

b. *There is convincing relevant information that the agent acts through mechanisms indicating it would likely cause cancer in humans.*

*REFERENCES

- Cohen, S.M., J. Klaunig, M.E. Meek, R.N. Hill, T. Pastoor, L. Lehman-McKeeman, J. Bucher, D.G. Longfellow, J. Seed, V. Dellarco, P. Fenner-Crisp, and D. Patton. 2004. Evaluating the human relevance of chemically induced animal tumors. *Toxicol. Sci.* 78(2):181-186.
- Cohen, S.M., M.E. Meek, J.E. Klaunig, D.E. Patton, P.A. Fenner-Crisp. 2003. The human relevance of information on carcinogenic modes of action: Overview. *Crit. Rev. Toxicol.* 33(6):581-9.
- Meek, M.E., J.R. Bucher, S.M. Cohen, V. Dellarco, R.N. Hill, L. Lehman-McKeeman, D.G. Longfellow, T. Pastoor, J. Seed, D.E. Patton. 2003. A framework for human relevance analysis of information on carcinogenic modes of action. *Crit. Rev. Toxicol.* 33(6):591-653.
- Sonich-Mullin, C., R. Fielder, J. Wiltse, K. Baetcke, J. Dempsey, P. Fenner-Crisp, D. Grant, M. Hartley, A. Knapp, D. Kroese, I. Mangelsdorf, E. Meek, J.M. Rice, and M. Younes. 2001. The conceptual framework for evaluating a mode of action for chemical carcinogenesis. *Reg. Toxicol. Pharm.* 34:146-152.
- International Programme on Chemical Safety Harmonization Group. 2004. Report of the First Meeting of the Cancer Working Group. World Health Organization. Report IPCS/HSC-CWG-1/04. Geneva.
- International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Human. Preambles to Volumes. World Health Organization. Lyon, France.
- Cohen, S.M., P.A. Fenner-Crisp, and D.E. Patton. 2003. Special Issue: Cancer Modes of Action and Human Relevance. *Critical Reviews in Toxicology*, R.O. McClellan, ed., Volume 33/Issue 6. CRC Press.
- Capen, C.C., E. Dybing, and J.D. Wilbourn. 1999. Species differences in thyroid, kidney and urinary bladder carcinogenesis. International Agency for Research on Cancer, Scientific Publication N° 147.
- Doi, A.M., G. Hill, J. Seely, J.R. Hailey, G. Kissling, and J.R. Buchera. 2007. α 2u-Globulin nephropathy and renal tumors in National Toxicology Program studies. *Toxicol. Pathol.* 35:533-540.

[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; 77 FR 17785, Mar. 26, 2012; 78 FR 9313, Feb. 8, 2013]

§ 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.

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.

Hazardous chemical means any chemical which is classified as health hazard or simple asphyxiant in accordance with the Hazard Communication Standard (§1910.1200).

Health hazard means a chemical that is classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in appendix A of the Hazard Communication Standard (§1910.1200) and §1910.1200(c) (definition of "simple asphyxiant").

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.

Mutagen means chemicals that cause permanent changes in the amount or structure of the genetic material in a cell. Chemicals classified as mutagens in accordance with the Hazard Communication Standard (§1910.1200) shall be considered mutagens for purposes of this section.

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid, or gas); self reactive; pyrophoric (gas, liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; in contact with water emits flammable gas; or combustible dust. The criteria for determining whether a chemical is classified as a physical hazard are in appendix B of the Hazard Communication Standard (§1910.1200) and §1910.1200(c) (definitions of “combustible dust” and “pyrophoric gas”).

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 mean chemicals that affect the reproductive capabilities including adverse effects on sexual function and fertility in adult males and females, as well as adverse effects on the development of the offspring. Chemicals classified as reproductive toxins in accordance with the Hazard Communication Standard (§1910.1200) shall be considered reproductive toxins for purposes of this section.

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.

(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, 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

§ 1910.1450

29 CFR Ch. XVII (7–1–13 Edition)

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 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 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 exclu-

sively 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 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)

To assist employers in developing an appropriate laboratory Chemical Hygiene Plan (CHP), the following non-mandatory recommendations were based on the National Research Council's (NRC) 2011 edition of

“Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards.” This reference, henceforth referred to as “Prudent Practices,” is available from the National Academies Press, 500 Fifth Street NW., Washington DC 20001 (www.nap.edu). “Prudent Practices” is cited because of its wide distribution and acceptance and because of its preparation by recognized authorities in the laboratory community through the sponsorship of the NRC. However, these recommendations do not modify any requirements of the OSHA Laboratory standard. This appendix presents pertinent recommendations from “Prudent Practices,” organized into a form convenient for quick reference during operation of a laboratory and during development and application of a CHP. For a detailed explanation and justification for each recommendation, consult “Prudent Practices.”

“Prudent Practices” deals with both general laboratory safety and many types of chemical hazards, while the Laboratory standard is concerned primarily with chemical health hazards as a result of chemical exposures. The recommendations from “Prudent Practices” have been paraphrased, combined, or otherwise reorganized in order to adapt them for this purpose. However, their sense has not been changed.

Section F contains information from the U.S. Chemical Safety Board’s (CSB) Fiscal Year 2011 Annual Performance and Accountability report and Section F contains recommendations extracted from the CSB’s 2011 case study, “Texas Tech University Laboratory Explosion,” available from: <http://www.csb.gov/>.

CULTURE OF SAFETY

With the promulgation of the Occupational Safety and Health Administration (OSHA) Laboratory standard (29 CFR 1910.1450), a culture of safety consciousness, accountability, organization, and education has developed in industrial, governmental, and academic laboratories. Safety and training programs have been implemented to promote the safe handling of chemicals from ordering to disposal, and to train laboratory personnel in safe practices. Laboratory personnel must realize that the welfare and safety of each individual depends on clearly defined attitudes of teamwork and personal responsibility. Learning to participate in this culture of habitual risk assessment, experiment planning, and consideration of worst-case possibilities—for oneself and one’s fellow workers—is as much part of a scientific education as learning the theoretical background of experiments or the step-by-step protocols for doing them in a professional manner. A crucial component of chemical education for all personnel is to nurture basic attitudes and habits of prudent

behavior so that safety is a valued and inseparable part of all laboratory activities throughout their career.

Over the years, special techniques have been developed for handling chemicals safely. Local, state, and federal regulations hold institutions that sponsor chemical laboratories accountable for providing safe working environments. Beyond regulation, employers and scientists also hold themselves personally responsible for their own safety, the safety of their colleagues and the safety of the general public. A sound safety organization that is respected by all requires the participation and support of laboratory administrators, workers, and students. A successful health and safety program requires a daily commitment from everyone in the organization. To be most effective, safety and health must be balanced with, and incorporated into, laboratory processes. A strong safety and health culture is the result of positive workplace attitudes—from the chief executive officer to the newest hire; involvement and buy-in of all members of the workforce; mutual, meaningful, and measurable safety and health improvement goals; and policies and procedures that serve as reference tools, rather than obscure rules.

In order to perform their work in a prudent manner, laboratory personnel must consider the health, physical, and environmental hazards of the chemicals they plan to use in an experiment. However, the ability to accurately identify and assess laboratory hazards must be taught and encouraged through training and ongoing organizational support. This training must be at the core of every good health and safety program. For management to lead, personnel to assess work-site hazards, and hazards to be eliminated or controlled, everyone involved must be trained.

A. General Principles

1. Minimize All Chemical Exposures and Risks

Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals should be adopted. In addition to these general guidelines, specific guidelines for chemicals that are used frequently or are particularly hazardous should be adopted.

Laboratory personnel should conduct their work under conditions that minimize the risks from both known and unknown hazardous substances. Before beginning any laboratory work, the hazards and risks associated with an experiment or activity should be determined and the necessary safety precautions implemented. Every laboratory should develop facility-specific policies and procedures for the highest-risk materials and procedures used in their laboratory. To identify these, consideration should be given to

past accidents, process conditions, chemicals used in large volumes, and particularly hazardous chemicals.

Perform Risk Assessments for Hazardous Chemicals and Procedures Prior to Laboratory Work:

(a) Identify chemicals to be used, amounts required, and circumstances of use in the experiment. Consider any special employee or laboratory conditions that could create or increase a hazard. Consult sources of safety and health information and experienced scientists to ensure that those conducting the risk assessment have sufficient expertise.

(b) Evaluate the hazards posed by the chemicals and the experimental conditions. The evaluation should cover toxic, physical, reactive, flammable, explosive, radiation, and biological hazards, as well as any other potential hazards posed by the chemicals.

(c) For a variety of physical and chemical reasons, reaction scale-ups pose special risks, which merit additional prior review and precautions.

(d) Select appropriate controls to minimize risk, including use of engineering controls, administrative controls, and personal protective equipment (PPE) to protect workers from hazards. The controls must ensure that OSHA's Permissible Exposure Limits (PELs) are not exceeded. Prepare for contingencies and be aware of the institutional procedures in the event of emergencies and accidents.

One sample approach to risk assessment is to answer these five questions:

- (a) What are the hazards?
- (b) What is the worst thing that could happen?
- (c) What can be done to prevent this from happening?
- (d) What can be done to protect from these hazards?
- (e) What should be done if something goes wrong?

2. Avoid Underestimation of Risk

Even for substances of no known significant hazard, exposure should be minimized; when working with substances that present special hazards, special precautions should be taken. Reference should be made to the safety data sheet (SDS) that is provided for each chemical. Unless otherwise known, one should assume that any mixture will be more toxic than its most toxic component and that all substances of unknown toxicity are toxic.

Determine the physical and health hazards associated with chemicals before working with them. This determination may involve consulting literature references, laboratory chemical safety summaries (LCSSs), SDSs, or other reference materials. Consider how the chemicals will be processed and determine whether the changing states or forms will change the nature of the hazard. Review your plan, operating limits, chemical evalua-

tions and detailed risk assessment with other chemists, especially those with experience with similar materials and protocols.

Before working with chemicals, know your facility's policies and procedures for how to handle an accidental spill or fire. Emergency telephone numbers should be posted in a prominent area. Know the location of all safety equipment and the nearest fire alarm and telephone.

3. Adhere to the Hierarchy of Controls

The hierarchy of controls prioritizes intervention strategies based on the premise that the best way to control a hazard is to systematically remove it from the workplace, rather than relying on employees to reduce their exposure. The types of measures that may be used to protect employees (listed from most effective to least effective) are: engineering controls, administrative controls, work practices, and PPE. Engineering controls, such as chemical hoods, physically separate the employee from the hazard. Administrative controls, such as employee scheduling, are established by management to help minimize the employees' exposure time to hazardous chemicals. Work practice controls are tasks that are performed in a designated way to minimize or eliminate hazards. Personal protective equipment and apparel are additional protection provided under special circumstances and when exposure is unavoidable.

Face and eye protection is necessary to prevent ingestion and skin absorption of hazardous chemicals. At a minimum, safety glasses, with side shields, should be used for all laboratory work. Chemical splash goggles are more appropriate than regular safety glasses to protect against hazards such as projectiles, as well as when working with glassware under reduced or elevated pressures (e.g., sealed tube reactions), when handling potentially explosive compounds (particularly during distillations), and when using glassware in high-temperature operations. Do not allow laboratory chemicals to come in contact with skin. Select gloves carefully to ensure that they are impervious to the chemicals being used and are of correct thickness to allow reasonable dexterity while also ensuring adequate barrier protection.

Lab coats and gloves should be worn when working with hazardous materials in a laboratory. Wear closed-toe shoes and long pants or other clothing that covers the legs when in a laboratory where hazardous chemicals are used. Additional protective clothing should be used when there is significant potential for skin-contact exposure to chemicals. The protective characteristics of this clothing must be matched to the hazard. Never wear gloves or laboratory coats outside the laboratory or into areas where food is stored and consumed.

4. Provide Laboratory Ventilation

The best way to prevent exposure to airborne substances is to prevent their escape into the working atmosphere by the use of hoods and other ventilation devices. To determine the best choice for laboratory ventilation using engineering controls for personal protection, employers are referred to Table 9.3 of the 2011 edition of "Prudent Practices." Laboratory chemical hoods are the most important components used to protect laboratory personnel from exposure to hazardous chemicals.

(a) Toxic or corrosive chemicals that require vented storage should be stored in vented cabinets instead of in a chemical hood.

(b) Chemical waste should not be disposed of by evaporation in a chemical hood.

(c) Keep chemical hood areas clean and free of debris at all times.

(d) Solid objects and materials, such as paper, should be prevented from entering the exhaust ducts as they can reduce the air flow.

(e) Chemical hoods should be maintained, monitored and routinely tested for proper performance.

A laboratory ventilation system should include the following characteristics and practices:

(a) Heating and cooling should be adequate for the comfort of workers and operation of equipment. Before modification of any building HVAC, the impact on laboratory or hood ventilation should be considered, as well as how laboratory ventilation changes may affect the building HVAC.

(b) A negative pressure differential should exist between the amount of air exhausted from the laboratory and the amount supplied to the laboratory to prevent uncontrolled chemical vapors from leaving the laboratory.

(c) Local exhaust ventilation devices should be appropriate to the materials and operations in the laboratory.

(d) The air in chemical laboratories should be continuously replaced so that concentrations of odoriferous or toxic substances do not increase during the workday.

(e) Laboratory air should not be recirculated but exhausted directly outdoors.

(f) Air pressure should be negative with respect to the rest of the building. Local capture equipment and systems should be designed only by an experienced engineer or industrial hygienist.

(g) Ventilation systems should be inspected and maintained on a regular basis. There should be no areas where air remains static or areas that have unusually high air-flow velocities.

Before work begins, laboratory workers should be provided with proper training that includes how to use the ventilation equipment, how to ensure that it is functioning

properly, the consequences of improper use, what to do in the event of a system failure or power outage, special considerations, and the importance of signage and postings.

5. Institute a Chemical Hygiene Program

A comprehensive chemical hygiene program is required. It should be designed to minimize exposures, injuries, illnesses and incidents. There should be a regular, continuing effort that includes program oversight, safe facilities, chemical hygiene planning, training, emergency preparedness and chemical security. The chemical hygiene program must be reviewed annually and updated as necessary whenever new processes, chemicals, or equipment is implemented. Its recommendations should be followed in all laboratories.

6. Observe the PELs and TLVs

OSHA's Permissible Exposure Limits (PELs) must not be exceeded. The American Conference of Governmental Industrial Hygienists' Threshold Limit Values (TLVs) should also not be exceeded.

B. Responsibilities

Persons responsible for chemical hygiene include, but are not limited to, the following:

1. Chemical Hygiene Officer

(a) Establishes, maintains, and revises the chemical hygiene plan (CHP).

(b) Creates and revises safety rules and regulations.

(c) Monitors procurement, use, storage, and disposal of chemicals.

(d) Conducts regular inspections of the laboratories, preparations rooms, and chemical storage rooms, and submits detailed laboratory inspection reports to administration.

(e) Maintains inspection, personnel training, and inventory records.

(f) Assists laboratory supervisors in developing and maintaining adequate facilities.

(g) Seeks ways to improve the chemical hygiene program.

2. Department Chairperson or Director

(a) Assumes responsibility for personnel engaged in the laboratory use of hazardous chemicals.

(b) Provides the chemical hygiene officer (CHO) with the support necessary to implement and maintain the CHP.

(c) After receipt of laboratory inspection report from the CHO, meets with laboratory supervisors to discuss cited violations and to ensure timely actions to protect trained laboratory personnel and facilities and to ensure that the department remains in compliance with all applicable federal, state, university, local and departmental codes and regulations.

(d) Provides budgetary arrangements to ensure the health and safety of the departmental personnel, visitors, and students.

3. Departmental Safety Committee reviews accident reports and makes appropriate recommendations to the department chairperson regarding proposed changes in the laboratory procedures.

4. Laboratory Supervisor or Principal Investigator has overall responsibility for chemical hygiene in the laboratory, including responsibility to:

(a) Ensure that laboratory personnel comply with the departmental CHP and do not operate equipment or handle hazardous chemicals without proper training and authorization.

(b) Always wear personal protective equipment (PPE) that is compatible to the degree of hazard of the chemical.

(c) Follow all pertinent safety rules when working in the laboratory to set an example.

(d) Review laboratory procedures for potential safety problems before assigning to other laboratory personnel.

(e) Ensure that visitors follow the laboratory rules and assumes responsibility for laboratory visitors.

(f) Ensure that PPE is available and properly used by each laboratory employee and visitor.

(g) Maintain and implement safe laboratory practices.

(h) Provide regular, formal chemical hygiene and housekeeping inspections, including routine inspections of emergency equipment;

(i) Monitor the facilities and the chemical fume hoods to ensure that they are maintained and function properly. Contact the appropriate person, as designated by the department chairperson, to report problems with the facilities or the chemical fume hoods.

5. Laboratory Personnel

(a) Read, understand, and follow all safety rules and regulations that apply to the work area;

(b) Plan and conduct each operation in accordance with the institutional chemical hygiene procedures;

(c) Promote good housekeeping practices in the laboratory or work area.

(d) Notify the supervisor of any hazardous conditions or unsafe work practices in the work area.

(e) Use PPE as appropriate for each procedure that involves hazardous chemicals.

