparation .....	.261(j)
Ignition Sources .....	.106(h)(7)	Storage .....	.261(c), (d)
Liquid Handling .....	.106(h)(4)	Chocking Rolls .....	.261(d)(4)
Loading .....	.106(h)(5)	Clearances .....	.261(d)(2)
Location .....	.106(h)(2)	Piling .....	.261(d)(3)
Maintenance .....	.106(h)(8)	Traffic Warning Signs .....	.261(c)(9)
Profile Lathes .....	.213(o)	Pulpwood Logging .....	.266
Projections .....	.219(h)	Chain Saw Operations .....	.266(e)(2)
beta-Propiolactone .....	.1003	Chipping .....	.266(h)(4)
Area requirements .....	.1003(c)	Environmental Conditions .....	.266(d)(5)
Closed system operation .....	.1003(c)(2)	Explosives .....	.266(d)(10)
Isolated systems .....	.1003(c)(1)	First Aid .....	.266(d)(2), (i)(7), App. A, App. B
Maintenance and decontamination activities.	.1003(c)(5)	Hand and Portable Powered Tools	.266(e)
Open-vessel system operations.	.1003(c)(3)	Harvesting .....	.266(h)
Transfer from a closed operation.	.1003(c)(4)	Bucking .....	.266(h)(3)
Medical surveillance .....	.1003(g)	Felling .....	.266(h)(2)
Examinations .....	.1003(g)(1)	Limbing .....	.266(h)(3)
Records .....	.1003(g)(2)	Loading .....	.266(h)(6)
Regulated area requirements .....	.1003(d)	Machines for Moving Materials ....	.266(f)
Contamination control .....	.1003(d)(4)	designated operator .....	.266(f)(2)
Emergencies .....	.1003(d)(2)	FOPS/ROPS .....	.266(f)(3)
Hygiene facilities and practices.	.1003(d)(3)	overhead guard .....	.266(f)(4)
Reports .....	.1003(f)	machine access .....	.266(f)(5)
Incidents .....	.1003(f)(2)	exhaust system .....	.266(f)(6)
Operations .....	.1003(f)(1)	brakes .....	.266(f)(7)
Signs, information, and training ....	.1003(e)	guarding .....	.266(f)(8)
Container contents identification.	.1003(e)(2)	Personal Protective Equipment ....	.266(d)(1)
Lettering .....	.1003(e)(3)	Seat Belts .....	.266(d)(3)
Prohibited statements .....	.1003(e)(4)	Storage .....	.266(h)(8)
Signs .....	.1003(e)(1)	Training .....	.266(i)
Training and indoctrination ....	.1003(e)(5)	frequency .....	.266(i)(2)
Protective Clothing: (see Clothing, Protective and Personal Protective Equipment)		content .....	.266(i)(3)
Protective Equipment, Piping: (see also Personal Protective Equipment).	.253(e)	first-aid .....	.266(i)(7)
Hoses and Connections .....	.253(5)	designated trainer .....	.266(i)(8)
Pressure-Reducing Regulations ....	.253(6)	certification .....	.266(i)(10)
Stations Outlet .....	.253(4)	meetings .....	.266(i)(11)
Pulleys .....	.219(d), (k), (p)(5)	Vehicles .....	.266(g)
Pulp, Paper and Paperboard Mills:		maintenance .....	.266(g)(1)
Barking Devices .....	.261(c)(12)	inspection .....	.266(g)(2)
Belt Conveyors .....	.261(c)(15)	instructions .....	.266(g)(3)
Bleaching .....	.261(h)	Work Areas .....	.266(d)(6)
Bridge or Dock Plates .....	.261(c)(11)	Pumps, Gasoline: (see also Service Stations).	.106(g)(3), (4)
Chemical Processes .....	.261(g)	Pyrotechnics .....	.109(k), .119
Cranes .....	.261(c)(8)	Radial Saws .....	.213(h)
Finishing Rooms .....	.261(1)	Radiation:	
Hand Tools .....	.261(c)(13)	Ionizing .....	.96
Handling .....	.261(c), (d)	Nonionizing .....	.97
Lighting .....	.261(b)(2), (c)(10), (k)(21)	Radioactive Materials:	
Lockouts .....	.261(b)(1)	Packaged .....	.96(h)
Machine Rooms .....	.261(k)	Storage .....	.96(j)
		Rail Clamps .....	.179(b)(4), .180(i)(1)
		Rail Sweeps .....	.179(e)(4)
		Railroad Cars .....	.176, .178(k)(2)-(4)
		Explosives .....	.109(f)
		Ramps:	
		Rated Load Markings:	
		Cranes .....	.179(b)(5)
		Derricks .....	.181(c)(2)
		Rated Load Test:	
		Crawler, Locomotive, and Truck Cranes.	.180(e)(2)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Overhead and Gantry Cranes .....	.179(k)(2)
Recordkeeping:	
Asbestos .....	.1001(i), (j)(6)
Bloodborne pathogens, exposure to.	.1030(f)(6), (h)
Building Inspection, assurance for powered platform use.	.66(c)
Communicable Diseases .....	.142(l)(1) and (2)
Cranes:	
Crawler, Locomotive and Truck.	.180(d)(2) and (6), (e)(2), (g)(i) and (2)
Overhead and Gantry .....	.179(k)(2), (m)(1) and (2)
Derricks .....	.181(g)(1) and (3)
Forging Equipment Inspection .....	.218(a)(2)
Hazardous Waste Operations .....	.120(f)(7)
Injury Reporting, Welding .....	.252(c)(13)
Ionizing Radiation Exposure .....	.96(m), (o)
Labor Camps .....	.142(l)(1) and (2)
Liquid Storage Tanks, Class I .....	.106(g)(1)
Manlifts .....	.68(e)(3)
Mechanical Power Presses .....	.217(e)(1)
Personal Monitoring:	
Asbestos .....	.1001(i)(1)
Ionizing Radiation .....	.96(n)
Power Presses Inspection .....	.217(e)(1)
Powered Platforms Inspection .....	.66(g)
Radiation Exposure .....	.96(b)(2)(iii), (m)(1), (n), (o)(1)
Records, Disclosure, Ionizing Radiation.	.96(o)(1)
Respirators .....	.134(e)(2), (f)(2)(iv)
Welding Operations .....	.252(c)(13), .255(e)
Records:	
Asbestos .....	.93a(i), (j)(6)
Ionizing Radiation .....	.96(m), (n)
Mechanical Power Presses .....	.217(e)(1)
Refineries, Chemical Plants and Distilleries.	
Application .....	.106(j)
Fire Protection .....	.106(i)(5)
Pressure Vessels .....	.106(i)(3)
Process Unit Location .....	.106(i)(4)
Storage Tanks .....	.106(i)(1)
Wharves .....	.106(i)(2)
Refrigerated Containers:	
Anhydrous Ammonia .....	.111(d)
Refueling:	
Cranes .....	.180(i)(4)
Derricks .....	.181(j)(4)
Trucks .....	.178(p)(2)
Refuse:	
Disposal .....	.142(h)
Receptacles .....	.141(a)(4)
Relief Devices: (see Safety Relief Devices)	
Remote Gas Pumping Systems .....	.106(g)(3)(v)
Residue Disposal: (see Waste Disposal)	
Resistance Welding Equipment .....	.255(c)
Capacitor Discharge Welding .....	.255(b)(2)
Disconnecting Means .....	.306(d)(2)
Foot Switches .....	.255(b)(6)
Grounding .....	.255(b)(9)
Guarding .....	.255(a)(4), (b)(4)
Installation .....	.255(a)(1)
Interlocks .....	.255(b)(3)
Safety Pins .....	.255(b)(8)
Shields .....	.255(b)(5)
Spot and Seam Welding .....	.255(b)
Stop Buttons .....	.255(b)(7)
Thermal Protection .....	.255(a)(2)
Resistors:	
Cranes .....	.179(g)(4)

Subject term	Section No.
Respirators: (see also Gas Mask Canisters).	.134
Abrasive Blasting .....	.94 (a)(1)(ii), (a)(5)
Air Supply .....	.94(a)(6), .134(d)
Asbestos .....	.1001(d)(1), (2)
Cleaning .....	.134(b)(5), (f)(3)
Color Codes .....	.134(g)(6)
Employer Provided .....	.134(a)(2)
Fire brigades .....	.156(f)
Identification .....	.134(g)
Inspection .....	.134(b)(7), (f)
Labeling .....	.134(g)
Maintenance .....	.134(f)
Minimum Acceptable Program .....	.134(b)
Positive-pressure .....	.156(f)(2)
Pulp, and Paper Mills .....	.261(g)(2), (6), (10), (15)(ii)
Repairs .....	.134(f)(4)
Selection .....	.134(c)
Storage .....	.134(b)(6), (f)(5)
Training .....	.134(b)(3)
Use .....	.134(e)
Welding .....	.252(c)(4)(ii), (iii); (5)(ii); (7)(ii); (8); (9); (10)
Respiratory Protection: (see also Respirators).	.134
Air Quality .....	.94(a)(6), .134(d)
Air Supply .....	.94(a)(6), .134(d)
Fire brigades .....	.156(f)
Fit testing .....	.1001(g)(4), App. C, .1025(f)(3), App. D, .1028(g)(5), App. E, .1048(g)(3)(ii), App. E
Gas Mask Canister Identification ..	.134(g)
Minimum Acceptable Program .....	.134(b)
Permissible Practices .....	.134(a)(1)
Respirators .....	.134(a)(2), (b), (c), (e)
Use .....	.134(e)(5)
Right to know .....	.1200
Rim wheels, multi-piece .....	.177
Ring Test .....	.215(d)(1)
Ripsaws .....	.213(c), .214(d)
Risers, Open .....	.24(j)
Rodent Control .....	.141(a)(5)
Labor Camps .....	.142(j)
Rolling Scaffolds: (see Work Platforms, Mobile).	
Roofing Brackets .....	.28(s)
Catch Platforms .....	.28(s)(3)
Construction .....	.28(s)(1)
Supports .....	.28(s)(2)
Rope Inspections:	
Cranes .....	.179(m), .180(g)
Derricks .....	.181(g)
Ropes:	
Cranes .....	.179(m), .180(g)
Hoists .....	.179(h)(2)
Inspections .....	.179(m), .180(g)
Running .....	.179(m)(1)
Derricks .....	.181(g)
Idle Ropes .....	.181(g)(3)
Limited Travel .....	.181(g)(2)
Nonrotating Ropes .....	.181(g)(4)
Running .....	.181(g)(1)
Powered Platforms .....	.66(f)(7), (g)(5), (h)(3), (4)
Rotary Lawn Mowers .....	.243(e)(1), (4)
Rotating Work Platforms: (see also Vehicle-Mounted Work Platforms).	.67