C. The Laboratory Facility

General Laboratory Design Considerations

Wet chemical spaces and those with a higher degree of hazard should be separated from other spaces by a wall or protective barrier wherever possible. If the areas cannot be sep-

arated, then workers in lower hazard spaces may require additional protection from the hazards in connected spaces.

1. Laboratory Layout and Furnishing

(a) Work surfaces should be chemically resistant, smooth, and easy to clean.

(b) Hand washing sinks for hazardous materials may require elbow, foot, or electronic controls for safe operation.

(c) Wet laboratory areas should have chemically resistant, impermeable, slip-resistant flooring.

(d) Walls should be finished with a material that is easy to clean and maintain.

(e) Doors should have view panels to prevent accidents and should open in the direction of egress.

(f) Operable windows should not be present in laboratories, particularly if there are chemical hoods or other local ventilation systems present.

2. Safety Equipment and Utilities

(a) An adequate number and placement of safety showers, eyewash units, and fire extinguishers should be provided for the laboratory.

(b) Use of water sprinkler systems is resisted by some laboratories because of the presence of electrical equipment or water-reactive materials, but it is still generally safer to have sprinkler systems installed. A fire large enough to trigger the sprinkler system would have the potential to cause far more destruction than the local water damage.

D. Chemical Hygiene Plan (CHP)

The OSHA Laboratory standard defines a CHP as “a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace.” (29 CFR 1910.1450(b)). The Laboratory Standard requires a CHP: “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.” (29 CFR 1910.1450(e)(1)). The CHP is the foundation of the laboratory safety program and must be reviewed and updated, as needed, and at least on an annual basis to reflect changes in policies and personnel. A CHP should be facility specific and can assist in promoting a culture of safety to protect workers from exposure to hazardous materials.

1. The Laboratory’s CHP must be readily available to workers and capable of protecting workers from health hazards and minimizing exposure. Include the following topics in the CHP:

- (a) Individual chemical hygiene responsibilities;
- (b) Standard operating procedures;
- (c) Personal protective equipment, engineering controls and apparel;
- (d) Laboratory equipment;
- (e) Safety equipment;
- (f) Chemical management;
- (g) Housekeeping;
- (h) Emergency procedures for accidents and spills;
- (i) Chemical waste;
- (j) Training;
- (k) Safety rules and regulations;
- (l) Laboratory design and ventilation;
- (m) Exposure monitoring;
- (n) Compressed gas safety;
- (o) Medical consultation and examination.

It should be noted that the nature of laboratory work may necessitate addressing biological safety, radiation safety and security issues.

2. Chemical Procurement, Distribution, and Storage

Prudent chemical management includes the following processes:

Chemical Procurement:

- (a) Information on proper handling, storage, and disposal should be known to those who will be involved before a substance is received.
- (b) Only containers with adequate identifying labels should be accepted.
- (c) Ideally, a central location should be used for receiving all chemical shipments.
- (d) Shipments with breakage or leakage should be refused or opened in a chemical hood.
- (e) Only the minimum amount of the chemical needed to perform the planned work should be ordered.
- (f) Purchases of high risk chemicals should be reviewed and approved by the CHO.
- (g) Proper protective equipment and handling and storage procedures should be in place before receiving a shipment.

Chemical Storage:

- (a) Chemicals should be separated and stored according to hazard category and compatibility.
- (b) SDS and label information should be followed for storage requirements.
- (c) Maintain existing labels on incoming containers of chemicals and other materials.
- (d) Labels on containers used for storing hazardous chemicals must include the chemical identification and appropriate hazard warnings.
- (e) The contents of all other chemical containers and transfer vessels, including, but not limited to, beakers, flasks, reaction vessels, and process equipment, should be properly identified.
- (f) Chemical shipments should be dated upon receipt and stock rotated.

- (g) Peroxide formers should be dated upon receipt, again dated upon opening, and stored away from heat and light with tight-fitting, nonmetal lids.

(h) Open shelves used for chemical storage should be secured to the wall and contain 3/4-inch lips. Secondary containment devices should be used as necessary.

(i) Consult the SDS and keep incompatibles separate during transport, storage, use, and disposal.

(j) Oxidizers, reducing agents, and fuels should be stored separately to prevent contact in the event of an accident.

(k) Chemicals should not be stored in the chemical hood, on the floor, in areas of egress, on the benchtop, or in areas near heat or in direct sunlight.

(l) Laboratory-grade, flammable-rated refrigerators and freezers should be used to store sealed chemical containers of flammable liquids that require cool storage. Do not store food or beverages in the laboratory refrigerator.

(m) Highly hazardous chemicals should be stored in a well-ventilated and secure area designated for that purpose.

(n) Flammable chemicals should be stored in a spark-free environment and in approved flammable-liquid containers and storage cabinets. Grounding and bonding should be used to prevent static charge buildups when dispensing solvents.

(o) Chemical storage and handling rooms should be controlled-access areas. They should have proper ventilation, appropriate signage, diked floors, and fire suppression systems.

Chemical Handling:

(a) As described above, a risk assessment should be conducted prior to beginning work with any hazardous chemical for the first time.

(b) All SDS and label information should be read before using a chemical for the first time.

(c) Trained laboratory workers should ensure that proper engineering controls (ventilation) and PPE are in place.

Chemical Inventory:

(a) Prudent management of chemicals in any laboratory is greatly facilitated by keeping an accurate inventory of the chemicals stored.

(b) Unneeded items should be discarded or returned to the storeroom.

Transporting Chemicals:

(a) Secondary containment devices should be used when transporting chemicals.

(b) When transporting chemicals outside of the laboratory or between stockrooms and laboratories, the transport container should be break-resistant.

(c) High-traffic areas should be avoided.

Transferring Chemicals:

(a) Use adequate ventilation (such as a fume hood) when transferring even a small

amount of a particularly hazardous substance (PHS).

(b) While drum storage is not appropriate for laboratories, chemical stockrooms may purchase drum quantities of solvents used in high volumes. Ground and bond the drum and receiving vessel when transferring flammable liquids from a drum to prevent static charge buildup.

(c) If chemicals from commercial sources are repackaged into transfer vessels, the new containers should be labeled with all essential information on the original container.

Shipping Chemicals: Outgoing chemical shipments must meet all applicable Department of Transportation (DOT) regulations and should be authorized and handled by the institutional shipper.

3. Waste Management

A waste management plan should be in place before work begins on any laboratory activity. The plan should utilize the following hierarchy of practices:

(a) Reduce waste sources. The best approach to minimize waste generation is by reducing the scale of operations, reducing its formation during operations, and, if possible, substituting less hazardous chemicals for a particular operation.

(b) Reuse surplus materials. Only the amount of material necessary for an experiment should be purchased, and, if possible, materials should be reused.

(c) Recycle waste. If waste cannot be prevented or minimized, the organization should consider recycling chemicals that can be safely recovered or used as fuel.

(d) Dispose of waste properly. Sink disposal may not be appropriate. Proper waste disposal methods include incineration, treatment, and land disposal. The organization's environmental health and safety (EHS) office should be consulted in determining which methods are appropriate for different types of waste.

Collection and Storage of Waste:

(a) Chemical waste should be accumulated at or near the point of generation, under the control of laboratory workers.

(b) Each waste type should be stored in a compatible container pending transfer or disposal. Waste containers should be clearly labeled and kept sealed when not in use.

(c) Incompatible waste types should be kept separate to ensure that heat generation, gas evolution, or another reaction does not occur.

(d) Waste containers should be segregated by how they will be managed. Waste containers should be stored in a designated location that does not interfere with normal laboratory operations. Ventilated storage and secondary containment may be appropriate for certain waste types.

(e) Waste containers should be clearly labeled and kept sealed when not in use. La-

bel should include the accumulation start date and hazard warnings as appropriate.

(f) Non-explosive electrical systems, grounding and bonding between floors and containers, and non-sparking conductive floors and containers should be used in the central waste accumulation area to minimize fire and explosion hazards. Fire suppression systems, specialized ventilation systems, and dikes should be installed in the central waste accumulation area. Waste management workers should be trained in proper waste handling procedures as well as contingency planning and emergency response. Trained laboratory workers most familiar with the waste should be actively involved in waste management decisions to ensure that the waste is managed safely and efficiently. Engineering controls should be implemented as necessary, and personal protective equipment should be worn by workers involved in waste management.

4. Inspection Program

Maintenance and regular inspection of laboratory equipment are essential parts of the laboratory safety program. Management should participate in the design of a laboratory inspection program to ensure that the facility is safe and healthy, workers are adequately trained, and proper procedures are being followed.

Types of inspections: The program should include an appropriate combination of routine inspections, self-audits, program audits, peer inspections, EHS inspections, and inspections by external entities.

Elements of an inspection:

(a) Inspectors should bring a checklist to ensure that all issues are covered and a camera to document issues that require correction.

(b) Conversations with workers should occur during the inspection, as they can provide valuable information and allow inspectors an opportunity to show workers how to fix problems.

(c) Issues resolved during the inspection should be noted.

(d) An inspection report containing all findings and recommendations should be prepared for management and other appropriate workers.

(e) Management should follow-up on the inspection to ensure that all corrections are implemented.

5. Medical Consultation and Examination

The employer must provide all employees who work with hazardous chemicals an opportunity to receive medical attention, including any follow-up examinations that the examining physician determines to be necessary, whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have

been exposed in the laboratory. If an employee encounters a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee must be provided an opportunity for a medical consultation by a licensed physician. All medical examinations and consultations must be performed by or under the direct supervision of a licensed physician and must be provided without cost to the employee, without loss of pay and at a reasonable time and place. The identity of the hazardous chemical, a description of the incident, and any signs and symptoms that the employee may experience must be relayed to the physician.

6. Records

All accident, fatality, illness, injury, and medical records and exposure monitoring records must be retained by the institution in accordance with the requirements of state and federal regulations (see 29 CFR part 1904 and §1910.1450(j)). Any exposure monitoring results must be provided to affected laboratory staff within 15 working days after receipt of the results (29 CFR 1910.1450(d)(4)).

7. Signs

Prominent signs of the following types should be posted:

(a) Emergency telephone numbers of emergency personnel/facilities, supervisors, and laboratory workers;

(b) Location signs for safety showers, eye-wash stations, other safety and first aid equipment, and exits; and

(c) Warnings at areas or equipment where special or unusual hazards exist.

8. Spills and Accidents

Before beginning an experiment, know your facility's policies and procedures for how to handle an accidental release of a hazardous substance, a spill or a fire. Emergency response planning and training are especially important when working with highly toxic compounds. Emergency telephone numbers should be posted in a prominent area. Know the location of all safety equipment and the nearest fire alarm and telephone. Know who to notify in the event of an emergency. Be prepared to provide basic emergency treatment. Keep your co-workers informed of your activities so they can respond appropriately. Safety equipment, including spill control kits, safety shields, fire safety equipment, PPE, safety showers and eyewash units, and emergency equipment should be available in well-marked highly visible locations in all chemical laboratories. The laboratory supervisor or CHO is responsible for ensuring that all personnel are aware of the locations of fire extinguishers and are trained in their use. After an extinguisher has been used, designated personnel

must promptly recharge or replace it (29 CFR 1910.157(c)(4)). The laboratory supervisor or CHO is also responsible for ensuring proper training and providing supplementary equipment as needed.

Special care must be used when handling solutions of chemicals in syringes with needles. Do not recap needles, especially when they have been in contact with chemicals. Remove the needle and discard it immediately after use in the appropriate sharps containers. Blunt-tip needles are available from a number of commercial sources and should be used unless a sharp needle is required to puncture rubber septa or for subcutaneous injection.

For unattended operations, laboratory lights should be left on, and signs should be posted to identify the nature of the experiment and the hazardous substances in use. Arrangements should be made, if possible, for other workers to periodically inspect the operation. Information should be clearly posted indicating who to contact in the event of an emergency. Depending on the nature of the hazard, special rules, precautions, and alert systems may be necessary.

9. Training and Information

Personnel training at all levels within the organization, is essential. Responsibility and accountability throughout the organization are key elements in a strong safety and health program. The employer is required to provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area (29 CFR 1910.1450(f)). This information must 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 should be determined by the employer. At a minimum, laboratory personnel should be trained on their facility's specific CHP, 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), the physical and health hazards of chemicals in the work area and means to protect themselves from these hazards. Trained laboratory personnel must know shut-off procedures in case of an emergency. All SDSs must be made available to the employees.

E. General Procedures for Working With Chemicals

The risk of laboratory injuries can be reduced through adequate training, improved engineering, good housekeeping, safe work practice and personal behavior.

§ 1910.1450

1. General Rules for Laboratory Work With Chemicals

(a) Assigned work schedules should be followed unless a deviation is authorized by the laboratory supervisor.

(b) Unauthorized experiments should not be performed.

(c) Plan safety procedures before beginning any operation.

(d) Follow standard operating procedures at all times.

(e) Always read the SDS and label before using a chemical.

(f) Wear appropriate PPE at all times.

(g) To protect your skin from splashes, spills and drips, always wear long pants and closed-toe shoes.

(h) Use appropriate ventilation when working with hazardous chemicals.

(i) Pipetting should never be done by mouth.

(j) Hands should be washed with soap and water immediately after working with any laboratory chemicals, even if gloves have been worn.

(k) Eating, drinking, smoking, gum chewing, applying cosmetics, and taking medicine in laboratories where hazardous chemicals are used or stored should be strictly prohibited.

(l) Food, beverages, cups, and other drinking and eating utensils should not be stored in areas where hazardous chemicals are handled or stored.

(m) Laboratory refrigerators, ice chests, cold rooms, and ovens should not be used for food storage or preparation.

(n) Contact the laboratory supervisor, Principal Investigator, CHO or EHS office with all safety questions or concerns.

(o) Know the location and proper use of safety equipment.

(p) Maintain situational awareness.

(q) Make others aware of special hazards associated with your work.

(r) Notify supervisors of chemical sensitivities or allergies.

(s) Report all injuries, accidents, incidents, and near misses.

(t) Unauthorized persons should not be allowed in the laboratory.

(u) Report unsafe conditions to the laboratory supervisor or CHO.

(v) Properly dispose of chemical wastes.

Working Alone in the Laboratory

Working alone in a laboratory is dangerous and should be strictly avoided. There have been many tragic accidents that illustrate this danger. Accidents are unexpected by definition, which is why coworkers should always be present. Workers should coordinate schedules to avoid working alone.

29 CFR Ch. XVII (7-1-13 Edition)

Housekeeping

Housekeeping can help reduce or eliminate a number of laboratory hazards. Proper housekeeping includes appropriate labeling and storage of chemicals, safe and regular cleaning of the facility, and proper arrangement of laboratory equipment.

2. Nanoparticles and Nanomaterials

Nanoparticles and nanomaterials have different reactivities and interactions with biological systems than bulk materials, and understanding and exploiting these differences is an active area of research. However, these differences also mean that the risks and hazards associated with exposure to engineered nanomaterials are not well known. Because this is an area of ongoing research, consult trusted sources for the most up to date information available. Note that the higher reactivity of many nanoscale materials suggests that they should be treated as potential sources of ignition, accelerants, and fuel that could result in fire or explosion. Easily dispersed dry nanomaterials may pose the greatest health hazard because of the risk of inhalation. Operations involving these nanomaterials deserve more attention and more stringent controls than those where the nanomaterials are embedded in solid or suspended in liquid matrixes.

Consideration should be given to all possible routes of exposure to nanomaterials including inhalation, ingestion, injection, and dermal contact (including eye and mucous membranes). Avoid handling nanomaterials in the open air in a free-particle state. Whenever possible, handle and store dispersible nanomaterials, whether suspended in liquids or in a dry particle form, in closed (tightly-sealed) containers. Unless cutting or grinding occurs, nanomaterials that are not in a free form (encapsulated in a solid or a nanocomposite) typically will not require engineering controls. If a synthesis is being performed to create nanomaterials, it is not enough to only consider the final material in the risk assessment, but consider the hazardous properties of the precursor materials as well.

To minimize laboratory personnel exposure, conduct any work that could generate engineered nanoparticles in an enclosure that operates at a negative pressure differential compared to the laboratory personnel breathing zone. Limited data exist regarding the efficacy of PPE and ventilation systems against exposure to nanoparticles. However, until further information is available, it is prudent to follow standard chemical hygiene practices. Conduct a hazard evaluation to determine PPE appropriate for the level of hazard according to the requirements set forth in OSHA's Personal Protective Equipment standard (29 CFR 1910.132).

3. Highly Toxic and Explosive/Reactive Chemicals/Materials

The use of highly toxic and explosive/reactive chemicals and materials has been an area of growing concern. The frequency of academic laboratory incidents in the U.S. is an area of significant concern for the Chemical Safety Board (CSB). The CSB issued a case study on an explosion at Texas Tech University in Lubbock, Texas, which severely injured a graduate student handling a high-energy metal compound. Since 2001, the CSB has gathered preliminary information on 120 different university laboratory incidents that resulted in 87 evacuations, 96 injuries, and three deaths.

It is recommended that each facility keep a detailed inventory of highly toxic chemicals and explosive/reactive materials. There should be a record of the date of receipt, amount, location, and responsible individual for all acquisitions, syntheses, and disposal of these chemicals. A physical inventory should be performed annually to verify active inventory records. There should be a procedure in place to report security breaches, inventory discrepancies, losses, diversions, or suspected thefts.

Procedures for disposal of highly toxic materials should be established before any experiments begin, possibly even before the chemicals are ordered. The procedures should address methods for decontamination of any laboratory equipment that comes into contact with highly toxic chemicals. All waste should be accumulated in clearly labeled impervious containers that are stored in unbreakable secondary containment.

Highly reactive and explosive materials that may be used in the laboratory require appropriate procedures and training. An explosion can occur when a material undergoes a rapid reaction that results in a violent release of energy. Such reactions can happen spontaneously and can produce pressures, gases, and fumes that are hazardous. Some reagents pose a risk on contact with the atmosphere. It is prudent laboratory practice to use a safer alternative whenever possible.

If at all possible, substitutes for highly acute, chronic, explosive, or reactive chemicals should be considered prior to beginning work and used whenever possible.

4. Compressed Gas

Compressed gases expose laboratory personnel to both chemical and physical hazards. It is essential that these are monitored for leaks and have the proper labeling. By monitoring compressed gas inventories and disposing of or returning gases for which there is no immediate need, the laboratory can substantially reduce these risks. Leaking gas cylinders can cause serious hazards that may require an immediate evacuation of the area and activation of the emergency

response system. Only appropriately trained hazmat responders may respond to stop a leaking gas cylinder under this situation.

F. Safety Recommendations—Physical Hazards

Physical hazards in the laboratory include combustible liquids, compressed gases, reactives, explosives and flammable chemicals, as well as high pressure/energy procedures, sharp objects and moving equipment. Injuries can result from bodily contact with rotating or moving objects, including mechanical equipment, parts, and devices. Personnel should not wear loose-fitting clothing, jewelry, or unrestrained long hair around machinery with moving parts.

The Chemical Safety Board has identified the following key lessons for laboratories that address both physical and other hazards:

- (1) Ensure that research-specific hazards are evaluated and then controlled by developing specific written protocols and training.
- (2) Expand existing laboratory safety plans to ensure that all safety hazards, including physical hazards of chemicals, are addressed.
- (3) Ensure that the organization's EHS office reports directly to an identified individual/office with organizational authority to implement safety improvements.
- (4) Develop a verification program that ensures that the safety provisions of the CHP are communicated, followed, and enforced at all levels within the organization.
- (5) Document and communicate all laboratory near-misses and previous incidents to track safety, provide opportunities for education and improvement to drive safety changes at the university.
- (6) Manage the hazards unique to laboratory chemical research in the academic environment. Utilize available practice guidance that identifies and describes methodologies to assess and control hazards.
- (7) Written safety protocols and training are necessary to manage laboratory risk.

G. Emergency Planning

In addition to laboratory safety issues, laboratory personnel should be familiar with established facility policies and procedures regarding emergency situations. Topics may include, but are not limited to:

- (1) Evacuation procedures—when it is appropriate and alternate routes;
- (2) Emergency shutdown procedures—equipment shutdown and materials that should be stored safely;
- (3) Communications during an emergency—what to expect, how to report, where to call or look for information;
- (4) How and when to use a fire extinguisher;
- (5) Security issues—preventing tailgating and unauthorized access;

(6) Protocol for absences due to travel restrictions or illness;

(7) Safe practices for power outage;

(8) Shelter in place—when it is appropriate;

(9) Handling suspicious mail or phone calls;

(10) Laboratory-specific protocols relating to emergency planning and response;

(11) Handling violent behavior in the workplace; and

(12) First-aid and CPR training, including automated external defibrillator training if available.

It is prudent that laboratory personnel are also trained in how to respond to short-term, long-term and large-scale emergencies. Laboratory security can play a role in reducing the likelihood of some emergencies and assisting in preparation and response for others. Every institution, department, and individual laboratory should consider having an emergency preparedness plan. The level of detail of the plan will vary depending on the function of the group and institutional planning efforts already in place.

Emergency planning is a dynamic process. As personnel, operations, and events change, plans will need to be updated and modified. To determine the type and level of emergency planning needed, laboratory personnel need to perform a vulnerability assessment. Periodic drills to assist in training and evaluation of the emergency plan are recommended as part of the training program.

H. Emergency Procedures

(1) Fire alarm policy. Most organizations use fire alarms whenever a building needs to be evacuated—for any reason. When a fire alarm sounds in the facility, evacuate immediately after extinguishing all equipment flames. Check on and assist others who may require help evacuating.

(2) Emergency safety equipment. The following safety elements should be met:

a. A written emergency action plan has been provided to workers;

b. Fire extinguishers, eyewash units, and safety showers are available and tested on a regular basis; and

c. Fire blankets, first-aid equipment, fire alarms, and telephones are available and accessible.

(3) Chemical spills. Workers should contact the CHO or EHS office for instructions before cleaning up a chemical spill. All SDS and label instructions should be followed, and appropriate PPE should be worn during spill cleanup.

(4) Accident procedures. In the event of an accident, immediately notify appropriate personnel and local emergency responders. Provide an SDS of any chemical involved to the attending physician. Complete an accident report and submit it to the appropriate office or individual within 24 hours.

(5) Employee safety training program. New workers should attend safety training before

they begin any activities. Additional training should be provided when they advance in their duties or are required to perform a task for the first time. Training documents should be recorded and maintained. Training should include hands-on instruction of how to use safety equipment appropriately.

(6) Conduct drills. Practice building evacuations, including the use of alternate routes. Practice shelter-in-place, including plans for extended stays. Walk the fastest route from your work area to the nearest fire alarm, emergency eye wash and emergency shower. Learn how each is activated. In the excitement of an actual emergency, people rely on what they learned from drills, practice and training.

(7) Contingency plans. All laboratories should have long-term contingency plans in place (e.g., for pandemics). Scheduling, workload, utilities and alternate work sites may need to be considered.

I. Laboratory Security

Laboratory security has evolved in the past decade, reducing the likelihood of some emergencies and assisting in preparation and response for others. Most security measures are based on the laboratory's vulnerability. Risks to laboratory security include, but are not limited to:

(1) Theft or diversion of chemicals, biologicals, and radioactive or proprietary materials, mission-critical or high-value equipment;

(2) Threats from activist groups;

(3) Intentional release of, or exposure to, hazardous materials;

(4) Sabotage or vandalism of chemicals or high-value equipment;

(5) Loss or release of sensitive information; and

(6) Rogue work or unauthorized laboratory experimentation. Security systems in the laboratory are used to detect and respond to a security breach, or a potential security breach, as well as to delay criminal activity by imposing multiple layered barriers of increasing stringency. A good laboratory security system will increase overall safety for laboratory personnel and the public, improve emergency preparedness by assisting with preplanning, and lower the organization's liability by incorporating more rigorous planning, staffing, training, and command systems and implementing emergency communications protocols, drills, background checks, card access systems, video surveillance, and other measures. The security plan should clearly delineate response to security issues, including the coordination of institution and laboratory personnel with both internal and external responders.

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 Operations, 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, Easlon, PA, 1981.
10. Steere, Norman V., Ed., Safety in the Chemical Laboratory, *J. Chem. Ed.* American Chemical Society, Easlon, 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).
 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 Fundamentals 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.

§ 1910.1450

29 CFR Ch. XVII (7–1–13 Edition)

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; 76 FR 33609, June 8, 2011; 77 FR 17887, Mar. 26, 2012; 78 FR 4325, Jan. 22, 2013]

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, 2013.

| Subject term | Section No. | Subject term | Section No. |
|---|-------------------------------|--|-------------|
| 13 Carcinogens (4-Nitrobiphenyl, etc.) | .1003 | Guard Exposure Angles | .215(b)(2) |
| Area Requirements | .1003(c) | Material Requirements and Minimum Dimensions. | .215(b)(10) |
| Closed System Operation | .1003(c)(2) | Snagging Machines, Automatic | .215(b)(7) |
| Isolated System | .1003(c)(1) | Surface Grinders and Cutting-Off Machines. | .215(b)(5) |
| Maintenance and Decontamination Activities. | .1003(c)(5) | Swing Frame Grinders | .215(b)(6) |
| Open-Vessel System Operations. | .1003(c)(3) | Top Grinding | .215(b)(8) |
| Transfer from a Closed Operation. | .1003(c)(4) | Mounting | .215(d) |
| Communication of Hazards | .1003(e) | Arbor Size | .215(d)(2) |
| Hazard Communication | .1003(e)(1) | Blotters | .215(d)(5) |
| Prohibited Statements | .1003(e)(3) | Bushing | .215(d)(4) |
| Signs | .1003(e)(2) | Inspection | .215(d)(1) |
| Training and Indoctrination | .1003(e)(4) | Multiple Wheel Mounting | .215(d)(6) |
| General Regulated Area Requirements. | .1003(d) | Surface Condition | .215(d)(3) |
| Contamination Control | .1003(d)(4) | Abrasive Wheel Machinery, Portable | |
| Emergencies | .1003(d)(2) | Definitions | .241(b) |
| Hygiene Facilities and Practices. | .1003(d)(3) | Guarding | .243(c) |
| Respiratory Program | .1003(d)(1) | Cup Wheels | .243(c)(2) |
| Medical Surveillance | .1003(g) | General Requirements | .243(c)(1) |
| Examinations | .1003(g)(1) | Other Type Grinders | .243(c)(4) |
| Records | .1003(g)(2) | Vertical Grinders | .243(c)(3) |
| Abatement Verification | .1903.19 | Inspection | .243(c)(5) |
| Aboveground Storage Tanks, Flammable and Combustible Liquid | .106(b)(2) | Mounting | .243(c)(5) |
| Spacing | .106(b)(2)(ii) | Abrasive Wheels (see Abrasive Wheel Machinery). | |
| Spill Control | .106(b)(2)(viii) | Access to Employee Exposure and Medical Records. | .1020 |
| Venting | .106(b)(2)(iv), (v), (vi) | Access to Records | .1020(e) |
| Abrasive Blasting (see also Ventilation) | .94 | Employee Information | .1020(g) |
| Air Compressors, Breathing Air | .94(a)(6) | Preservation of Records | .1020(d) |
| Air Supply, Breathing | .94(a)(6) | Trade Secrets | .1020(f) |
| Blast Cleaning Enclosures | .94(a)(3) | Transfer of Records | .1020(h) |
| Cleaning Nozzles | .244(b) | Accident Prevention Signs and Tags, Specifications for | .145 |
| Dust Hazards | .94(a)(2) | 2-Acetylaminofluorene (see also 13 Carcinogens) | .1014 |
| Abrasive Wheel Machinery | .215 | Acetylene | .102 |
| Definitions | .211(b) | Cylinders | .102(a) |
| Blotters | .215(c)(1)(v), (c)(6), (d)(5) | Generators and Filling Cylinders | .102(c) |
| Diameter, Uniformity of | .215(c)(4) | Piped Systems | .102(b) |
| Dimensions | .215(c)(8) | Acetylene Generators | .253(f) |
| Driving Flange | .215(c)(7) | Approval | .253(f)(1) |
| Finish and Balance | .215(c)(3) | Location | .253(f)(3) |
| Flanges | .215(c) | Maintenance | .253(f)(7) |
| Recess and Undercut | .215(c)(5) | Marking | .253(f)(1) |
| Repairs and Maintenance | .215(c)(9) | Operation | .253(f)(1) |
| Types | .215(c)(1)(iv) | Portable | .253(f)(5) |
| General Requirements | .215(a), (c)(10) | Pressure Limits | .253(f)(2) |
| Excluded Machinery | .215(a)(5) | Rating | .253(f)(2) |
| Flanges (Grinding Machines) | .215(a)(3) | Stationary | .253(f)(4) |
| Guard Design | .215(a)(2) | Houses and Rooms | .253(f)(6) |
| Machine Guarding | .215(a)(1) | Acrylonitrile | .1045 |
| Work Rests | .215(a)(4) | Communication of Hazards | .1045(p) |
| Guarding Abrasive Wheel Machinery | .215(b) | Emergency Situations | .1045(i) |
| Band Type Guards, General Specifications. | .215(b)(11) | Employee Information and Training. | .1045(c) |
| Bench and Floor Stands | .215(b)(3) | Exposure Monitoring | .1045(e) |
| Cup Wheels | .215(b)(1) | Housekeeping | .1045(k) |
| Cutting-Off Machines | .215(b)(5) | Hygiene Facilities and Practices. | .1045(m) |
| Cylindrical Grinders | .215(b)(4) | Medical Surveillance | .1045(n) |
| Exposure Adjustment | .215(b)(9) | Methods of Compliance | .1045(g) |
| Guard Design Specifications | .215(b)(11) | Observation and Monitoring | .1045(r) |
| | | Permissible Exposure Limit (PEL) | .1045(c) |

Pt. 1910, Index

29 CFR Ch. XVII (7-1-13 Edition)

| Subject term | Section No. |
|---|---|
| Protective Clothing and Equipment | .1045(j) |
| Recordkeeping | .1045(q) |
| Regulated Areas | .1045(f) |
| Respiratory Protection | .1045(h) |
| Waste Disposal | .1045(l) |
| Action Levels (see Permissible Exposure Limits). | |
| A-Frame Derricks (see also Derricks) Adjustments. | .181 |
| Cranes | .179(l)(3) |
| Derricks | .181(f)(2), (f)(3) |
| Aerial Lifts (see also Work Platforms) .. | .67 |
| AIDS (see also Bloodborne Pathogens). | .1030 |
| Air Compressors, Abrasive Blasting | .94(a)(6) |
| Air Contaminants (see also Permissible Exposure Limits) | .1000 |
| 8-Hour Time Weighted Average ... | .1000(a)(2), .1000(b)(1), .1000 Table Z-1, .1000 Table Z-2 |
| Acceptable Maximum Peak | .1000(b)(2), .1000 Table Z-2 |
| Ceiling Values | .1000(a)(1), .1000 Table Z-1 |
| Computation Formulae | .1000(d) |
| Extension of Federal Standards (Application). | |
| 1,3'-Butadiene | .19(l) |
| 4,4'-Methylenedianiline (MDA) | .19(i) |
| Acrylonitrile | .19(c) |
| Arsenic, Inorganic | .19(e) |
| Asbestos, Tremolite, Anthophyllite, and. | |
| Actinolite Dust | .19(a) |
| Cadmium | .19(k) |
| Ethylene Oxide | .19(h) |
| Formaldehyde | .19(j) |
| Lead | .19(g) |
| Methylene Chloride (MC) | .19(m) |
| Vinyl Chloride | .19(b) |
| Mineral Dusts | .1000(c), .1000 Table Z-3 |
| Air Controlling Equipment, Power Presses | .217(b)(10) |
| Air Lift Hammers, Forging | .218(e)(1) |
| Air Receivers | .169 |
| Application | .169(a)(1) |
| Compressed Air Equipment | .169(a)(2) |
| Drains | .169(b)(2) |
| Installation | .169(b)(1) |
| Pressure Gages | .169(b)(3) |
| Traps | .169(b)(2) |
| Valves | .169(b)(3) |
| Air Supply | .94(a)(6) |
| Airhoses | .243(b)(2) |
| Aisles.. | |
| Working Surfaces | .22(b) |
| Alarms (see also Fire Alarms; Sprinklers; Warning Devices and Signs). | |
| Employee Alarm Systems | .165 |
| 4-Aminodiphenyl (see also 13 Carcinogens). | .1011 |
| Ammonia, Anhydrous, Storage and Handling of. | .111 |
| Approval of Equipment and Systems. | .111(b)(1) |
| Connections, Filling and Discharge Containers.. | .111(b)(2) |
| Appurtenances | .111(b)(6) |
| Appurtenances, Protection of Construction of Non-refrigerated Containers(see Requirements for). | .111(c)(6) .111(b)(2) |

| Subject term | Section No. |
|---|--|
| Charging of | .111(b)(11) |
| DOT Containers, Systems Using. | .111(e) |
| Farm Vehicles | .111(g), .111(h) |
| Installation of | .111(c)(5) |
| Location of | .111(b)(5) |
| Motor Vehicle | .111(f) |
| Marking Non-refrigerated Containers. | .111(b)(3) |
| Marking Refrigerated Containers. | .111(b)(4) |
| Non-Refrigerated | .111(b)(2) |
| Original Test for Non-refrigerated Containers (see Requirements for). | .111(b)(2) |
| Reinstallation of | .111(c)(4) |
| Requalification of Non-refrigerated Containers. | .111(b)(2) |
| Safety Relief Devices | .111(b)(9), .111(c)(3), .111(d)(4), (f)(5) |
| Stationary, Non-refrigerated | .111(c) |
| Damage from Vehicles | .111(c)(7) |
| Design Pressure and Construction of Containers. | .111(c)(1) |
| Electrical Equipment and Wiring ... | .111(b)(16) |
| Farm Vehicles, Mounted Systems for, Other than the Application of Ammonia. | .111(g) |
| Fittings (see Piping, Tubing and Fittings). | .111(b)(7) |
| Hose Specifications | .111(b)(8) |
| Liquid Level Gaging Devices | .111(b)(14) |
| Liquids, Transfer of | .111(b)(12), .111(f)(6) |
| Mounted Systems on Farm Vehicles for the Application of Ammonia. | .111(h) |
| Design Pressure and Classification of Containers for. | .111(h)(2) |
| Mounting of Containers for | .111(h)(3) |
| Valves and Accessories for ... | .111(h)(4) |
| Mounted Systems on Farm Vehicles Other than for the Application of Ammonia. | .111(g) |
| Appurtenances, Container | .111(g)(4) |
| Design Pressure and Classification of Containers. | .111(g)(2) |
| Farm Vehicles | .111(g)(6) |
| Marking the Container | .111(g)(5) |
| Mounting Containers | .111(g)(3) |
| Piping, Tubing, and Fittings | .111(b)(7) |
| Portable DOT Containers, Systems Using. | .111(e) |
| Conformance | .111(e)(1) |
| Heat Protection | .111(e)(3) |
| Storage | .111(e)(2) |
| Valve Cap | .111(e)(5) |
| Refrigerated Systems | .111(d) |
| Automatic Control Equipment | .111(d)(11) |
| Compressors | .111(d)(9) |
| Compressor Drives | .111(d)(10) |
| Compressors, Separators for | .111(d)(12) |
| Condensers | .111(d)(13) |
| Container Appurtenances, Protection of. | .111(d)(5) |
| Damage from Vehicles | .111(d)(7) |
| Design of Containers | .111(d)(1) |
| Installation of Refrigerated Storage Containers. | .111(d)(2) |
| Insulation for | .111(d)(15) |
| Receiver and Liquid Drain | .111(d)(14) |
| Refrigeration Load and Equipment. | .111(d)(8) |