Subject term	Section No.	Subject term	Section No.
Rubber Industry: (see also Mills, Rubber and Plastics Industry)		Lighting .....	.265(c)(9)
Auxiliary Equipment .....	.216(a)(3), (b)(3)	Platforms .....	.265(c)(4)
Effective Dates .....	.216(a)(1), (2); .220	Stairways .....	.265(c)(5)
Installations:		Handrails .....	.265(c)(5)(ii)
Existing .....	.216(a)(2)	Lighting .....	.265(c)(5)(iii)
New .....	.216(a)(1)	Tanks .....	.265(c)(8)
Mills and Calenders .....	.216	Vats .....	.265(c)(8)
Standards Sources .....	.221	Walkways .....	.265(c)(4)
Rubber Protective Equipment .....	.221	Work Areas .....	.265(c)(2)
Rung Ladders, Portable .....	.25(c)(3)	Burners .....	.265(c)(29)
Running Ropes:		Chippers .....	.265(c)(21)
Cranes .....	.179(m)(1), .180(g)(1)	Conveyors .....	.265(c)(18)
Derricks .....	.181(g)(1)	Definitions .....	.265(b)
Runway Conductors:		Effective Dates .....	.265(j)
Cranes .....	.179(g)(6)	Exhaust Systems .....	.265(c)(20)
Runway Protection .....	.23(c)	Gas Piping and Appliances .....	.265(c)(15)
Safety Belts: (see also Lifelines)		General Requirements .....	.265(a)
Powered Platforms .....	.66(f)(5)(ii), (L), (M), (iii)(B), (j), App. C	Hydraulic Systems .....	.265(c)(13)
Pulp, Paper, and Paperboard Mills	.261(g)(4), (15)	Kilns, Dry .....	.265(f)
Scaffolding .....	.28(j)(4), (n)(8), (s)(3), (t)(2),(u)(6)	Log Breakdown .....	.265(e)
Welding .....	.252(b)(4)(iv)	Log Handling, Sorting, and Storage	.265(d)
Safety Color Codes:		Barking Devices .....	.265(d)(4)
Effective Dates .....	.149	Log Decks .....	.265(d)(3)
Standards Sources .....	.147	Storage Areas .....	.265(d)(2)
Safety Devices:		Unloading .....	.265(d)(1)
Ladders .....	.27(d)(5)	Unloading Areas .....	.265(d)(2)
Safety Guard Design, Abrasive Wheel	.215(a)(2), (b)(10)–	Lumber:	
Machinery	(12)	Loading .....	.265(c)(28)
Safety Instruction Signs .....	.145(c)(3), (d)(6)	Piling .....	.265(c)(27)
Safety Relief Devices:		Storage .....	.265(c)(27)
Bulk Oxygen Systems .....	.104(b)(6), (7)(ii)	Marking Physical Hazards .....	.265(c)(11)
Flammable Liquids .....	.107(e)(8)	Refuse Removal .....	.265(c)(20)(vi)
Gaseous Hydrogen Systems .....	.103(b)(1)(ii)	Ropes, Cables, Slings, and	.265(c)(24)
Liquefied Hydrogen Systems .....	.103(c)(1)(iv)	Chains	
Liquefied Petroleum Gases .....	.110(b)(10), (c)(7), (d)(4), (e)(7), (g)(7), (h)(4)	Stackers and Unstackers .....	.265(c)(26)
Non-DOT Containers .....	.110(d)(4)	Standards Sources .....	.265(a)(2), (j); .268
Spraying .....	.107(e)(8)	Traffic Control .....	.265(c)(31)
Safety-Toe Footwear: (see Foot Protection)		Tramways .....	.265(c)(19)
Sanding Machines .....	.213(p), .243(a)(3)	Trestles .....	.265(c)(19)
Sanitation .....	.141	Vehicles .....	.265(c)(30)
Application .....	.141(a)(1)	Saws:	
Change Rooms .....	.141(e)	Band .....	.213(i)
Effective Dates .....	.149	Band Resaws .....	.213(i)
Food Handling .....	.141(h)	Circular .....	.213(f); .243(a)(1)
Hazardous Waste Operations .....	.120(b)(13), (n)	Circular Resaws .....	.213(e)
Housekeeping .....	.141(a)(3)	Cracked .....	.243(a)(4)
Insect Control .....	.141(a)(5)	Cylindrical Saws .....	.214(c)
Lunchrooms .....	.141(g)	Drag .....	.213(r)
Rodent Control .....	.141(a)(5)	Forging Machines .....	.218(j)(2)
Sawmills .....	.265(h)	Heading Bolt .....	.214(a), (c)
Standards Sources .....	.150	Inspection .....	.213(s)
Toilet Facilities .....	.141(c)	Radial .....	.213(h)
Vermin Control .....	.141(a)(5)	Ripsaws .....	.213(c)
Washing Facilities .....	.141(d)	Swing Cutoff .....	.213(g)
Waste Disposal .....	.141(a)(4)	Table .....	.213(d)
Water Supply .....	.141(b)	Scaffolding: (see also Scaffolds)	
Sawmills:		Safety Requirements .....	.28
Bins, Bunkers, Hoppers, and Fuel	.265(c)(23)	Scaffolds: (see also Ladder Stands)	
Houses		Listings by Names of Scaffolds)	
Lighting .....	.265(c)(23)(iii)	Boatswain's Chair .....	.28(j)
Loading Bins .....	.265(c)(23)(ii)	Bricklayers' Square .....	.28(l)
Blower Systems .....	.265(c)(20)	Carpenters' Bracket .....	.28(k)
Building Facilities .....	.265(c)	Chicken Ladders .....	.28(t)
Docks .....	.265(c)(4)	Coupler, Mobile .....	.29(d)
Emergency Exits .....	.265(c)(6)	Crawling Boards .....	.28(t)
Fire Escapes .....	.265(c)(6)	Decorators' .....	.28(o)
Floors .....	.265(c)(3)	Float .....	.28(u)
		Horse .....	.28(m)
		Interior Hung .....	.28(p)
		Ladder-Jack .....	.28(q)
		Masons' Adjustable Multiple-Point	.28(f)
		Suspension	
		Needle Beam .....	.28(n)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Outrigger .....	.28(e)
Plasterers' .....	.28(o)
Powered platforms .....	.66
Roofing Brackets .....	.28(s)
Ship .....	.28(u)
Single-Point Adjustable Suspension. ....	.28(i)
Stone Setters' Adjustable Multiple Point Suspension. ....	.28(h)
Suspension .....	.28(f), (g), (h), (i)
Swinging .....	.28(g)
Tube and Coupler .....	.28(c)
Tube and Coupler, Mobile .....	.29(d)
Tubular Welded Frame .....	.28(d), .29(b)
Tubular Welded Sectional Folding .....	.29(c)
Two-Point Suspension .....	.28(g)
Window-Jack .....	.28(r)
Wood Pole .....	.28(b)
Scaffolds, Manual Mobile: (see also Work Platforms, Mobile Scaffolds).	.29
Scientific Diving (see Diving, Scientific)	
Semigantry Cranes: (see Gantry Cranes)	
Separation Walls: (see also Distances From Hazards)	
Ammonium Nitrate .....	.109(i)(5)
Service Stations:	
Flammable and Combustible Liquids. ....	.106(g)
Dispensing Systems .....	.106(g)(3)
Drainage .....	.106(g)(7)
Electrical Equipment .....	.106(g)(5)
Fire Protection .....	.106(g)(9)
Handling .....	.106(g)(1)
Heating Equipment .....	.106(g)(6)
Ignition Sources .....	.106(g)(8)
Marine Stations .....	.106(g)(4)
Multi-piece rim wheels, servicing ..	.177
Private Stations .....	.106(g)(2)
Storage .....	.106(g)(1)
Waste Disposal .....	.106(g)(7)
Liquefied Petroleum Gases .....	.110(h)
Containers .....	.110(h)(2)
Accessories .....	.110(h)(3)
Capacity .....	.110(h)(5)
Installation .....	.110(h)(6)
Protecting Fittings .....	.110(h)(7), (9)
Valves .....	.110(h)(3)
Dispensing Devices .....	.110(h)(11)
Electrical Systems .....	.110(h)(13)
Fire Protection .....	.110(h)(14)
Fittings .....	.110(h)(7)
Piping .....	.110(h)(7)
Pumps .....	.110(h)(10)
Safety Relief Valves .....	.110(h)(4)
Truck Unloading .....	.110(h)(8)
Valves .....	.110(h)(7)
Setscrews .....	.219(h)
Sewage Disposal .....	.142(e)
Shafting Guarding:	
Horizontal .....	.219(c)(2)
Inclined .....	.219(c)(3)
Vertical .....	.219(c)(3)
Sheaves:	
Crane Hoists .....	.179(h)(1)
Shelters, Labor Camps: (see also Facilities, Labor Camps).	.142(b)
Ship Scaffolds: (see also Float Scaffolds).	.28(u)
Side-Rolling Ladders .....	.25(c)(5)
Signs and Tags: (see also Markings)	
Accident Prevention .....	.145
Classification .....	.145(c)
Definitions .....	.145(b)

Subject term	Section No.
Use Classification .....	.145(c)
Biological Hazards .....	.145(e)(4), (f)(8)
Caution .....	.1001(g), .145(c)(2), (d)(4), (f)(6)
Colors .....	.145(d)
Danger .....	.145(c)(1), (d)(2), (e)(3), (f)(5)
Design .....	.145(d), (f)(4)
Effective Dates .....	.149
Gas Mask Canisters .....	.134(g)
Hazardous materials, retention of DOT markings. ....	.1201
Powered Platforms .....	.66(f)(7)(vi)
Pulp and Paper Mills .....	.261(c)(9), .116
Radiation Warning .....	.97(a)(3)
Respirators .....	.134(g)
Safety Instruction .....	.145(c)(3), (d)(6)
Slow-Moving Vehicles .....	.145(d)(10)
Specifications .....	.93a(g)(ii), .145
Standards Sources .....	.150
Wordings .....	.145(e)
Single-Point Adjustable Suspension Scaffolds. ....	.28(i)
Single-Rung Ladders .....	.25(c)(3)(ii)
Mason's .....	.25(c)(4)(iii)
Skylight Floor Openings .....	.23(a)(4)
Sleeping Facilities, temporary .....	.120(n)(5)
Sleeves, Rubber Insulating .....	.137
Slings .....	.184
Slurries .....	.109(h)
Small Arms Ammunition .....	.109(j)
Primers .....	.109(j)(4)
Smokeless Propellants .....	.109(j)(3)
Storage .....	.109(j)
Smokeless Propellants .....	.109(j)(3)
Smoking:	
Dual Component Coatings .....	.107(m)(2)
Explosives .....	.109(e)(1)
Flammable Liquids .....	.106(d)(7)(iii)
Powder Coatings .....	.107(l)(4)(iii)
Spraying .....	.107(g)(7), (l)(4)(iii), (m)(2)
Snagging Machines .....	.215(b)(7)
Sources of Standards: (see Standards Sources)	
Special Industries:	
Bakeries .....	.263
Cooperage .....	.214
Forging .....	.218
Hazardous Waste Operations .....	.120
Laundries .....	.264
Paper and Paperboard Mills .....	.261
Plastics Industry .....	.216
Pulp Mills .....	.261
Pulpwood Logging .....	.266
Rubber Industry .....	.216
Sawmills .....	.265
Standards Sources .....	.268
Textiles .....	.219(a)(3), .262
Woodworking .....	.213
Spill Containment .....	.106(d)(6)(iii)
Spot and Seam Welding Machines .....	.255(b)
Spray Booths .....	.107(b)
Spray Finishing .....	.107
Air Flow .....	.94(c)(6)
Application .....	.107(n)
Automobile Undercoatings .....	.107(k)
Clean Air .....	.94(c)(7)
Combustible Liquids Storage .....	.107(e)
Curing Apparatus .....	.107(j)
Drying Apparatus .....	.107(i)
Dual Component Coatings .....	.107(m)
Electrical Systems .....	.107(c)
Electrostatic Apparatus .....	.107(h), (1)