| Subject term | Section No. | Subject term | Section No. |
|---|---------------------------|---|---------------------------------|
| Reinstallation of | .111(d)(6) | Regulated Areas | .1018(f) |
| Safety Relief Devices | .111(d)(4) | Respiratory Protection | .1018(h) |
| Shutoff Valves | .111(d)(3) | Asbestos | .1001 |
| Requirements for Construction, Original. | | Communication of Hazards to Em- ployees. | .1001(j) |
| Test and Requalification of Non-refrigerated Containers. | .111(b)(2) | Exposure Monitoring | .1001(d) |
| Stationary, Non-refrigerated Storage. | .111(c) | Housekeeping | .1001(k) |
| Storage, Refrigerated Systems | .111(d) | Hygiene Facilities and Practices ... | .1001(i) |
| Tank Car, Unloading Points and Operations. | .111(b)(13) | Medical Surveillance | .1001(l) |
| Tank Motor Vehicles for the Transport of Ammonia. | .111(f) | Methods of Compliance | .1001(f) |
| Appurtenances, Container | .111(f)(3) | Observation of Monitoring | .1001(m) |
| Chock Blocks | .111(f)(9) | Permissible Exposure Limit (PEL) | .1001(c) |
| Design Pressure and Con- struction of Containers. | .111(f)(2) | Protective Work Clothing and Equipment. | .1001(h) |
| Portable Tank Containers (Skid Tanks). | .111(f)(10) | Recordkeeping | .1001(m) |
| Piping and Fittings for | .111(f)(4) | Regulated Areas | .1001(e) |
| Safety Relief Devices for | .111(f)(5) | Respiratory Protection | .1001(g) |
| Skid Tanks | .111(f)(10) | Atmospheric Contaminants (see Air Contaminants). | |
| Transfer of Liquids | .111(f)(6) | Atmospheric Tanks | .106(b)(1)(iii) |
| Tubing (see Piping, Tubing, and Fittings). | .111(b)(7) | Attendants.. | |
| Valves and Accessories, Filling and Discharge Connections. | .111(c)(2) | Confined Spaces, Permit-Required | .146(d)(6), .146(f), .146(i) |
| Ammonium Nitrate | .109(i) | Liquefied Hydrogen Systems | .103(c)(4)(ii) |
| Bulk Storage | .109(i)(4) | Liquefied Petroleum Gases | .110(b)(14) |
| Containers | .109(i)(3) | Authorization (see also Hot Work Per- mits). | |
| Contaminants | .109(i)(5) | Grain Handling Facilities | .272(f) |
| Electrical Installations | .109(i)(6) | Process Safety Management of Highly Hazardous Chemicals. | .119(k) |
| Fire Protection | .109(i)(7) | Welding, Cutting, and Brazing | .252(a)(2)(iv) |
| Separation Walls | .109(i)(5) | Automatic Sprinkler Systems (see Sprinkler Systems, Automatic) | .159 |
| Warehouses | .109(i)(4) | Automobile Undercoatings | .107(k) |
| Anchoring Fixed Machinery | .212(b) | Baffle Plates.. | |
| Anhydrous Ammonia (see Ammonia, Anhydrous, Storage and Handling of).. | | Spray Booths | .107(b)(4) |
| Appliances.. | | Bakery Equipment (Bakeries | .263 |
| Electric | .306(d)(1) | Air Conditioning | .268(i)(14) |
| Liquefied Petroleum Gases | .10(b)(20), .10(g)(11) | Bag Chutes and Lifts | .263(d)(2) |
| Arbor Grinding Wheels | .215(d)(2) | Biscuit Equipment | .263(k) |
| Arc Welding and Cutting | .254 | Blenders | .263(d)(3) |
| Environmental Conditions | .254(b)(2) | Bolting Reels | .263(d)(5) |
| Equipment | .254(b) | Conveyors | .263(d)(7), .263(i)(7) |
| Design | .254(b)(4) | Cracker Equipment | .263(k) |
| Disconnecting Means | .305(j)(3) | Dividers | .263(f) |
| Grounding | .254(c)(2) | Dough Brakes | .263(h) |
| Installation | .254(c) | Dumpbins | .263(d)(3) |
| Maintenance | .254(d)(9) | Flour Handling Equipment | .263(d) |
| Operation | .254(d) | Machine Guarding | .263(c) |
| Personnel Protection | .252(b) | Miscellaneous Equipment | .263(i) |
| Protection from Rays | .252(b)(2)(iii) | Mixers | .263(e) |
| Supply Connections | .254(c)(3), (d)(3) | Moulders | .263(g) |
| Health Protection | .252(c) | Ovens | .263(l) |
| Ventilation | .252(b)(4)(ii), (c) | Pulverizers | .263(k)(2) |
| Voltage | .254(b)(3) | Scales, Flour | .263(d)(9) |
| Arsenic, Inorganic | .1018 | Sifters | .263(d)(8) |
| Communication of Hazards | .1018(p) | Slicers | .263(j) |
| Employee Information and Train- ing. | .1018(c) | Storage Bins | .263(d)(6) |
| Exposure Monitoring | .1018(e) | Wrappers | .263(j) |
| Housekeeping | .1018(k) | Ballast, Cranes | .180(i)(2) |
| Hygiene Facilities and Practices ... | .1018(m) | Band Saws and Resaws | .213(f) |
| Medical Surveillance | .1018(n) | Barking Devices. | |
| Methods of Compliance | .1018(g) | Hydraulic | .261(e)(14) |
| Observation of Monitoring | .1018(r) | Pulp Wood and Chips | .261(c), .261(e)(8) |
| Permissible Exposure Limit (PEL) | .1018(c) | Sawmills | .265(d)(4) |
| Protective Work Clothing and Equipment. | .1018(j) | Barrels. | |
| Recordkeeping | .1018(q) | Guarding | .212(a)(4) |
| | | Basket Derricks(see Derricks) | .181 |
| | | Bathing Facilities. | |
| | | Labor Camps | .142(f) |
| | | Battery Changing and Charging | .178(g), .305(j)(7) |
| | | Bearings | .219(j), .219(p)(3) |
| | | Belts. | |
| | | Definitions | .211(f)(1)-(3) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|---|---|
| Manlifts | .68(c)(1) |
| Power Transmission Apparatus | .219(e)(1), .219(o)(3), .219 (p)(6) .215(b)(3) |
| Bench and Floor Stands Guarding | .1028 |
| Benzene | .1028(j) |
| Communication of Hazards | .1028(e) |
| Exposure Monitoring | .1028(i) |
| Medical Surveillance | .1028(f) |
| Methods of Compliance | .1028(l) |
| Observation of Monitoring | .1028(c) |
| Permissible Exposure Limit (PEL) | .1028(h) |
| Protective Clothing and Equipment | .1028(k) |
| Recordkeeping | .1028(d) |
| Regulated Areas | .1028(g) |
| Respiratory Protection | .1010 |
| Benzidine (see also 13 Carcinogens) | .1000, .1000 Table |
| Beryllium | Z-2 |
| Bins, Bulk Storage of Explosives | .109(g)(4) |
| Biological Hazards Signs and Tags | .145(e)(4), .145(f)(8) |
| Blades Exposure | .212(a)(5) |
| Blankets, Rubber Insulating | .137 |
| Blasting Agents (see also Explosives and Blasting Agents). | .109(g), .109(k)(1), .109(2) |
| Bulk Delivery | .109(g)(3), (h)(4) |
| Bulk Storage Bins | .109(g)(4) |
| Mixing, Fixed Location | .109(g)(2), (h)(3) |
| Mixing Vehicles | .109(g)(3), (h)(4) |
| Slurries | .109(h) |
| Storage | .109(g)(5) |
| Transportation | .109(g)(6) |
| Use | .109(g)(7) |
| Water Gels | .109(h) |
| Bleaching.. | |
| Pulp, Paper, and Paperboard Mills | .261(h) |
| Textiles | .262(p) |
| Bloodborne Pathogens | .1030 |
| Communication of Hazards to Em- ployees. | .1030(g) |
| Information and Training | .1030(g)(2) |
| Labels and Signs | .1030(g)(1), .1030(g)(1)(i)(E), (F), (G) |
| Compliance, Methods of | .1030(d) |
| Engineering and Work-Prac- tice Controls. | .1030(d)(2) |
| Exposure Control | .1030(c) |
| Exposure Control Plan | .1030(c)(1) |
| Exposure Determination | .1030(c)(2) |
| HIV and HBV Research, Labs and Production Facilities. | .1030(e) |
| Change Rooms | .1030(e)(4)(i) |
| Containment Equipment | .1030(e)(2)(iii) |
| Standard Microbiological Practices. | .1030(e)(2)(i) |
| Special Practices | .1030(e)(2)(ii) |
| Training, Requirements | .1030(e)(5), .1030(g)(2)(ix) |
| Hepatitis B Vaccinations | .1030(f)(2) |
| Healthcare Professional's Written Opinion. | .1030(f)(5) |
| Information Provided to Healthcare. | |
| Professional | .1030(f)(4) |
| Post-exposure Evaluation and Follow-Up. | .1030(f)(3) |
| Recordkeeping, Medical | .1030(f)(6), .1030(h)(1) |
| Training, Required | .1030(g)(2)(vii)(l) |
| Housekeeping | .1030(d)(4) |
| Contaminated Sharps, Dis- carding and Containment. | .1030(d)(4)(iii)(A) |
| Other Regulated Waste Con- tainment. | .1030(d)(iii)(B) |

| Subject term | Section No. |
|--|---|
| Regulated Waste | .1030(d)(4)(iii) |
| Methods of Compliance | .1030(d) |
| Personal Protective Equipment | .1030(d)(3) |
| Masks, Eye Protection and Face Shields. | .1030(d)(3)(x) |
| Provision of | .1030(d)(3)(i) |
| Repair and Replacement of ... | .1030(d)(3)(v) |
| Use of | .1030(d)(3)(ii) |
| Recordkeeping | .1030(f)(6), .1030(h) |
| Scope and Application | .1030(a) |
| Training | .1030(e)(5), .1030(g)(2)(ix) |
| Vaccinations, HBV | .1030(f)(2) |
| Blotters | .215(c)(1)(v), .215(c)(6), .215(d)(5) |
| Board Drop Hammers | .218(e)(2) |
| Boatswain's Chair Scaffolds | .28(j) |
| Employee Protection | .28(j)(4) |
| Fiber Ropes | .128(j)(2) |
| Life Belts | .28(j)(4) |
| Roof Irons, Hooks | .28(j)(6) |
| Seat Slings | .28(j)(3) |
| Size | .28(j)(1) |
| Tackle | .28(j)(5) |
| Booms, Derricks | .181(i)(6) |
| Boring Machines | .213(l) |
| Brakes.. | |
| Bridges | .179(f)(4), .179(6) |
| Control | .179(f)(3) |
| Cranes | .179(f) |
| Friction, Power Presses | .217(b)(2) |
| Hoists | .179(f)(1) |
| Holding | .179(f)(2) |
| Industrial Trucks | .178(m)(5), (7) |
| Manlifts | .68(c)(1)(f) |
| Power Control | .179(f)(3) |
| Trolleys | .179(f)(4), .179(5) |
| Brazing (see also Welding) | .252 |
| Definitions | .251 |
| Standards Sources | .256 |
| Breast Derricks (see also Derricks) | .181(a)(4) |
| Bricklayers' Square Scaffolds | .28(l) |
| Bridge Bumpers, Cranes | .179(e)(2) |
| Bridge Plates (see also Dockboards) | .30(a) |
| Bucket Truck | .67 |
| Buffing (see Grinding, Polishing, and Buffing). | |
| Building Maintenance Powered Plat- forms. | .66 |
| Buildings, Sawmills | .265(c) |
| Bulk Delivery.. | |
| Blasting Agents | .109(g)(3), .109(h)(4) |
| Explosives | .109(h)(4) |
| Bulk Oxygen Systems(see Oxygen) | .104 |
| Bulk Plants, Flammable and Combust- ible Liquids. | .106(f) |
| Buildings | .106(f)(2) |
| Drainage | .106(f)(7) |
| Electrical Equipment | .106(f)(5) |
| Fire Protection | .106(f)(8) |
| Ignition Sources | .106(f)(6) |
| Liquid Storage | .106(f)(1) |
| Loading | .106(f)(3) |
| Waste Disposal | .106(f)(7) |
| Wharves | .106(f)(4) |
| Bulk Storage (see Storage).. | |
| Bumpers.. | |
| Bridge | .179(e)(2) |
| Trolley | .179(e)(3) |
| 1,3'-Butadiene | .1051 |
| Communication of BD Hazards to Employees. | .1051(f) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|------------------------------------|--|---------------------------|
| Emergency Situations | .1051(j) | Fluorides | .252(c)(1)(iv) |
| Exposure Goal Program | .1051(g) | Ionizing Radiation | .1096(e), .1096(g) |
| Exposure Monitoring | .1051(d) | Welding | .252(c)(1)(iv) |
| Medical Screening and Surveillance. | .1051(k) | Wiring Methods, Components and Equipment. | .305(j)(6) |
| Methods of Compliance | .1051(f) | Ceiling Workers' Scaffolds (see Plasterers' Scaffolds) | .28(o) |
| Permissible Exposure Limit (PEL) | .1051(c) | Certification, Requirements.. | |
| Protective Clothing and Equipment | .1051(i) | Logging Operations | .266(i)(10) |
| Recordkeeping | .1051(m) | Powered Industrial Trucks | .178(l)(6) |
| Regulated Areas | .1051(e) | Crawler, Locomotive, and Truck Cranes Records. | .180(d)(6) |
| Respiratory Protection | .1051(h) | Chain Guarding | .219(f) |
| Cabinets, Flammable and Combustible Liquid Storage. | .106(d)(3) | Change Rooms.. | |
| Size | .106(d)(3)(i) | 13 Carcinogens | .1003(b), .1003(d)(3) |
| Fire Resistance | .106(d)(3)(ii) | Acrylonitrile | .1045(m)(1) |
| Cabs.. | | Arsenic, Inorganic | .1018(m)(1) |
| Cranes | .179(c), .179(o)(2), .180(i)(3) | Asbestos | .1001(h)(2), .1001(i) |
| Derricks | .181(j)(6) | Benzene | .1028(i)(1) |
| Cadmium | .1027, .252(c)(9) | Bloodborne Pathogens | .1030(e)(4)(i) |
| Communication of Cadmium Hazards to Employees. | .1027(m) | Cadmium | .1027(j)(2) |
| Dates | .1027(p) | Chromium (VI) | .1026(i)(2) |
| Emergency Situations | .1027(h) | Coke Oven Emissions | .1029(i)(1) |
| Exposure Monitoring | .1027(d) | 1,2'-Dibromo-3-Chloropropane | .1044(j)(2), .1044(l) |
| Housekeeping | .1027(k) | Formaldehyde | .1048(i)(1) |
| Hygiene Areas and Practices | .1027(j) | Hazardous Waste Operations | .120(k)(8), .120(n)(7) |
| Medical Surveillance | .1027(l) | Lead | .1025(g)(2), (i) |
| Methods of Compliance | .1027(f) | Methylenedianiline | .1050(i)(2), (j) |
| Observation of Monitoring | .1027(o) | Sanitation | .141(e) |
| Permissible Exposure Limit (PEL) | .1027(c) | Drying Facilities | .141(f) |
| Protective Work Clothing and Equipment. | .1027(i) | Separate Facilities | .141(e) |
| Recordkeeping | .1027(n) | Charge Initiation | .109(e)(4) |
| Regulated Areas | .1027(e) | Chemical Plants (see also Refineries), (Chemical Plants, and Distilleries). | .106(i) |
| Respiratory Protection | .1027(g) | Chemicals, Hazard Communication | .1200 |
| Confined Spaces | .252(c)(9)(ii) | Chemicals, Hazardous, Occupational Exposure in Laboratories. | .1450 |
| Calcium Carbide.. | | Chemical Hygiene Plan | .1450(e) |
| Packaging | .253(g)(1) | Employee Exposure Determination | .1450(d) |
| Storage | .253(g)(2), (3) | Employee Information and Training. | .1450(f) |
| Indoors | .253(g)(2) | Hazard Identification | .1450(h) |
| Outdoors | .252(g)(3) | Medical Consultations and Medical Examinations. | .1450(g) |
| Calenders | .262(ee) | Permissible Exposure Limit (PEL) | .1450(c) |
| Rubber and Plastics Industry.. | | Recordkeeping | .1450(j) |
| Location Protection | .216(d)(2) | Use of Respirators | .1450(i) |
| Safety Controls | .216(c) | Chemicals, Highly Hazardous (see Process Safety Management of Highly Hazardous Chemicals). | .119 |
| Stopping Limits | .216(f)(1), (3) | Cherry Picker | .67 |
| Switches, Trip and Emergency. | .216(e) | Chicago Boom Derricks (see also Derricks). | .181 |
| Textiles | .262(ee) | Chicken Ladders (see also Crawling Boards) | .28(t) |
| Camps, Temporary Labor (see Labor Camps, Temporary). | .142 | bis-Chloromethyl Ether (see also 13 Carcinogens) | .1008 |
| Canisters, Gas Mask (see Gas Mask Canisters; Respirators). | | Chromium (VI) | .1026 |
| Cantilever Gantry Cranes (see Gantry Cranes). | | Action Level | .1026(b) |
| Carpenters' Bracket Scaffolds | .28(k) | Communication of Chromium VI Hazards to Employees. | .1026(l) |
| Bracket Attachment | .28(k)(2) | Information and Training | .1026(l)(2) |
| Bracket Dimensions | .28(k)(1) | Effective Dates | .1026(n) |
| Employee Protection | .28(k)(3) | Exposure Determination | .1026(d) |
| Guardrails | .28(k)(5) | Accuracy of Measurement | .1026(d)(5) |
| Platform Size | .28(k)(4) | Employee Notification of Determination Results. | .1026(d)(4) |
| Caustics. | | Observation of Monitoring | .1026(d)(6) |
| Emergency Showers | .261(g)(18)(i) | Performance-Oriented Option | .1026(d)(3) |
| Pipeline Identification | .261(h)(3)(vi) | Scheduled Monitoring Option | .1026(d)(2) |
| Textiles | .262(oo) | Housekeeping | .1026(j) |
| Caution Signs and Labels (see also Signs and Tags, Specifications for Accident Prevention; Danger Signs; Warning Devices and Signs). | | Cleaning Methods | .1026(j)(2) |
| Accident Prevention | .145(c)(2), (d)(4) | | |
| Ammonia, Anhydrous | .111(b)(12) | | |
| Electrical, General | .303(h)(2) | | |
| Extinguishing Systems, Fixed | .160(b)(5) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|---|-----------------|
| Disposal | .1026(j)(3) |
| Hygiene Areas and Practices | .1026(i) |
| Change Rooms | .1026(i)(2) |
| Eating and Drinking Areas | .1026(i)(4) |
| Prohibited Activities | .1026(i)(5) |
| Washing Facilities | .1026(i)(3) |
| Medical Surveillance | .1026(k) |
| Contents of Examination | .1026(k)(3) |
| Frequency | .1026(k)(2) |
| Information Provided to the PLHCP | .1026(k)(4) |
| PLHCP's Written Medical Opinion | .1026(k)(5) |
| Methods of Compliance | .1026(f) |
| Engineering and Work Practice Controls | .1026(f)(1) |
| Prohibition of Rotation | .1026(f)(2) |
| Permissible Exposure Limit(PEL) .. | .1026(c) |
| Protective Work Clothing and Equipment | .1026(h) |
| Cleaning and Replacement | .1026(h)(3) |
| Provision and Use | .1026(h)(1) |
| Removal and Storage | .1026(h)(2) |
| Recordkeeping | .1026(m) |
| Air Monitoring Data | .1026(m)(1) |
| Historical Monitoring Data | .1026(m)(2) |
| Medical Surveillance | .1026(m)(4) |
| Objective Data | .1026(m)(3) |
| Regulated Areas | .1026(e) |
| Access | .1026(e)(3) |
| Demarcation of Regulated Areas | .1026(e)(2) |
| Establishment of Regulated Areas | .1026(e) |
| Respiratory Protection | .1026(g) |
| Respiratory Protection Program | .1026(g)(2) |
| SFIC Settlement Agreement (Surface Finishing Industry Council vs. OSHA) | .1026 App. A |
| Chute Openings | .23(a)(2) |
| Circular Resaws | .213(e) |
| Circular Saws | .213(f) |
| Arbors | .213(s)(4) |
| Portable | .243(a)(1) |
| Clean Air, Spray Finishing | .94(c)(7) |
| Cleaning | |
| Air Receivers | .169 |
| Bulk Oxygen Systems | .104(b)(8)(i) |
| Compressed Air | .242(b) |
| Powder Coatings | .107(l)(4)(i) |
| Solvents | .107(g)(5) |
| Spray Booths | .107(b)(9) |
| Spraying Operations | .107(g)(2) |
| Cleaning Compounds | .252(c)(11) |
| Degreasing | .252(c)(11)(ii) |
| Manufacturer's Instructions | .252(c)(11)(i) |
| Cleaning Solvents | |
| Spraying | .107(g)(5) |
| Clear Zones | |
| Bulk Oxygen Systems | .104(b)(10) |
| Industrial Plants | .106(e)(9)(iv) |
| Processing Plants | .106(h)(8)(iv) |
| Clearances | |
| Cranes | .179(b)(6) |
| Fixed Ladders | .27(c) |
| Back | .27(c)(4) |
| Climbing Side | .27(c)(1) |
| Grab Bars | .27(c)(5) |
| Hatch Covers | .27(c)(7) |
| Step-Across Distance | .27(c)(6) |
| With Cages or Baskets | .27(c)(3) |
| Without Cages or Wells | .27(c)(2) |
| Manlifts | .68(b)(11) |