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

Subject term	Section No.	Subject term	Section No.
Fire Protection .....	.107(f)	Life Safety Code .....	.39
Flammable Liquids Storage .....	.107(e)	Liquefied Petroleum Gases .....	.115
Fusion Apparatus .....	.107(j)	Machinery Guarding .....	.221
Ignition Sources .....	.107(c)	Manlifts .....	.69
Location .....	.94(c)(2)	Materials Handling .....	.189
Maintenance .....	.106(g)	Medical .....	.153
Make-Up Air .....	.94(c)(7)	Medical Services .....	.153
Organic Peroxide Coatings .....	.107(m)	Nitrous Oxide .....	.115
Powder Coatings .....	.107(l)	Noise Exposure .....	.99
Spray Booths .....	.94(c)(3), .107(b)	Nonionizing Radiation .....	.99
Spray Rooms .....	.94(c)(4)	Nonwater Disposal Systems .....	.150
Undercoatings .....	.107(k)	Occupational Health .....	.99
Velocity .....	.94(c)(6)	Oxygen .....	.115
Ventilation .....	.94(c)(5), .107(d)	Physical Hazards Markings .....	.150
Spray Liquid Heaters .....	.107(e)(7)	Platforms, Powered .....	.69
Spraying Operations .....	.107(g)	Powered Industrial Trucks .....	.189
Sprinkler Systems:		Powered Platforms .....	.69
Egress .....	.37(m)	Powered Tools, Hand and Port- able .....	.246
Sprinkler Systems, Automatic .....	.159	Railings .....	.31
Acceptance tests .....	.159(c)(3)	Safety Color Codes .....	.150
Design .....	.159(c)(1)	Sanitation .....	.150
Drainage .....	.159(c)(7)	Signs and Tags .....	.150
Exemptions .....	.159(a)	Special Industries .....	.274
Hose Connections .....	.159(c)(5)	Spray Finishing .....	.115
Hydraulically Designed .....	.159(c)(11)	Tanks, Cargo and Portable .....	.170
Maintenance .....	.159(c)(2)	Toeboards .....	.31
Protection of Piping .....	.159(c)(6)	Toxic Substances .....	.1499
Sprinkler Alarms .....	.159(c)(9)	Vehicle Mounted Work Platforms ..	.69
Sprinkler Spacing .....	.159(c)(10)	Ventilation .....	.99
Water supply .....	.159(c)(4)	Walking-Working Surfaces .....	.31
Sprinklers		Wall Openings .....	.31
Dip Tanks .....	.125(f)	Standpipe and Hose Systems .....	.158
Sprockets .....	.219(f)	Equipment .....	.158(c)
Stability Margin:		Hose .....	.158(c)(3)
Crane Loads .....	.180(c)(1)(i)-(iv)	Hose Outlets and Connec- tions .....	.158(c)(2)
Stainless Steel Cutting .....	.252(c)(12)	Nozzles .....	.158(c)(4)
Stairs, Fixed Industrial .....	.24	Reels and Equipment .....	.158(c)(1)
Handrails .....	.24(h)	Exceptions .....	.158(a)(2)
Length of Stairways .....	.24(g)	Protection .....	.158(b)
Railings .....	.24(h)	Scope and Application .....	.158(a)(1)
Rise Angle .....	.24(e)	Tests and Maintenance .....	.158(e)
Strength .....	.24(c)	Acceptance Tests .....	.158(e)(1)
Treads .....	.24(f)	Maintenance .....	.158(e)(2)
Vertical Clearance .....	.24(i)	Water Supply .....	.158(d)
Width .....	.24(d)	Stands, Ladder: (see also Scaffolds; Work Platforms, Mobile)	
Standards Sources:		Stationary Derricks: (see also Derricks)	.181
Accident Prevention Signs and Tags .....	.150	Static Sparks .....	.219(p)(2)(ii)
Acetylene .....	.115	Steps: (see Stairs)	
Air Contaminants .....	.99	Stapladders:	
Air Receivers .....	.169(a)(2), .170	Portable Metal .....	.26(a)(3)
Anhydrous Ammonia .....	.115	Stapladders, Portable .....	.25(c)(2)
Asbestos .....	.99	Sticking Machines .....	.213(n)
Blasting Agents .....	.115	Stiffleg Derricks: (see also Derricks) ...	.181
Color Codes .....	.150	Stone Setters' Adjustable Multiple- Point:	
Combustible Gases .....	.115	Suspension Scaffolds .....	.28(h)
Combustible Liquids .....	.115	Stopping Limits, Mills and Calenders ...	.216(f) (1)-(3)
Compressed Gas Equipment .....	.170	Stops: (see also Safety Devices)	
Compressed Gases .....	.115	Manlifts .....	.68(c)(5), (6)
Cranes .....	.189	Storage: (see also Materials Storage: Storage Areas; Tank Storage: Tank Storage, Portable)	
Derricks .....	.189	Ammonium Nitrate .....	.109(i)
Dip Tanks .....	.115	Anhydrous Ammonia .....	.111
Environmental Controls .....	.99, .150	Blasting Agents .....	.109(g)(5)
Explosives .....	.115	Buildings .....	.106(d)(5)
First Aid .....	.153	Mercantile Occupancies .....	.106(d)(5)(iv)
Flammable Liquids .....	.115	Office Occupancies .....	.106(d)(5)(iii)
Guarding Machinery .....	.221	Warehouses .....	.106(d)(5)(v)
Hand-Held Equipment .....	.246	Clothing .....	.107(g)(4)
Hazardous Materials .....	.115	Compressed Gases .....	.101(b), .167-.168
Hydrogen .....	.115		
Indoor Storage .....	.189		
Ionizing Radiation .....	.99		
Labor Camps .....	.150		
Ladders .....	.31		

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Containers, Bulk Oxygen .....	.104(b)(4), (6)
Explosives .....	.109(c), (e)(2), (b)(1)
Flammable and Combustible Liquids.	.106(b), (d)
Inside Storage Rooms .....	.106(d)(4)
Storage Inside Buildings .....	.106(d)(5)
Storage Outside Buildings .....	.106(d)(6)
Indoor Rooms .....	.106(d)(5)
Liquefied Petroleum Gases .....	.110
Logs .....	.265(d)
Lumber .....	.265(c)(27)
Pulp and Paper Mills .....	.261(c), (d)
Pulpwood Logging .....	.266(e)(12)
Respirators .....	.134(f)(5)
Service Stations .....	.106(g)(1)
Storage Areas:	
Aisles and Passageways .....	.176(a)
Bridge Plates .....	.178(j), (k)(4)
Clearance Signs .....	.176(e)
Clearances .....	.176(a)
Dockboards .....	.178(j), (k)(4)
Drainage .....	.176(d)
Housekeeping .....	.176(c)
Lighting .....	.178(h)
Noxious Gases .....	.178(i)
Railroad Cars .....	.178(k)(2)–(4)
Securing .....	.176(b)
Trucks, Highway .....	.178(k)(1), (3); (m)
Storage Batteries: (see Battery Charging and Charging)	
Storage Bridge Cranes: (see Gantry Cranes)	
Storage, Tanks: (see Tank Storage; Tank Storage, Portable)	
Straight Ladders, Portable Metal .....	.26(a)(2)
Surface Grinders .....	.215(b)(5)
Swing Frame Grinders .....	.215(b)(6)
Swing-Head Lathes .....	.213(o)
Swinging Locomotive Cranes .....	.180(i)(6)
Swinging Scaffolds: (see also Two-Point Suspension Scaffolds).	.28(g)
Switches:	
Electric .....	.305(c)
Cranes .....	.179(g)(5)
Trip and Emergency .....	.216(e)
Table Saws .....	.213(d)
Tags: (see Signs and Tags)	
Tanks: (see also Cargo Tanks—Portable Tanks)	
Hardening .....	.126(a)(1)(i),(ii)
Tempering .....	.126(a)
Tanks, Dip: (see also Dip Tanks) .....	.123–.126
Tanks, Storage:	
Flammable and Combustible Liquids.	.106(b)
Atmospheric Tanks .....	.106(b)(1)(iii)
Construction .....	.106(b)(1)
Corrosion .....	.106(b)(1)(vi)
Diking .....	.106(b)(2)(vii)
Ignition Sources .....	.106(b)(6)
Installation:	
Above Ground, Outside ..	.106(b)(2)
Inside Buildings .....	.106(b)(4)
Underground .....	.106(b)(3)
Low Pressure Tanks .....	.106(b)(1)(iv)
Materials .....	.106(b)(1)(i)
Pressure Vessels .....	.106(b)(1)(v)
Supports .....	.106(b)(5)
Testing .....	.106(b)(7)
Venting .....	.106(b)(2)(iv), (v), (vi), (3)(iv), (4)(ii), (iii)
Tanks, Storage, Portable:	
Flammable and Combustible Liquids.	.106(d)

Subject term	Section No.
Application .....	.106(d)(1)(i)
Capacity .....	.106(d)(2)
Design .....	.106(d)(2)
Exceptions .....	.106(d)(1), (2)
Fire Protection .....	.106(d)(7)
Indoor Storage .....	.106(d)(4), (5)
Outdoor Storage .....	.106(d)(6)
Storage Cabinets .....	.106(d)(3)
Temporary Floor Openings .....	.23(a)(7)
Temporary Labor Camps: (see also Labor Camps, Temporary).	.142
Tempering Tanks .....	.126(a)
Tenoning Machines .....	.213(k)
Telecommunications .....	.268
Testing:	
Bulk Oxygen .....	.104(b)(8)(v)
Cranes .....	.179(k), .180(e)
Derricks .....	.18(e)
Fire Extinguishers:	
Gaseous Hydrogen Systems .....	.103(b)(1)(vi)
Liquefied Hydrogen Systems .....	.103(c)(1)(vii)
Piping .....	.106(c)(7)
Powered Platforms .....	.66(g)
Radiation Alarm .....	.96(f)(3)
Sprinkler Systems .....	.159(c)(3)
Standpipe and hose systems .....	.158(e)
Storage Tanks .....	.106(b)(7)
Textiles:	
Acid Carboys .....	.262(nn)
Bleaching .....	.262(p)
Calenders .....	.262(ee)
Caustics .....	.262(oo)
Color-Mixing Room .....	.262(kk)
Cotton Cards .....	.262(e)
Cotton Combers .....	.262(j)
Drawing Frames .....	.262(i)
Drying Cans .....	.262(w)
Drying Tumblers .....	.262(cc)
Dyeing Jigs .....	.262(u)
Dye Vats .....	.262(mm)
Extractors .....	.262(y)
First Aid .....	.262(pp)
Flat Work Ironers .....	.262(x)
Folders, Overhead .....	.262(jj)
Garnet Machines .....	.262(f)
Gill Boxes .....	.262(k)
Hand Boiling Machines .....	.262(hh)
Kiers .....	.262(q)
Lappers .....	.262(m)
Looms .....	.262(n)
Mercerizing Ranges .....	.262(s)
Nip Guards .....	.262(dd)(1), (v), (z)
Openers .....	.262(d)
Padders .....	.262(v)
Personal Protective Equipment .....	.262(qq)
Pickers .....	.262(d)
Power Transmission .....	.219(a)(3)
Printing Machines .....	.262(dd)
Rings Frames .....	.262(j)
Roll Bench .....	.262(ii)
Rope Washers .....	.262(bb)
Sanforizing and Palmer Machines .....	.262(aa)
Shearing Machines .....	.262(o)
Slashers .....	.262(h)
Slubbers .....	.262(j)
Spinning Mules .....	.262(g)
Standards Sources .....	.262(a)(2), .265(j)
Staple Cullers .....	.262(ff)
Tanks, Open .....	.262(ll)
Tenter Frames .....	.262(t)
Tumblers .....	.262(cc)
Warpers .....	.262(i)
Worsted Drawing .....	.262(l)