| Subject term | Section No. |
|---|----------------------------|
| Spraying Discharges | .107(d)(8) |
| 3Stairs | .24(i) |
| Clothing, Protective (see also Personal Protective Equipment) | .132 |
| Electrical | .137 |
| Fire Brigades | .156 |
| Footwear | .136, .156(e)(2) |
| Hand | .156(e)(4) |
| Head | .135, .156(e)(5) |
| Helmets | .135, .252(b)(2)(i)(A) |
| Rubber | .137 |
| Spray Finishing, Storage | .107(g)(4) |
| Tight-fitting | .219(p)(7) |
| Welders | .252(b)(3) |
| Clutches | .217(b)(3), (7) |
| Definition | .180(a)(19) |
| Power Transmission Apparatus ... | .219(k) |
| Coal Tar Pitch Volatiles; Interpretation of Term | .1002 |
| Coatings, Spray | |
| Dual Component | .107(m) |
| Organic Peroxide | .107(m) |
| Powder | .107(l) |
| Undercoatings | .107(k) |
| Collars | .219(i) |
| Coke Oven Emissions | .1029 |
| Communication of Hazards | .1029(l) |
| Employee Information and Training | .1029(k) |
| Exposure Monitoring and Measurement | .1029(e) |
| Hygiene Facilities and Practices ... | .1029(i) |
| Medical Surveillance | .1029(j) |
| Methods of Compliance | .1029(f) |
| Observation of Monitoring | .1029(n) |
| Permissible Exposure Limit (PEL) .. | .1029(c) |
| Protective Clothing and Equipment .. | .1029(h) |
| Recordkeeping | .1029(m) |
| Regulated Areas | .1029(d) |
| Respiratory Protection | .1029(g) |
| Color Codes, Safety, for Marking Physical Hazards | .144 |
| Red | .144(a)(1) |
| Fire Protection Equipment and Apparatus | .144(a)(1)(i) |
| Danger | .144(a)(1)(ii), .145(d)(2) |
| Stop | .144(a)(1)(iii) |
| Yellow for Caution | .144(a)(3) |
| Combustible Dusts, Trucks Used | .178(c)(2)(vi) |
| Combustible Liquids (see Flammable Liquids) | .106 |
| Combustible Materials | |
| Welding | .252(a)(2)(i) |
| Commercial Diving | .401 |
| Definitions | .402 |
| Equipment | .430 |
| Hyperbaric Conditions, Examples of Conditions Which May Restrict or Limit Exposure to | App. A |
| Live-boating | .427 |
| Mixed-Gas Diving | .426 |
| Pre-Dive Procedures | .421 |
| Post-Dive Procedures | .423 |
| Procedures During Diving | .422 |
| Qualifications of Dive Team | .410 |
| Recordkeeping Requirements | .440 |
| Safe Practices Manual | .420 |
| Scope and Application | .401 |
| SCUBA Diving | .424 |
| Surface-Supplied Air Diving | .425 |
| Communicable Diseases Reporting | |
| Labor Camps | .142(l) |
| Communications, Powered Platforms | .66(e)(11)(vi) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|---|--|--|---|
| Compressed Air, Cleaning | .242(b) | Service Stations, Storage | .106(g)(1) |
| Compressed Air Equipment (see Compressed Gas and Compressed Air Equipment). | | Processing Plants | .106(h)(4) |
| Compressed Gases(General Requirements). | .101 | Gaseous Hydrogen Systems | .103(b)(1)(i) |
| Compressed Gases | .101(b) | Guarding | .212(a)(4) |
| Inspection of Compressed Gas Cylinders. | .101(a) | Liquefied Hydrogen Systems | .103(c)(1)(i) |
| Safety Relief Devices for Compressed Gas Containers. | .101(c) | Liquefied Petroleum Gases | .110 |
| Compressed Gas Cylinders(see also Compressed Gases). | .253(a)(2) | Spraying | .107(e)(3), .107(5) |
| Approval | .253(b)(1) | Welding, Gas | .253(a), .253(b) |
| Inspection | .101(a) | Containers, Liquefied Petroleum Gases | .110 |
| Manifolding | .253(c) | Accessories | .110(b)(7), .110(c)(6), .110(d)(3), .110(8), .110(e)(5) |
| Markings | .253(b)(1) | Awaiting Use or Resale | .110(f) |
| Operating Procedures | .253(b)(5) | Capacity | .110(d)(6) |
| Oxygen Manifolds | .253(c)(2), (3) | Charging Plants | .110(d)(13) |
| Safety Relief Valves | .101(c) | Construction | .110(b)(3) |
| Storage | .253(b)(2)-(4) | Cylinder Systems | .110(c) |
| Compressed Gas and Compressed Air Equipment (see Air Receivers).. | | Accessories | .110(c)(6) |
| Conductors (see also Electric Wiring).. | | Indoor | .110(c)(5) |
| Cranes | .179(g)(1)(iv), .179(6) | Markings | .110(c)(2) |
| General Wiring | .305(f) | Outdoor | .110(c)(4) |
| Confined Spaces.. | | Valves | .110(c)(6) |
| Atmospheric Testing of Confined Spaces. | .146 App. | Filling Densities | .110(b)(12) |
| Attendant Duties | .146(i) | Fire Protection | .110(d)(14) |
| Cadmium | .252(c)(9)(ii) | Fittings | .110(b)(8), .110(e)(6), .110(h)(7), .110(9) |
| Confined Spaces, Permit-Required | .146 | Hoses | .110(b)(9) |
| Confined Spaces Program, Permit-Required. | .146(d) | Industrial Plants | .110(d)(12) |
| Decisions Flow Chart | .146 App. A | Installation | .110(e)(4), (h)(6) |
| Duties upon Entering a Confined Space, Authorized. | .146(h) | Lighting | .110(d)(16) |
| Duties of Entry Supervisor | .146(j) | Location | .110(b)(6) |
| Electric Power Generation, Transmission, and Distribution. | .269(e) | Markings | .110(b)(5), .110(c)(2) |
| Electrical Safety-Related Work Practices. | .333(c)(5) | Non-DOT Containers | .110(d) |
| Employee Participation | .146(i) | Accessories | .110(d)(3) |
| Entry Permit | .146(f) | Capacity | .110(d)(6) |
| Entry Supervisor Duties | .146(j) | Installation | .110(d)(7) |
| Flow Chart, Decisions | .146 App. A | Pipes | .110(d)(3) |
| Hazardous Waste Operations and Emergency Response. | .120(b)(4), .120(c)(3) | Pressure, Design | .110(d)(2) |
| Lifelines | .252(b)(4)(iv) | Reinstallation | .110(d)(5) |
| Permit Samples | .146 App. D | Safety Relief Devices | .110(d)(4) |
| Permit System | .146(e) | Valves | .110(d)(3) |
| Procedures for Atmospheric Testing. | .146 App. B | Piping | .110(b)(8), .110(d)(3), .110(e)(6), .110(h)(9) |
| Program Examples | .146 App. C | Pressure Design | .110(d)(2), .110(e)(3) |
| Requirements, General | .146(c) | Safety Relief Devices | .110(b)(10), .110(c)(7), .110(d)(4), .110(e)(7), .110(h)(4) |
| Rescue and Emergency Services | .146(k) | Tubing | .110(b)(8), .110(e)(6) |
| Rescue Team Evaluation Criteria | .146 App. F | Valves | .110(b)(7), .110(c)(6), .110(d)(3), .110(e)(5), .110(h)(9) |
| Sewer System Entry | .146 App. E | Vaporizers | .110(b)(11), .110(d)(17), .110(e)(8) |
| Training | .146(g) | Welding | .110(b)(4) |
| Welding, Cutting, and Brazing | .252(a)(4), .252(b)(4), .252(c)(4) | Controllers.. | |
| Zinc | .252(c)(6)(i) | Cranes | .179(g)(3) |
| Containers (see also Tanks, Storage, Portable).. | | Control of Hazardous Energy (Lockout/Tagout) | .147 |
| Ammonium Nitrate | .109(i)(3) | Conveyors.. | |
| Bulk Oxygen Systems | .104(b)(4), (6) | Bakeries | .263(d)(7), (i)(7) |
| Gaseous | .104(b)(4)(iii) | Electrostatic Spraying | .107(h)(7) |
| Liquid | .104(b)(4)(ii) | Forging Machines | .218(j)(3) |
| Flammable Liquids | .106(d) | | |
| Design | .106(d)(2) | | |
| Bulk Plants, Storage | .106(f) | | |
| Industrial Plants, Storage | .106(e)(1) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. | Subject term | Section No. |
|--|---|---|--------------------------------|
| Pulp, Paper, and Paperboard Mills | .261(c)(15) | Crawling Boards | .28(t) |
| Sawmills | .265(c)(18) | Crosscut Table Saws | .213(d) |
| Spray Booths | .107(b)(7) | Cup Wheels | .243(c)(2) |
| Corrosion Protection.. | | Flaring-Cup, Type 11 | .241(b)(8) |
| Piping, Valves, and Fittings | .106(c)(5) | Straight-Cup, Type 6 | .241(b)(9) |
| Storage Tanks | .106(b)(1)(vi) | Straight, Type 1 | .241(b)(10) |
| Underground Tanks | .106(b)(3)(iii) | Curing Apparatus (see Drying, Curing, and Fusion Apparatus). | |
| Cotton Dust | .1043 | Cutting (see also Welding) | .252 |
| Employee Education and Training | .1043(i) | Containers | .252(a)(3) |
| Exposure Monitoring and Meas- urement. | .1043(d) | Definitions | .251 |
| Initial Monitoring | .1043(d)(2) | Ventilation | .252(c) |
| Periodic Monitoring | .1043(d)(3) | Cutting-Off Machines | .215(b)(5) |
| Employee Notification | .1043(d)(4) | Cutoff Couplings | .219(k)(1) |
| Medical Surveillance | .1043(h) | Cutoff Saws, Swing | .213(g) |
| Methods of Compliance | .1043(e) | Cylinders, Welding Gas | .253(b) |
| Compliance Program | .1043(e)(3) | Manifolding | .253(c) |
| Observation of Monitoring | .1043(l) | Operating Procedures | .253(b)(5) |
| Permissible Exposure Limit(PEL) .. | .1043(c) | Storage | .253(b)(2), .253(4) |
| Action Levels | .1043(c)(2) | Cylindrical Grinders | .215(b)(4) |
| Recordkeeping | .1043(k) | Danger Signs.. | |
| Availability of Records | .1043(k)(3)(1) | 13 Carcinogens | .1003(e)(2) |
| Medical Surveillance, Records of. | .1043(k)(2) | Acrylonitrile | .1045(p)(2) |
| Respiratory Protection | .1043(f) | Arsenic, Inorganic | .1018(j)(2), .1018(p)(2) |
| Respiratory Program | .1043(f)(2) | Asbestos | .1001(j)(4) |
| Respiratory Selection | .1043(f)(3) | Benzene | .1028(j)(2) |
| Scope and Application | .1043(a) | Cadmium | .1027(m)(2) |
| Signs | .1043(j) | Color Codes | .144(a)(1) |
| Work Practices | .1043(g) | Coke Oven Emissions | .1029(l)(2) |
| Counterbalances | .217(b)(9) | Confined Spaces, Permit-Required | .146(c)(2) |
| Counterweights.. | | Cotton Dust | .1043(j) |
| Cranes | .180(i)(2) | Definition, Hazard Communication | .1200(c) |
| Covers, Openings.. | | 1,2'-Dibromo-3-Chloropropane | .1044(o)(2) |
| Working Surfaces | .23(a)(1), .23(3)(i), .23(5), .23(6), .23(8)(ii), .23 (9) | Ethylene Oxide | .1047(j)(2) |
| Cranes.. | | Formaldehyde.1048(e)(1), (h)(2). | |
| Construction | Part 1926 | Lead | .1025(g)(2), (m)(2), App. B |
| Crawler | .180 | Methylenedianiline | .1050(k)(2) |
| Definitions | .179(a) | Safety Color Code for Marking Physical Hazards. | .144(a) |
| Effective Dates | .179(b)(2), .180(b)(2) | Specifications for Accident Pre- vention Signs and Tags. | .145(c), .145(d) |
| Electric | .306(b) | Tags.145(f)(5). | |
| Gantry | .179 | Telecommunications | .268(d) |
| Locomotive | .180 | Vinyl Chloride | .1017(l)(2) |
| Overhead | .179 | Dates, Effective (see Effective Dates). | |
| Pulp, Paper, and Paperboard Mills | .261(c)(8) | DBCP (1,2'-Dibromo-3-Chloropropane) | .1044 |
| Telecommunications | .268(n)(10) | Communication of Hazards | .1044(o) |
| Truck | .180 | Emergency Situations | .1044(i) |
| Crawler Cranes (see also Crawler Lo- comotives and Truck Cranes | .180 | Employee Information and Train- ing. | .1044(n) |
| Crawler Locomotive, and Truck Cranes | .180 | Exposure Monitoring | .1044(f) |
| Cabs | .180(i)(3) | Housekeeping | .1044(k) |
| Electric Power Lines, Operations Near. | .180(j) | Hygiene Facilities and Practices .. | .1044(l) |
| Fire Extinguishers | .180(i)(5) | Medical Surveillance | .1044(m) |
| Inspection, Classification | .180(d) | Methods of Compliance | .1044(g) |
| Frequent Inspection | .180(d)(3) | Observation of Monitoring | .1044(d) |
| Idle (Irregular), Cranes Not in Regular Use. | .180(d)(5) | Permissible Exposure Limit (PEL) | .1044(c) |
| Initial Inspection | .180(d)(1) | Protective Clothing and Equipment | .1044(j) |
| Periodic | .180(d)(4) | Recordkeeping | .1044(p) |
| Records, of Inspections | .180(d)(6) | Regulated Areas | .1044(e) |
| Regular Inspection | .180(d)(2) | Respiratory Protection | .1044(h) |
| Load Handling | .180(h) | Dead-Man Controls | .243(a)(2) |
| Load Ratings | .180(c) | Decorators' Scaffolds (see also Plas- terers' Scaffolds) | .28(o) |
| Maintenance Procedures | .180(f) | Definitions.. | |
| Refueling | .180(i)(4) | 1,3'-Butadiene | .1051(b) |
| Requirements, Other | .180(i) | 13 Carcinogens | .1003(b) |
| Rope Inspection | .180(g) | Access to Employee Exposure and Medical Records. | .1020(c) |
| Swinging Locomotives | .180(i)(6) | Acrylonitrile | .1045(b) |
| Testing | .180(e) | Ammonia, Anhydrous, Storage and Handling of. | .111(a)(2) |