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

Subject term	Section No.	Subject term	Section No.
Toe Protection: (see Foot Protection)		Tube and Coupler Scaffolds .....	.28(c)
Toeboards:		Tube and Coupler Scaffolds, Mobile ....	.29(d)
Cranes .....	.179(d)(3)	Tubing: (see Piping, Fittings, and Tubing)	
Definition .....	.21(a)(9)	Tubular Welded Frame Scaffolds .....	.28(d)
Power Transmission Apparatus ....	.219(o)(5)	Tubular Welded Frame Scaffolds, Mobile.	.29(b)
Powered Platforms .....	.66(f)(5)(i)(G)	Tubular Welded Sectional Folding Scaffolds.	.29(c)
Walking-Working Surfaces .....	.23(a)(2), (3)(ii), (e)	Turning Machines .....	.213(o)
Toilet Facilities: (see also Toilets) .....	.141(c)	Two-Point Suspension Scaffolds .....	.28(g)
Construction .....	.141(c)(2), (3)	Two-Section Rung Ladders .....	.25(c)(3)(iii)
Hazardous Waste .....	.120(n)(3)	U-Guards .....	.219(m)(3)
Labor Camps .....	.142(d)	Underground Storage Tanks, Flammable and Combustible Liquids.	.106(b)(3)
Lavatories .....	.141(d)(2)	Location .....	.106(b)(3)(i)
Minimum Numbers .....	.141(c)(1), (d)(2)	Depth and Cover .....	.106(b)(3)(ii)
Towels .....	.141(d)(3)(v)	Corrosion Protection .....	.106(b)(3)(iii)
Washing Facilities .....	.141(e)(1)(vii), (d)	Vents .....	.106(b)(3)(iv)
Tongs, Upsetters .....	.218(h)(4)	Unit Physical Operations .....	.106(e)(3)(v)
Tooling .....	.217(d)(5)	Upsetters .....	.218(h)
Torch Valves, Welding .....	.252(a)(4)(ii)	Dies Changing .....	.218(h)(5)
Towels .....	.141(d)(3)(v)	Lockouts .....	.218(h)(2)
Towers, Scaffolds: (see Ladder Stands and Scaffolds; Scaffolds; Work Platforms, Mobile).	.29	Manual Controls .....	.218(h)(3)
Tractors: (see also Powered Industrial Trucks).	.178	Supporting Foundations .....	.218(h)(1)
Trailers .....	.111(d)(7)	Tongs .....	.218(h)(4)
Training Personnel .....	.96(i), .217(e)(3)	Valves: (see also Piping, Valves, and Fittings)	
Bloodborne pathogens, exposure to.	.1030(e)(5), (g)(2)	Air Receivers .....	.169(b)(3)
Electrical safety-related work practices.	.332	Liquefied Petroleum Gases .....	.110(b)(7)
Fire brigades .....	.156	Non-DOT Containers .....	.110(d)(3)
Fire extinguishers .....	.157(g)	Vaporizers:	
Hazardous chemicals .....	.1200	Liquefied Petroleum Gases .....	.110(b)(11)
Hazardous chemicals, highly, process safety management.	.119(g)	Liquid Hydrogen .....	.103(c)(1)(viii)
Hazardous waste operations .....	.120(e), (p)(7), (q)(6)	Liquid Oxygen .....	.104(b)(7)
Respirators .....	.134(b)(3), (e)(5)	Vehicles, slow-moving, signs .....	.145(d)(10)
Telecommunications .....	.268(c)	Veneer Machinery .....	.30(c)
Truck Operators .....	.178(l)	Cutters .....	.213(q), (s)(13)
Working platform operations .....	.66(i)(1)	Ventilation .....	.94, .107(d)
Transmission Pipeline Welding .....	.252(d)(1)	Abrasive Blasting .....	.94(a)
Construction Standards .....	.252(d)(1)(v)	Asbestos .....	.1001(c)(1)(ii)
Electric Shock .....	.252(d)(1)(iii)	Bulk Oxygen Systems .....	.104(b)(3)(xii)
Field Shop Operations .....	.252(d)(1)(ii)	Bulk Plants .....	.106(f)(2)(iii)
Flammable Substances .....	.252(d)(1)(vi)	Confined Spaces .....	.255(e)(4)(ii), (f)
Pressure Testing .....	.252(d)(1)(iv)	Dip Tanks .....	.124(b), .125(d)(2)
X-ray Inspection .....	.252(d)(1)(vii)	Effective Dates .....	.98
Transportation:		Electrostatic Spraying .....	.107(i), .107(r)(9)
Blasting Agents .....	.109(g)(6)	Grinding, Polishing, and Buffing ....	.94(b)
Explosives .....	.109(d)	Inside Storage Rooms .....	.106(d)(4)(iv)
Fire Extinguishers .....	.109(d)(2)(iii)	Laundries .....	.262(c)(4)(ii), (d)(1)(ii)
Markings .....	.109(d)(2)(ii)	Powder Coatings .....	.107(1)(2)
Vehicles .....	.109(d)(2), (3)	Processing Buildings .....	.106(h)(3)(iii)
Trapdoors .....	.23(a)(5)	Sawmills .....	.265(c)(7)
Traps, Air Receivers .....	.169(b)(2)	Spray Finishing .....	.94(c)(5)
Treads, Stairs .....	.24(f)(k)	Spraying Operations .....	.94(c), .107(d)
Treadles .....	.217(b)(4)	Exhaust Duct System .....	.107(d)(3), (7)
Trestle Ladders, Portable:		Fan-Rotating Element .....	.107(d)(4)
Metal .....	.26(a)(4)	Independent Exhaust .....	.107(d)(3)
Wood .....	.25(c)(3)(v)	Room Intakes .....	.107(d)(11)
Trimming Presses .....	.218(g)	Standards Sources .....	.99
Trips, Two-Hand .....	.217(b)(6)	Venting, Tanks:	
Trolley Bumpers, Cranes .....	.179(e)(3)	Aboveground .....	.106(b)(2)(iv)–(vi)
Trolley Ladders, Portable .....	.25(c)(5)	Inside .....	.106(b)(4)(ii)
Trolley Stops, Cranes .....	.179(e)(1)	Portable .....	.106(d)(2)(ii)
Truck Cranes: (see Crawler, Locomotive and Truck Cranes).	.180	Underground .....	.106(b)(3)(iv)
Trucks .....	.178(k), (m)	Vents: (see Venting)	
Forklift .....	.261(c)(1)	Vermin Control .....	.141(a)(5)
Hand .....	.261(m)(1)	Vinyl Chloride .....	.1017
Highway .....	.178(k), (m)	Emergency situations .....	.1017(i)
Powered Industrial .....	.178	Hazardous operations .....	.1017(h)
Trucks, Powered Industrial: (see also Powered Industrial Trucks).	.178	Medical surveillance .....	.1017(k)
		Methods of compliance .....	.1017(f)
		Monitoring .....	.1017(d)

Pt. 1910, Index

29 CFR Ch. XVII (7–1–10 Edition)

Subject term	Section No.
Permissible exposure limit .....	.1017(c)
Regulated area .....	.1017(e)
Respiratory protection .....	.1017(g)
Signs and labels .....	.1017(i)
Training .....	.1017(j)
Walking-Working Surfaces:	
Aisles .....	.22(b)
Covers .....	.22(c)
Definitions .....	.21
Fixed Industrial Stairs .....	.24
Floor Loading .....	.22(d)
Floor Openings Guard .....	.23
General Requirements .....	.22
Guardrails .....	.22(c)
Housekeeping .....	.22(a)
Ladders:	
Fixed .....	.27
Portable:	
Metal .....	.26
Wood .....	.25
Stands .....	.29
Passageways .....	.22(b)
Scaffolding Safety .....	.28
Scaffolds (Towers) .....	.29
Stairs, Fixed Industrial .....	.24
Standards Sources .....	.31
Wall Openings Guarding .....	.23
Working Surfaces .....	.30
Wall Cranes: (see Gantry Cranes)	
Wall Openings (Holes) .....	.23(b)
Warehouses:	
Ammonium Nitrate .....	.109(i)(4)
Flammable Liquids .....	.106(d)(5)(v)
Warning Devices and Signs: (see also Signs and Tags)	
Bloodborne pathogens .....	.1030(g)(1)
Cranes .....	.179(i)
Ionizing Radiation .....	.96(f)
Manlifts .....	.68(c)(7)
Nonionizing Radiation .....	.97(a)(3)
Washing Facilities .....	.141(d), .142(f), .120(n)(6)
Waste Disposal .....	.141(a)(4)
Asbestos .....	.1001(h)(2)
Bulk Plants .....	.106(f)(7)
Containers .....	.141(g)(3)
Dip Tanks .....	.125(e)(4)(ii),(iii)
Ionizing Radiation .....	.96(k)
Labor Camps .....	.142(e), (h)
Processing Plants .....	.106(h)(8)(iii)
Radiation .....	.96(k)
Service Stations .....	.106(g)(7)
Spraying .....	.107(g)(3)
Water Gels .....	.109(h)
Water Spray Extinguishing Systems, Fixed.	.163
Water Supply:	
Hazardous waste operations .....	.120(n)
Labor Camps .....	.142(c)
Nonpotable Water .....	.141(b)(2)
Potable Water .....	.141(b)(1)
Sprinkler Systems .....	.159(c)(4)
Standpipe and Hose Systems .....	.158(d)
Weather Protection Manlifts .....	.68(b)(15)
Welding: (see also Acetylene Generators; Arc Welding; Flash Welding Equipment; Resistance Welding Equipment; Welding Machines, Portable).	.251–.257
Beryllium .....	.252(c)(8)
Cadmium .....	.252(c)(1)(v), (9)
Chemicals, highly hazardous, process safety management, hot-work permits.	.119(k)

Subject term	Section No.
Cleaning Compounds .....	.252(c)(11)
Concentrations, Maximum Allowable.	.252(c)(1)(iii)
Containers .....	.252(a)(3)
Contamination .....	.252(c)(1)(i)
Definitions .....	.251
Exhaust Hoods .....	.252(c)(3)
Fire Protection .....	.252(a)(2)(i), (ii), (xv)
First Aid Equipment .....	.252(c)(13)
Fluorine Compounds .....	.252(c)(1)(v), (5)
Labels .....	.252(c)(1)(iv)
Ladders, Fixed .....	.27(b)(6)
Lead .....	.252(c)(7)
Liquefied Petroleum Gases .....	.110(b)(4)
Mercury .....	.252(c)(10)
Piping Systems, Mechanical .....	.252(d)(2)
Personnel Protection .....	.252(b)
Precautions .....	.252(a)(2), .255(e)
Prohibited Areas .....	.252(a)(2)(vi)
Screens .....	.252(c)(1)(ii)
Spot and Seam .....	.255(b)
Stainless Steels .....	.252(c)(12)
Supervisory Responsibility .....	.252(a)(2)(xiv)
Transmission Pipelines .....	.252(d)(1)
Ventilation .....	.252(c)(1)(ii), (c)(2)– (4)
Zinc .....	.252(c)(6)
Welding Machines, Portable .....	.255(c)
Clevis .....	.255(c)(3)
Counterbalance .....	.255(c)(1)
Grounding .....	.255(c)(6)
Holder, Movable .....	.255(c)(5)
Safety Chains .....	.255(c)(2)
Switch Guards .....	.255(c)(4)
Wharves:	
Bulk Plants .....	.106(f)(4)
Chemical Plants .....	.106(i)(2)
Distilleries .....	.106(i)(2)
Explosives .....	.109(f)
Marine Service Stations .....	.106(g)(4)
Refineries .....	.106(i)(2)
Wheels, Multi-Piece Rim: Servicing .....	.177
Winch Heads, Derricks .....	.181(i)(5)
Wind Indicators .....	.179(b)(4)
Window-Jack Scaffolds .....	.28(r)
Guardrails .....	.28(r)(3)
Use .....	.28(r)(1), (2)
Wood Heel Turning Machines .....	.213(o)
Wood Ladders, Portable: (see also Ladders, Portable Wood).	.25
Wood Pole Scaffolds .....	.28(b)
Wood Shapers .....	.213(m)
Wooden Guards .....	.219(o)(2)
Woodworking Machinery .....	.213
Band Saws and Resaws .....	.213(i)
Boring Machines .....	.213(l)
Circular Resaws .....	.213(e)
Construction .....	.213(a)
Controls .....	.213(b)
Crosscut Table Saws .....	.213(d)
Definitions .....	.211(a)
Drag Saws .....	.213(r)
Effective Dates .....	.220
Glue Spreaders, Roll-Type .....	.213(r)
Hand-Fed Crosscut Table Saws .....	.213(d)
Hand-Fed Ripsaws .....	.213(c)
Inspection .....	.213(s)
Jointers .....	.213(j)
Maintenance .....	.213(s)
Matching Machines .....	.213(n)
Molding Machines .....	.213(n)
Mortising Machines .....	.213(l)
Planing Machines .....	.213(n)

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

Subject term	Section No.	Subject term	Section No.
Profile Lathes .....	.213(o)	Dead-Man Controls .....	.243(a)(2)
Radial Saws .....	.213(h)	Grounding .....	.243(a)(5)
Ripsaws .....	.213(c)	Sanding Machines .....	.243(a)(3)
Sanding Machines .....	.213(p)	Work Platforms .....	.66, .67
Self-Fed Circular Saws .....	.213(f)	Elevating and Rotating .....	.67
Standards Sources .....	.221	Powered Platforms .....	.66
Sticking .....	.213(n)	Vehicle-Mounted .....	.67
Swing Cutoff Saws .....	.213(g)	Application .....	.67(b)(1)
Swing Head Lathes .....	.213(o)	Design .....	.67(b)(2)
Table Saws .....	.213(d)	Work Platforms, Mobile: (see also	.29(e)
Tenoning Machines .....	.213(k)	Scaffolds).	
Turning Machines .....	.213(o)	Working Surfaces: (see also Walking-	.30
Veneer Cutters .....	.213(q)	Working Surfaces).	
Wood Heel Turning Machines .....	.213(o)	X-ray Inspections, Mechanical Piping	.252(d)(2)(ii)
Wood Shapers .....	.213(m)	Systems.	
Woodworking Tools, Portable Powered	.243(a)	Zinc .....	.252(c)(6)
Belt Sanding Machines .....	.243(a)(3)	Confined Spaces .....	.252(c)(6)(i)
Circular Saws .....	.243(a)(1)	Indoors .....	.252(c)(6)(ii)
Cracked Saws .....	.243(a)(4)		