| Subject term | Section No. | Subject term | Section No. |
|---|--------------------------|---|---------------------|
| Arsenic, Inorganic | .1018(b) | Welding, Cutting, and Brazing | .251 |
| Asbestos | .1001(b) | Degreasing | |
| Benzene | .1028(b) | Cleaning Compounds | .252(c)(11)(ii) |
| Bloodborne Pathogens | .1030(b) | Derricks | |
| Cadmium | .1027(b) | Adjustments | .181(f)(3) |
| Chromium (VI) | .1026(b) | Cabs | .181(j)(6) |
| Coke Oven Emissions | .1029(b) | Definitions | .181(a) |
| Commercial Diving Operations | .402 | Fire Extinguishers | .181(j)(3) |
| Confined Spaces, Permit-Required | .146(b) | Guards | .181(j)(1) |
| Control of Hazardous Energy | .147(b) | Hooks | .181(j)(2) |
| (Lockout/Tagout) | | Inspections | .181(d), .181(g) |
| Cotton Dust | .1043(b) | Load Handling | .181(i) |
| Crawler, Locomotive, and Truck | .180(a) | Load Ratings | .181(c) |
| Cranes | | Maintenance | .181(f) |
| DBCP (1,2'-Dibromo-3- | .1044(b) | Operations | .181(h) |
| Chloropropane) | | Operations Near Overhead Lines | .181(j)(5) |
| Derricks | .181(a) | Personnel, Designated | .181(b)(3) |
| Dipping and Coating Operations | .123 | Refueling | .181(j)(4) |
| Electric Power Generation, Trans- | .269(x) | Repairs, Adjustments and | .181(f)(3) |
| mission, and Distribution | | Requirements, General | .181(b)(1) |
| Ethylene Oxide | .1047(b) | Requirements, Other | .181(j) |
| Explosives and Blasting Agents | .109(a) | Rope Inspections | .181(g) |
| Fire Protection | .155(c) | Telecommunications | .268(j)(4), (n)(10) |
| Flammable Liquids | .106(a) | Testing | .181(e) |
| Formaldehyde | .1048(b) | 3',-Dichlorobenzidine (and Its Salts) | .1007 |
| General Definitions | .2 | (see also 13 Carcinogens) | |
| Grain Handling Facilities | .272(c) | Dies | .217(d) |
| Hand and Portable Powered Tools | .241 | Changing | .218(h)(5) |
| and Other Hand-Held Equip- | | Fastening | .217(d)(7) |
| ment | | Guide Post Hazards | .217(d)(4) |
| Hazard Communication | .1200(c) | Handling | .217(d)(3), (8) |
| Hazardous Waste Operations and | .120(a) | Requirements | .217(d)(1) |
| Emergency Response | | Scrap Handling | .217(d)(3) |
| Hydrogen | .103(a)(1) | Stroke | .217(d)(6) |
| Ionizing Radiation | .1096(a) | Tonnage | .217(d)(6) |
| Lead | .1025(b) | Unitized Tooling | .217(d)(5) |
| Logging Operations | .266(c) | Weight | .217(d)(6) |
| Longshoring and Marine Terminals | .16(c) | Diesel Powered Trucks | .178(b)(1)-(3) |
| Machinery and Machine Ground- | .211 | Dikes | |
| ing | | Bulk Oxygen Systems | .104(b)(2)(v) |
| Manlifts | .68(a) | Storage Tanks | .106(b)(2)(vii) |
| Means of Egress | .34(c) | 4-Dimethylaminoazobenzene (see also | .1015 |
| Methylene Chloride | .1052(b) | 13 Carcinogens) | |
| Methylenedianiline | .1050(b) | Dining Facilities (see also | |
| Nonionizing Radiation | .97(a)(1) | Lunchrooms) | |
| Occupational Exposure to Haz- | .1450(b) | Labor Camps | .142(i) |
| ardous Chemicals in Labora- | | Dipping and Coating Operations (Dip | .123 |
| tories | | Tanks) | |
| Overhead and Gantry Cranes | .179(a) | Dipping and Coating Operations, Gen- | .124 |
| Powered Platforms for Building | .66(d) | eral Requirements | |
| Maintenance | | Dipping and Coating, Additional Re- | .125 |
| Process Safety Management of | .119(b) | quirements, Flammable Liquids and | |
| Highly Hazardous Chemicals | | Flashpoints | |
| Respiratory Protection | .134(b) | Additional Requirements Special Dip- | .126 |
| Sanitation | .141(a)(2) | ping and Coating | |
| Sawmills | .265(b) | Dip Tanks | .123, .126 |
| Servicing Multi-Piece and Single- | .177(b) | Application | .123(a) |
| Piece Rim Wheels | | Bottom Drains | .125(c) |
| Shipyard Employment | .15(b) | Construction | .124(a), .125(a) |
| Slings | .184(b) | Conveyors | .125(d), .126(g)(2) |
| Specifications for Accident Pre- | .145(b) | Covers | .125(f)(3) |
| vention Signs and Tags | | Electrical Ignition Sources | .125(e)(1) |
| Spray Finishing Using Flammable | .107(a) | Electrostatic Apparatus | .126(g) |
| and Combustible Materials | | Fire Extinguishers | .125(f)(2)(i) |
| Storage and Handling of Liquefied | .110(a) | Fire Protection | .125(f) |
| Petroleum Gases | | Flow Coating | .126(b) |
| Telecommunications | .268(s) | Heating | .125(g) |
| Textiles | .262(b) | Ignition Sources | .125(e) |
| Vehicle-Mounted Elevating and | .67(a) | Inspections | .124(j)(1), (3) |
| Rotating Work Platforms | | Liquid Storage | .125(e)(2) |
| Ventilation | .94(a)(1), (b)(1), | Maintenance | .125(e)(4) |
| (c)(1) | | Overflow Pipes | .125(b) |
| Vinyl Chloride | .1017(b) | Tempering | .126(a) |
| Walking-Working Surfaces | .21 | Ventilation | .124(b), .125(d)(2) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|---|---|
| Waste Cans | .125(e)(4)(ii), (iii) |
| Disposal Systems (see Waste Disposal). | |
| 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, .420-.427, .430, .440, .441 |
| Recreational Instructors and Guides, Alternative Requirements. | .401(a)(3) |
| Scientific | .402 App. B |
| Dockboards | .30(a) |
| Dough Brakes, Manually Fed | .263(h) |
| Drag Saws | .213(r) |
| Drainage.. | |
| Bulk Plants | .106(f)(7) |
| Industrial Plants | .106(e)(3)(iv) |
| Labor Camps | .142(a) |
| Processing Plants | .106(h)(3)(ii) |
| Service Stations | .106(g)(7) |
| Sprinkler Systems | .159(c)(7) |
| Storage Tanks | .106(b)(2)(vii)(b) |
| Drains.. | |
| Air Receivers | .169(b)(2) |
| Dressing Rooms, Personnel (see Change Rooms) | .141(e) |
| Drips, Condensed Gas | .110(d)(9) |
| 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. | .161 |
| Scope and Application | .161(a) |
| Specific Requirements | .161(b) |
| Drying.. | |
| Spraying Operations | .107(d)(12) |
| Drying, Curing, and Fusion Apparatus | .107(j) |
| Adjacent System | .107(j)(3) |
| Conformance | .107(j)(1) |
| Permitted Alternate Use | .107(j)(4) |
| Powder Coatings | .107(l)(3) |
| Prohibited Alternate Use | .107(j)(2) |
| Spraying Rooms | .107(j)(2) |
| Dual Component Coatings | .107(m) |
| Dust Hazards.. | |
| Abrasive Blasting | .94(a)(2) |
| Asbestos | .1001 |
| Employee Exposure | .1000(a) |
| Grain Handling Facilities | .272 |
| Effective Dates.. | |
| Hazard Communication | .1200(f)(7), .1200(h), .1200(j) |
| Training Provisions(Effective December 1, 2013). | .1200(h) |
| Labeling Provisions(Effective June 1, 2015). | .1200 |
| 1,3 Butadiene | .1051(l) |
| 1,2-Dibromo-3-Chloropropane | .1044(o) |

| Subject term | Section No. |
|--|---------------------|
| 13 Carcinogens | .1003(e) |
| Acrylonitrile | .1045(p) |
| Arsenic, Inorganic | .1018(p) |
| Asbestos | .1001(j) |
| Benzene | .1028(j) |
| Bloodborne Pathogens | .1030(i) |
| Cadmium | .1027(m) |
| Chromium (VI) | .1026(l) |
| Coke Oven Emissions | .1029(l) |
| Cotton Dust | .1043(j) |
| Ethylene Oxide | .1047(j) |
| Formaldehyde | .1048(e), (m) |
| Lead | .1025(m) |
| Methylene Chloride | .1052(k) |
| Methylenedianiline | .1050(k) |
| Vinyl Chloride | .1017(l) |
| Public Contracts | .98(d) |
| Signage Provisions (Effective June 1, 2016). | .1200(j)(2) |
| 1,2-Dibromo-3-Chloropropane | .1044(o)(2) |
| 13 Carcinogens | .1003(e)(2)v |
| Acrylonitrile | .1045(p)(2) |
| Arsenic, Inorganic | .1018(p)(2) |
| Asbestos | .1001(j)(4) |
| Benzene | .1028(j)(2) |
| Cadmium | .1027(m)(2) |
| Coke Oven Emissions | .1029(l)(2) |
| Cotton Dust | .1043(j)(2) |
| Ethylene Oxide | .1047(j)(2) |
| Formaldehyde | .1025(m)(2) |
| Methylenedianiline | .1050(k)(2) |
| Vinyl Chloride | .1017(l)(2) |
| Egress, Means of (see Exit Routes, Emergency Action Plans, and Fire Prevention Plans). | |
| Electrical.. | |
| Definitions Applicable to This Subpart. | .399 |
| Electric Utilization Systems | .302 |
| General | .303 |
| Hazardous (Classified) Locations | .307 |
| Introduction | .301 |
| References for Further Information | App. A |
| Safeguards for Personnel Protection. | .335 |
| Scope | .331 |
| Covered Work by Both Qualified and Unqualified Persons. | .331(a) |
| Excluded Work by Qualified Persons. | .331(c) |
| Other Covered Work by Unqualified Persons. | .331(b) |
| Selection and Use of Work Practices. | .333 |
| Specific Purpose Equipment and Installations. | .306 |
| Special Systems | .308 |
| Training | .332 |
| Use of Equipment | .334 |
| Wiring Design and Protection | .304 |
| Wiring Methods, Components, and Equipment for General Use. | .305 |
| Electric Controls, Mechanical Power Presses | .217(b)(8) |
| Electric Energy, Hazardous, Control of (see Lockout/Tagout). | |
| Electric Equipment (see Electric Wiring). | |
| Electric Ignition Sources (see Ignition Sources) | .107(c), .107(d)(5) |
| Electric Motor Ignition Sources | .107(d)(5) |
| Electric Power Generation, Transmission, and Distribution. | .269 |

| Subject term | Section No. | Subject term | Section No. |
|--|--|---|---|
| Capacitors | .269(w)(1) | Escalators | .306(c) |
| Communications Facilities | .269(s) | Examination of Equipment | .303(b)(1) |
| Microwave Transmission | .269(s)(1) | Fire Protective Signaling Circuits .. | .308(d) |
| Current Transformer Secondaries .. | .269(w)(2) | Fittings | .305(b) |
| De-energizing Lines and Equip- ment. | .269(m) | Fixture Wires | .305(i) |
| Definitions | .269(x) | Flexible Cords and Cables | .305(g) |
| Enclosed Spaces | .269(e) | General Requirements | .303 |
| Excavations | .269(f) | Grounded and Grounding Conduc- tors, Installation and Use. | .304(a) |
| Exposed Energized Parts | .269(l), App. B | Grounding | .304(f) |
| Qualified Employees | .269(l)(1) | Guarding Live Parts | .303(g)(2) |
| Minimum Approach Distances .. | .269(l)(2) | Hand Spraying | 107(i)(5) |
| Fall Protection | .269(g)(2) | Heating Equipment | .306(g) |
| Grounding | .269(n) | High Voltage (Over 600 Volts) | |
| Protective Grounding Equip- ment. | .269(n)(4) | General | .308(a) |
| Hazardous Energy Control (Lock- out/Tagout. | .269(d), .269 (m)(3)(iv) | Grounding | .304(f)(7) |
| Job Briefing | .269(c) | Guarding | .303(h)(2) |
| Ladders, Platforms, Steps, etc. | .269(h) | Workspace | .303(h)(3), .303(h)(4) |
| Lasers | .269(w)(8) | Hoists | .306(b) |
| Live-Line Tools | .269(j) | Identification of Disconnecting Means and Circuits. | .303(f) |
| Materials Handling and Storage ... | .269(k) | Ignition Sources | .107(c)(4), (6) |
| Storage Near Energized Lines .. | .269(k)(2) | Industrial Plants | .106(e)(7) |
| Mechanical Equipment | .269(p) | Installation and Use of Equipment .. | .303(b)(2) |
| Roll-Over Protection | .269(p)(1)(iv) | Irrigation Machines | .306(i) |
| Medical Services and First Aid | .269(b) | Lamps | .305(j)(1) |
| Overhead Lines | .269(q) | Liquefied Hydrogen Systems | .103(c)(1)(ix) |
| Installing and Removing | .269(q)(2) | Liquefied Petroleum Systems | .110(b)(17), (18), (h)(13) |
| Live-Line Bare-Hand Work | .269(q)(3) | Marking | .303(e) |
| Towers and Structures | .269(q)(4) | Motors | .305(j)(4) |
| Personal Protective Equipment | .269(g), .269(n)(4), .269(r)(2)(v), .269(r)(4)(ii) | Moving Walks | .306(c) |
| Power Generation | .269(v) | Outline Lighting | .306(a) |
| Coal and Ash Handling | .269(v)(11) | Outside Conductors | .304(c) |
| Power Tools, Hand and Portable .. | .269(i) | Overcurrent Protection | .304(e) |
| Substations | .269(u) | Panelboards | .305(d) |
| Testing and Test Facilities | .269(o), .269 App. D. | Portable Cables | .305(h) |
| Training | .269(a)(2), .269(b)(1), .269(d)(2), .269(e)(2), .269(q)(3)(i), .269(r)(1)(vi) | Powder Coatings | .107(l)(1) |
| Tree Trimming, Line-Clearance | .269(r), .269 (a)(1)(E) | Power-Limited Circuits | .308(c) |
| Unqualified Employees | .269(r)(1) | Processing Plants | .106(h)(7)(iii) |
| Underground Electrical Installa- tions. | .269(t) | Receptacles | .305(j)(2) |
| Water, Work Near | .269(w)(5) | Remote Control Circuits | .308(c) |
| Electric Power Lines. | | Services | .304(d) |
| Safety-Related Work Practices | .333(c)(3) | Service Stations | .106(g)(5) |
| Electric Powered Trucks | .178(b)(4)-(7) | Signaling Circuits | .308(c) |
| Electric Wiring. | | Signs | .306(a) |
| Ammonium Nitrate | .109(i)(6) | Splices | .303(c), .303(i)(1)- (5) |
| Appliances | .305(j)(3) | Storage Batteries | .305(j)(7) |
| Approval | .303(a) | Spraying Operations | .107(c)(4), .107(6) |
| Arcing Parts | .303(d) | Storage Rooms | .106(d)(4)(iii) |
| Boxes | .305(b) | Swimming Pools | .306(j) |
| Branch Circuits | .304(b) | Switchboards | .305(d) |
| Bulk Oxygen Systems | .104(b)(8)(ix) | Switches | .305(c) |
| Bulk Plants | .106(f)(5) | Transformers | .305(j)(5) |
| Cabinets | .305(b) | Welders | .306(d) |
| Communications Systems | .308(e) | Work Practices, Safety-Related ... | .331 to .335 |
| Conductors | .305(f) | Working Space About Electric Equipment. | .303(g)(1), .303(h)(3), .303 (h)(4) |
| Cranes | .179(g), .306(b) | X-Ray Equipment | .306(f) |
| Data Processing Systems | .306(e) | Electrical Installations | .301-.399 |
| Electrolytic Cells | .306(h) | Electrical Protective Equipment | .137, .268(f) |
| Elevators | .306(c) | Design | 137(a) |
| Emergency Systems | .308(b) | Care and Use, In-Service | .137(b) |
| Enclosures for Damp or Wet Locationsv. | .305(e) | Electrical Safety-Related Work Prac- tices. | .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) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. | Subject term | Section No. |
|---|--|---|---|
| Power Lines, Overhead | .333(c)(3) | Powered Platforms for Building Maintenance. | .66 App. C |
| Training | .332 | Methylenedianiline | .1050(d)(1), .1050(m)(1), .1050(m)(4) |
| Electromagnetic Radiation. | | Methylene Chloride | .1052(j)(6) |
| Definitions | .97(a)(1) | Respiratory Protection | .134(c)(1), .134(d)(3), .134(k)(1) |
| Non-Ionizing Radiation | .97(a) | Telecommunications | .268(c)(2) |
| Protection Guide | .97(a)(2) | Vinyl Chloride | .1017(i) |
| Warning Symbol | .97(a)(3) | Employee Alarm Systems | .165 |
| Electrostatic Apparatus (see also Electrostatic Apparatus, Fixed; Electrostatic Hand Spraying Equipment). | | Installation and Restoration | .65(c) |
| Powder Coatings | .107(l)(5)-(7) | Maintenance and Testing | .165(d) |
| Electrostatic Apparatus, Fixed | .107(h) | Manual Operation | .165(e) |
| Powder Coatings | .107(l)(5) | Employee-Owned Protective Equipment. | .132(b) |
| Conformance | .107(h)(1) | Employee Protection (see Personal Protective Equipment). | |
| Conveyors | .107(h)(7) | Engineering Controls.. | |
| Fail-Safe Controls | .107(h)(9), .107(h)(10) | Acrylonitrile | .1045(g)(1) |
| Insulators | .107(h)(5) | Asbestos | .1001(f)(1) |
| Location | .107(h)(3) | Benzene | .1028(f)(1) |
| Supports | .107(h)(4) | 1,3-Butadiene | .1051(f)(1) |
| Ventilation | .107(h)(11), .107(i) | Bloodborne Pathogens | .1030(d)(2) |
| Electrostatic Hand Spraying Equipment | .107(i) | Cadmium | .1027(f) |
| Application | .107(i)(1) | Chromium (VI) | .1026(f)(1) |
| Approval | .107(i)(3) | Coke Oven Emissions | .1029(f) |
| Conformance | .107(i)(2) | Cotton Dust | .1043(e)(1) |
| Electrical Support Equipment | .107(i)(4) | 1,2-Dibromo-3-Chloropropane | .1044(g) |
| Grounding | .107(i)(5)-(7) | Ethylene Oxide | .1047(f)(1) |
| Interlocks | .107(i)(8) | Formaldehyde | .1048(f)(1) |
| Powder Coatings | .107(l)(6) | Hazardous Waste Operations and Emergency Response. | .120(g) |
| Specifications | .107(i)(3), (4) | Chromium (VI) | .1026(f)(1) |
| Spray Gun Grounding | .107(i)(5) | Lead | .1025(f)(1) |
| Ventilation | .107(i)(9) | Methylenedianiline | .1050(g)(1) |
| Elevating Work Platforms (see Vehicle-Mounted Elevating and Rotating Work Platforms) | .67 | Methylene Chloride | .1052(f)(1) |
| Emergency Action Plans | .38 | Noise Exposure | .95(b)(1) |
| 1,3-Butadiene | .1051(j) | Respiratory Protection | .134(a) |
| Employee Alarm Systems | .165(b) | Engine Room Guardrails | .219(k)(2) |
| Ethylene Oxide | .1047(h) | Environmental Controls.. | |
| Fire Detection Systems | .164(e)(3) | Accident Prevention Signs and Tags. | .145 |
| Fixed Extinguishing Systems | .160(c) | Labor Camps | .142 |
| Grain Handling Facilities | .272(d) | Marking Physical Hazards | .144 |
| Hazardous Waste Operations and Emergency Response, Exemption. | .120(l), .120(p)(8) | Physical Hazards Markings | .144 |
| Hazardous Substance Release, Emergency Response. | .120(q)(1) | Radiation | |
| Highly Hazardous Chemicals, Means of Egress. | .38 | Non-Ionizing | .97 |
| Methylenedianiline | .1050(d) | Safety Color Codes | .144 |
| Portable Fire Extinguishers | .157(b)(2) | Sanitation | .141 |
| Powered Platforms for Building Maintenance. | .66(e)(9) | Signs and Tags | .145 |
| Process Safety Management | .119(n) | Ventilation | .94 |
| Emergency Lighting | .261(b)(2) | Equalizers, Crane Hoists | .179(h)(3) |
| Emergency Response (see Hazardous Waste Operations and Emergency Response). | .120(e)(7) | Ethylene Oxide | .1047 |
| Emergency Situations.. | | Communication of Hazards | .1047(j) |
| Acrylonitrile | .1045(i)(1) | Emergency Situations | .1047(h) |
| Benzene | .1028(i)(4) | Exposure Monitoring | .1047(d) |
| 1,3-Butadiene | .1051(j), .1051(k) | Medical Surveillance | .1047(i) |
| Cadmium | .1027(h) | Methods of Compliance | .1047(f) |
| Commercial Diving Operations (Scope). | .401(b)(1) | Observation of Monitoring | .1047(l) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(i)(1), .1044(m)(6) | Permissible Exposure Limit (PEL) | .1047(c) |
| Ethylene Oxide | .1047(f)(2), .1047(h)(1) | Recordkeeping | .1047(k) |
| Explosives and Blasting Agents | .109(g)(3), (h)(4) | Regulated Areas | .1047(e) |
| Hazardous Waste Operations | .120(e)(7), .120(f)(3), .120(l)(3) | Respiratory Protection and Personal Protective Equipment. | .1047(g) |
| Powered Industrial Trucks | .178(n)(2) | Ethyleneimine (see also 13 Carcinogens) | .1012 |
| | | Exhaust Air Filters, Spray Booths | .107(b)(5) |
| | | Exhaust Systems (see also Ventilation).. | |
| | | Abrasive Blasting | .94(a)(4) |
| | | Grinding, Polishing, and Buffing. | .94(b)(4) |

| Subject term | Section No. | Subject term | Section No. |
|---|------------------------------------|---|--------------------|
| Sawmills | .265(c)(20) | Chemicals, Highly Hazardous, Process Safety Management. | .119 |
| Exhausts, Spraying Operations | .107(d)(3), .107(d)(7), .107(d)(9) | Explosives at Piers, Railway Stations and Cars, or Vessels Not Otherwise Specified. | .109(f) |
| Exit Routes, Emergency Action Plans, and Fire Prevention Plans. | .33 to .39 | Hours of Transfer | .109(f)(5) |
| Compliance with Alternate Exit-Route Codes. | .35 | Magazines, Construction of | .109(c)(2) |
| Coverage and Definitions | .34 | Miscellaneous Provisions | .109(b) |
| Design and Construction Requirements. | .36 | General Hazard | .109(b)(1) |
| Basic Requirements | .36(a) | Mixing Vehicles | .109(h)(4) |
| Exit Discharge | .36(c) | Piers, Explosives at | .109(f) |
| Exit Door Must Be Unlocked .. | .36(d) | Railroad Stations, Explosives at ... | .109(f) |
| Capacity of an Exit Route Must Be Adequate. | .36(f) | Scope | .109(k) |
| Minimum Height and Width Requirements. | .36(g) | Slurries | .109(h) |
| Number of Exit Routes | .36(b) | Small Arms Ammunition, Primers, and Propellants. | .109(j) |
| Outdoor Exit Route Is Permitted. | .36(h) | Scope | .109(j)(1) |
| Side-Hinged Exit Door Must Be Used. | .36(e) | Storage of Explosives | .109(c) |
| Emergency Action Plans | .38 | Transportation | .109(d) |
| Application | .38(a) | Use of Explosives and Blasting Agents. | .109(e) |
| Written and Oral Emergency Action Plans. | .38(b) | Blast Holes, Loading of Explosives. | .109(e)(3) |
| Minimum Elements of an Emergency Action Plan. | .38(c) | Charge Initiation | .109(e)(4) |
| Employee Alarm Systems | .38(d) | Loading of Explosives in Blast Holes. | .109(e)(3) |
| Training | .38(e) | Smoking, While Using Explosives. | .109(e)(1) |
| Review of Emergency Action Plan. | .38(f) | Warning Required | .109(e)(5) |
| Exit Routes, Emergency Action Plans, and Fire Prevention Plans. | App. A | Vessels, Explosives at | .109(f) |
| Fire Prevention Plans | .39 | Water Gel (Slurry) Explosives and Blasting Agents. | .109(h) |
| Application | .39(a) | Exposure. | |
| Employee Information | .39(d) | Air Contaminants | .1000 |
| Minimum Elements of a Fire Prevention Plan. | .39(c) | Bloodborne Pathogens, for Healthcare Professions and Related Industries. | .1030(c) |
| Written and Oral Fire Prevention Plans. | .39(b) | Mineral Dusts | .1000 Table Z-3 |
| Maintenance, Safeguards, and Operational Features for Exit Routes. | .37 | Noise | .95 |
| Danger to Employees Must Be Minimized. | .37(a) | Exposure Monitoring. | |
| Employee Alarm System Must Be Operable. | .37(e) | Acrylonitrile | .1045(e) |
| Lighting and Marking | .37(b) | Arsenic, Inorganic | .1018(e) |
| Maintaining Exit Routes During Construction, Repairs, or Alterations. | .37(d) | Asbestos | .1001(d) |
| Maintenance of Fire Retardant Properties in Paints and Solutions. | .37(c) | Benzene | .1028(e) |
| Explosive-Actuated Fastening Tools | .243(d) | 1,3-Butadiene | .1051(d) |
| Definitions | .241(a) | Cadmium | .1027(d) |
| Fasteners | .243(d)(3) | Chromium (VI) | .1026(d) |
| High-Velocity Tools | .243(d)(2)(i) | Coke Oven Emissions | .1029(e) |
| Inspection | .243(d)(2) | Cotton Dust | .1043(d) |
| Loads | .243(d)(3) | DBCP (1,2-Dibromo-3-Chloropropane). | .1044(f) |
| Low-Velocity Tools | .243(d)(2)(ii) | Electric Power Generation, Transmission, and Distribution. | .269(s)(1)(iii) |
| Maintenance | .243(d)(2) | Ethylene Oxide | .1047(d) |
| Explosives and Blasting Agents | .109 | Formaldehyde | .1048(d) |
| Ammonium Nitrate, Storage of | .109(i) | Grain Handling Facilities | .272(q)(4), (l)(1) |
| Blasting Agents | .109(e), .109(g) | Hazardous Waste Operations | .120(c)(6), (h) |
| Blast Holes, Loading of Explosives in. | .109(e)(3) | Chromium (VI) | .1450(d)(2) |
| Bulk Delivery | .109(h)(4) | Lead | .1025(d) |
| Cars, Railroad, or Vessels, Explosives at. | .109(f) | Methylene Chloride | .1052(d) |
| Charge Initiation | .109(e)(4) | 4,4-Methylenedianiline | .1050(e) |
| | | Noise | .95(d) |
| | | Vinyl Chloride | .1017(d) |
| | | Extension Ladders, Portable. | |
| | | Metal | .26(a)(2) |
| | | Metal, Trestle | .26(a)(4) |
| | | Wood | .25 |
| | | Wood, Trestle | .25(c)(3)(v) |
| | | Extension Lamps, Cranes | .179(g)(7) |
| | | Extractors | .262(y) |
| | | Eye and Face Protection | .133 |
| | | Markings | .133(a)(4) |
| | | Optical Corrections | .133(a)(3) |
| | | Protectors | .133(a)(2) |

Pt. 1910, Index

29 CFR Ch. XVII (7-1-13 Edition)

| Subject term | Section No. |
|---|----------------------------------|
| Welding | .252(b)(2) |
| Face Protection (see also Eye and Face Protection; Personal Protective Equipment) | .133 |
| Facilities, Labor Camps (see Labor Camps, Temporary). | |
| Fail-Safe Controls, Spraying | .107(h)(9) |
| Overhead and Gantry Cranes | .179(a)(40), .179(g)(3)(viii) |
| Fall Protection (see also Guardrails; Lifelines).. | |
| Electric Power Generation, Transmission, and Distribution. | .269(g)(2), .269 (r)(8) |
| Powered Platforms for Building Maintenance. | .66(j) |
| Safe Surface, Definition | .66(d) |
| Personal Fall Arrest System .. | .66 App. C |
| Railings | .23 |
| Scaffolds, Guardrails | .28, .29 |
| Telecommunications | .268(g) |
| Training | .66 App. A 10 |
| Tree Trimming | .269(r)(8) |
| Working Platform, Personal | .66(j) |
| Fan-Rotating Element | .107(d)(4) |
| Farm Vehicles, Anhydrous Ammonia Fasteners | .111(g), (h) .243(d)(3) |
| Fastening Tools | .243(d) |
| Filling Densities, Liquefied Petroleum Gases | .110(b)(12) |
| Filters, Spraying | .107(b)(5) |
| Fire Brigades (see Fire Protection) | .156 |
| Fire Detection Systems | .164 |
| Installation and Restoration | .164(b) |
| Maintenance and Testing | .164(c) |
| Number, Location, Spacing of Detecting Devices. | .164(f) |
| Protection of Fire Detectors | .164(d) |
| Response Time | .164(e) |
| Fire Extinguishers (see Fire Extinguishers, Portable). | |
| Cranes | .179(c)(3), (o)(3) |
| Crawler Locomotive, and Truck Cranes. | .180(i)(5) |
| Derricks | .181(j)(3) |
| Dip Tanks | .125(f)(2)(i) |
| Powered Working Platforms | .66(f)(5)(ii)(l) |
| Transportation | .109(d)(2) |
| Welding | .252(a)(2)(ii) |
| Fire Extinguishers, Portable | .157 |
| Exemptions | .157(b) |
| General Requirements | .157(c) |
| Hydrostatic Testing | .157(f) |
| Inspection, Maintenance, and Testing. | .157(e) |
| Scope and Application | .157(a) |
| Selection and Distribution | .157(d) |
| Training and Education | .157(g) |
| Fire Prevention Plan | .39 |
| Application | .39(a) |
| 1,3-Butadiene | .1051(j) |
| Employee Information | .39(d) |
| Ethylene Oxide | .1047(h)(1) |
| Fire Protection Plan, Minimum Elements of. | .39(c) |
| Fire Protection Plans, Written and Oral. | .39(b) |
| Guidelines, Nonmandatory | App. to Subpart E |
| Methylenedianiline | .1050(d)(1) |
| Portable Fire Extinguishers | .157(b) |
| Fire Protection | .155 to .165 |
| Ammonium Nitrate | .109(i)(7) |
| Bulk Plants | .106(f)(4)(ix), (8) |
| Chemical Plants | .106(i)(5) |
| Definitions | .155 |

| Subject term | Section No. |
|--|---|
| Distilleries | .106(i)(5) |
| Electrostatic Apparatus | .107(h)(12) |
| Employee Alarm Systems | .165 |
| Fire Brigades | .156 |
| Publications | .156 App. D |
| Fire Detection Systems | .164 |
| Installation and Restoration ... | .164(b) |
| Maintenance and Testing | .164(c) |
| Number, Location, Spacing of Detecting Devices. | .164(f) |
| Protection of Fire Detectors ... | .164(d) |
| Response Time | .164(e) |
| Fire Fighting Equipment | .156(d) |
| Flammable Liquids | .106(d)(7), .106(e)(5), .106(f)(8), .106(g)(9), .106(h)(6), .106(i)(5) |
| Industrial Plants | .106(e)(5) |
| Liquefied Petroleum Gases | .110(d)(14), .110(f)(7), .110(h)(14) |
| National Consensus Standards | .165 App. B |
| Organization | .156(b) |
| Protective Clothing | .156(e) |
| Body Protection | .156(e)(3) |
| Foot and Leg Protection | .156(e)(2) |
| Hand Protection | .156(e)(4) |
| Head, Eye, Face Protection ... | .156(e)(5) |
| Test Methods for Protective Clothing. | .156 App. E |
| Processing Plants | .106(h)(6) |
| References for Further Information, Fire Protection. | .155 App. C |
| Respiratory Protection | .156(f) |
| General Requirements | .156(f)(1) |
| Positive-Pressure Breathing Apparatus. | .156(f)(2) |
| Scope, Application and Definitions | .155 |
| Selection and Distribution | .157(d) |
| Test Methods for Protective Clothing. | .156 App. E |
| Training and Education | .156(c) |
| Refineries | .106(i)(5) |
| Service Stations | .106(g)(9) |
| Spray Booths | .107(f) |
| Cleaning | .107(f)(3) |
| Conformance | .107(f)(1) |
| Extinguishers, Portable | .107(f)(4) |
| Valve Access | .107(f)(2) |
| Storage Tanks | .106(d)(7) |
| Trucks | .178 |
| Fire Protection Equipment. | |
| Color Identification | .144(a)(1) |
| Fire Brigades | .156(d) |
| Fire Resistance(Rating). | |
| Inside Storage Rooms | .106(d)(4)(ii) |
| Storage Cabinets | .106(d)(3)(ii) |
| Tank Supports | .106(b)(5)(ii) |
| Fire Watch, Welding | .252(a)(2)(iii) |
| Fireworks(see Pyrotechnics). | |
| First Aid(see Medical Services and First Aid) | .151 |
| Fittings(see Piping, Fittings, and Tubing; Piping, Valves, and Fittings. | |
| Fixed Fire Suppression Equipment | .159 |
| Automatic Sprinkler Systems. | |
| Fixed Extinguishing Systems | .160 |
| Dry Chemical, Fixed Extinguishing Systems. | .161 |
| Gaseous Agent, Fixed Extinguishing Systems. | .162 |
| General | .160 |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|---|---|-------------|
| Water Spray and Foam, Fixed Extinguishing Systems. | .163 | Open-Sided | .23(c) |
| Fixed Industrial Stairs (see Stairs, Fixed Industrial) | .24 | Spray Booths | .107(b)(3) |
| Fixed Ladders (see Ladders, Fixed) | .27, .268(h) | Flow Coatings | .126(b) |
| Flammable and Combustible Liquids ... | .106 | Fluidized Beds | .107(l)(7) |
| Bulk Plants | .106(f) | Fluorine Compounds, Welding (see also Air Contaminants) | .252(c)(5) |
| Chemical Plants | .106(i) | Foam Extinguishing Systems, Fixed | .163 |
| Container and Portable Tank Storage. | .106(d) | Food Handling | .141(h) |
| Design, Construction, and Capacity of Containers. | .106(d)(2) | Foot Pedals, Power Presses | .217(b)(4) |
| Design, Construction, and Capacity of Storage Cabinets. | .106(d)(3) | Foot Protection | .136 |
| Design and Construction of Inside Storage Rooms. | .106(d)(4) | Footwalks.. | |
| Fire Control | .106(d)(7) | Cranes | .179(d) |
| Storage Inside Buildings | .106(d)(5) | Forging Hammers | .218(a)(3) |
| Storage Outside Buildings | .106(d)(6) | Foot-Operated Devices | .218(b)(2) |
| Container Marking, Color Codes ... | .144(a)(1)(ii) | Gravity | .218(e) |
| Distilleries | .106(i) | Air Lifts | .218(e)(1) |
| Hazards, Communication of | .1200 | Board Drop Hammers | .218(e)(2) |
| Ignition Sources | .106(b)(6), .106(e)(6)(i), .106(f)(6), .106(g)(8), .106(h)(7) | Keys | .218(b)(1) |
| Industrial Plants | .106(e) | Power-Driven | .218(d) |
| Piping, Valves, and Fittings | .106(c) | Cylinder Draining | .218(d)(3) |
| Design | .106(c)(i) | Pressure Pipes | .218(d)(4) |
| General | .106(c)(1) | Safety Cylinder Heads | .218(d)(1) |
| Materials for Piping, Valves, and Fittings. | .106(c)(2) | Shutoff Valves | .218(d)(2) |
| Pipe Joints | .106(c)(3) | Forging Machine Area | .30(b) |
| Protection Against Corrosion | .106(c)(5) | Forging Machines | .218 |
| Supports | .106(c)(4) | Forging Presses | .218(f) |
| Testing | .106(c)(7) | Definitions of Forging and Hot Metal. | .211(e) |
| Valves | .106(c)(6) | Gravity Hammers | .218(e) |
| Pressure Vessels | .106(b)(1)(v) | Air Lift Hammers | .218(e)(1) |
| Processing Plants | .106(h) | Board Drophammers | .218(e)(2) |
| Refineries, Chemical Plants and Distilleries. | .106(i) | Hammers, General | .218(b) |
| Scope | .106(j) | Foot Operated Devices | .218(b)(2) |
| Service Stations | .106(g) | Keys (Die Keys and Shims) ... | .218(b)(1) |
| Spray Finishing Using Flammable Materials (see Spray Finishing Using Flammable and Combustible Materials). | .107 | Other Forge Facility Equipment ... | .218(j) |
| Storage Containers | .106(d) | Conveyors | .218(j)(3) |
| Tank Storage | .106(b) | Grinding | .218(j)(5) |
| Design and Construction of Tanks. | .106(b)(1) | Saws | .218(j)(2) |
| Installation of Outside Above-Ground Tanks. | .106(b)(2) | Shot Blast | .218(j)(4) |
| Installation of Under-Ground Tanks. | .106(b)(3) | Other Forging Equipment | .218(i) |
| Installation of Tanks Inside of Buildings. | .106(b)(4) | Boltheaded | .218(i)(1) |
| Supports, Foundations and Anchorage for All Tanks Locations. | .106(b)(5) | Rivet Making | .218(i)(2) |
| Testing | .106(b)(7) | Power-Driven Hammers | .218(d) |
| Flammable Materials, Trucks Used | .178(c)(2) | Cylinder Draining | .218(d)(3) |
| Flanges (see also Abrasive Wheel Machinery) | .215 | Pressure Pipes | .218(d)(4) |
| Flash Welding Equipment | .255(d) | Safety Cylinder Heads | .218(d)(1) |
| Fire Curtains | .255(d)(2) | Shutoff Valves | .218(d)(2) |
| Ventilation | .255(d)(1) | Requirements, General | .218(a) |
| Float Scaffolds | .28(u) | Forging Hammers | .218(a)(3) |
| Flooding, Tank Areas | .106(b)(5)(vi) | Hammers | .218(a)(3) |
| Floor Loading | .22(d) | Inspections | .218(a)(2) |
| Floor Openings (Holes) | .23(a) | Lead Use | .218(a)(1) |
| Manlifts | .68(b)(5), .68(7) | Maintenance | .218(a)(2) |
| Floors. | | Trimming Presses | .218(g) |
| Covers, Hinged | .23(a)(3)(i) | Cold Trimming Presses | .218(g)(2) |
| | | Hot Trimming Presses | .218(g)(1) |
| | | Upsetters | .218(h) |
| | | Lockouts | .218(h)(2) |
| | | Forklifts (see also Powered Industrial Trucks). | |
| | | Logging Operations | .266(f)(4) |
| | | Powered Industrial Trucks | .178 |
| | | Pulp, Paper, and Paperboard Mills | .261(c)(1) |
| | | Fork Trucks (see also Powered Industrial Trucks) | .178 |
| | | Formaldehyde | .1048 |
| | | Communication of Hazards | .1048(m) |
| | | Emergencies | .1048(k) |
| | | Employee Information and Training. | .1048(n) |
| | | Exposure Monitoring | .1048(d) |
| | | Housekeeping | .1048(j) |
| | | Hygiene Protection | .1048(i) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|---|
| Medical Surveillance | .1048(l) |
| Methods of Compliance | .1048(f) |
| Permissible Exposure Limit (PEL) | .1048(c) |
| Protective Equipment and Clothing | .1048(h) |
| Recordkeeping | .1048(o) |
| Regulated Areas | .1048(e) |
| Respiratory Protection | .1048(g) |
| Fuel-Gas Systems(see also Oxygen-Fuel Gas Welding and Cutting) | .253 |
| Fuels (see also Refueling). Handling and Storage | .178(f) |
| Fusion Apparatus (see Drying, Curing, and Fusion Apparatus). | |
| Gaging Devices | .110(b)(19) |
| Gantry Cranes (see also Overhead and Gantry Cranes) | .179 |
| Garages, Undercoating Operations | .107(k) |
| Garnett Machines | .262(f) |
| Gas Cylinder Inspection | .101(a) |
| Gaseous Agent Extinguishing Systems; Fixed. Scope and Application | .162(a) |
| Specific Requirements | .162(b) |
| Gaseous Hydrogen Systems (see Hydrogen). | |
| Gasoline Powered Trucks | .178(b)(8), .178(9) |
| Gears | .219(f) |
| Gill Boxes | .262(k) |
| Gin Pole Derricks (see also Derricks) | .181(a)(6) |
| Gloves, Rubber Insulating | .137 |
| Glue Spreaders | .213(r) |
| Goggles (see also Eye Protection; Eye and Face Protection) | .133, .252(b)(2)(i)(B) |
| Grain Handling Facilities | .272 |
| Application | .272(b) |
| Emergency Action Plan | .272(d) |
| Engulfment Hazard | .272(e)(2), .272(g)(2), .272(h)(1) |
| Entry into Grain Storage Structures. | .272(g) |
| Entry into Flat Storage Structures | .272(h) |
| Lifeline | .272(h)(1) |
| Walking Down Grain | .272(h)(2)(ii) |
| Hot Work Permit | .272(f) |
| Training | .272(e) |
| Written Housekeeping Plan | .272(j) |
| Gravity Hammers | .218(e) |
| Grinders (see also Abrasive Wheel Machinery). | |
| Grinding, Forging Equipment | .218(j)(5) |
| Grinding Machines (see also Abrasive Wheel Machinery).. Cylindrical | .215(b)(4) |
| Flanges | .215(a)(3) |
| Surface Grinders | .215(b)(5) |
| Swing Frame Grinders | .215(b)(6) |
| Top Grinding | .215(b)(8) |
| Work Rest | .215(a)(4) |
| Grinding, Polishing, and Buffing.. Branch Pipes | .94(b)(3) |
| Enclosure Design | .94(b)(5) |
| Exhaust Systems | .94(b)(4) |
| Hoods | .94(b)(3), (5) |
| Grinding, Top | .215(b)(8) |
| Grounding.. Bulk Oxygen Systems | .104(b)(7)(iv) |
| Electric Power Generation, Transmission, and Distribution. | .269(n) |
| Electrostatic Spraying | .107(h)(5), .107(i)(5)-(7) |
| Flammable and Combustible Liquids. General | .106(e)(6)(ii), .106(f)(3)(iv) .304(f) |

| Subject term | Section No. |
|---|---|
| Hand Spraying | .107(i)(5)-(7) |
| Ignition Sources | .107(c)(9) |
| Liquefied Hydrogen Systems | .103(c)(4)(iv) |
| Liquid Transfer | .107(e)(9) |
| Spray Booths | .107(h)(10) |
| Spraying Operations | .107(c)(9), .107(e)(9), .107(i)(5)-(7) |
| Telecommunications | .268(m) |
| Welding | .254(c)(2), .254(d)(3), .255(b)(9), .255(c)(6) |
| Woodworking Tools | .243(a)(5) |
| Guarding (See Also Term to which it Applies). Abrasive Wheels, Portable | .243(c) |
| Floor Openings (Holes) | .23(a) |
| Hatchways | .23(a)(3) |
| Ladderways | .23(a)(2) |
| Live Parts | .303(g)(2), .303(h)(2) |
| Materials Handling and Storage | .176(g) |
| Open-Sided Floors | .23(c) |
| Platforms | .23(c) |
| Powered Platforms | .66(e)(3) |
| Powered Tools, Portable | .243 |
| Railings | .23(e) |
| Runways | .23(c) |
| Resistance Welding | .255(a)(4), .255(b)(4) |
| Sawmills | .265(c)(18)(f) |
| Skylight | .23(a)(4) |
| Spraying Equipment | .107(h)(10) |
| Stairways | .23(a)(1), (d) |
| Telecommunications Manholes | .268(o)(1) |
| Wall Openings (Holes) | .23(b) |
| Guarding of Portable Powered Tools ... Explosive Actuated Fastening Tools. General Requirements | .243 |
| Inspection, Maintenance, and Tool Handling. | .243(d)(1) .243(d)(2) |
| Loads and Fasteners, Requirements for. | .243(d)(3) |
| Operating Requirements | .243(d)(4) |
| Pneumatic Powered Tools and Hoses. Airhoses | .243(b)(2) |
| Tool Retainer | .243(b)(1) |
| Portable Abrasive Wheels | .243(c) |
| Cup Wheels | .243(c)(2) |
| Excluded Machinery | .243(c)(6) |
| General Requirements | .243(c)(1) |
| Mounting and Inspections of Abrasive Wheels. Other Portable Grinders | .243(c)(4) |
| Vertical Portable Grinders | .243(c)(3) |
| Portable Powered Tools | .243(a) |
| Portable Circular Saws | .243(a)(1) |
| Switches and Controls | .243(a)(2) |
| Lawnmowers, Power | .243(e) |
| General Requirements | .243(e)(1) |
| Riding Rotary Mowers | .243(e)(4) |
| Walk-Behind and Riding Rotary Mowers. Walk-Behind Rotary Mowers | .243(e)(2) .243(e)(3) |
| Guardrails.. Definitions | .21(f)(10), .21(f)(21), .21(g)(7) |
| Electric Power Generation, Transmission, and Distribution. | .269(r)(3) |
| Exit Route, Design and Construction Requirements. | .36(h)(1) |

| Subject term | Section No. | Subject term | Section No. |
|--|---|---|----------------------------|
| Handling Materials, General | .176(g) | Liquefied Hydrogen Systems | .103(c)(2)(iii) |
| Manlifts | .68(b)(8)(i), (10)(iv) | Liquefied Petroleum Gases | .110 |
| Manually Propelled Mobile Ladder Stands and Scaffolds (Towers). | .29(a)(3) | Liquids | .106(h)(4) |
| Mechanical Power-Transmission Apparatus. | .219(b), .219(e), .219(k), .219(o)(5) | Pulp, Paper, and Paperboard Mills | .261(c)(2), (d) |
| Powered Platforms for Building Maintenance. | .66(e)(3), .66(f)(3)(i)(K), .66(f)(5)(i)(G), (f)(5)(ii)(K) | Service Stations | .106(g)(1) |
| Pulp, Paper, and Paperboard Mills | .261(h), (k)(7), .261(k)(10), .261(12-13) | Textiles | .262(o) |
| Removable | .23(a)(3) | Handrails | .24(h) |
| Sawmills | .265(d)(2) | Cranes | .179(d)(3), .179(4)(ii) |
| Walking-Working Surfaces | .22(c) | Mobile Ladder Stands | .29(f)(4) |
| Guardrails, Scaffolds.. | | Hangers | .219(p)(4) |
| Scaffolding, Safety Requirements | .28(a)(17) | Hardening Tanks | .126(a)(1)(i), (ii) |
| Carpenters' Bracket Scaffolds | .28(k)(5) | Hatchways Guarding | .23(a)(3) |
| Horse Scaffolds | .28(m)(7) | Hazard Communication | .1200 |
| Interior Hung Scaffolds | .28(p)(7) | 13 Carcinogens | .1003(e)(1) |
| Masons' Adjustable Multiple- Point Suspension. | .28(f)(15) | 2-Acetylnitrofluorene | .1003(e)(1) |
| Outrigger Scaffolds | .28(e)(5) | 4-Aminodiphenyl | .1003(e)(1) |
| Plasterers', Decorators', & Large Area Scaffolds. | .28(o)(2), .28(4) | Asbestos | .1001(j) |
| Single-Point Adjustable Sus- pension Scaffold. | .28(i)(5) | Benzene | .1051(i) |
| Stone Setters' Adjustable Multiple- Point Suspension Scaffold. | .28(h)(8) | Benzidine | .1003(e)(1) |
| Swinging Scaffolds, Two-Point Suspension. | .28(g)(2), (5) | Bloodborne Pathogens | .1030(g) |
| Tube and Coupler Scaffolds .. | .28(c)(14) | 1,3-Butadiene | .1051(i) |
| Tubular Welded Frame Scaf- folds. | .28(d)(7) | bis-Chloromethyl Ether | .1003(e)(1) |
| Window-Jack Scaffolds | .28(r)(3) | Cadmium | .1027(m) |
| Wood Pole Scaffolds | .28(b)(15) | Classification of Hazards | .1200(d) |
| Guards (see also Guardrails). | | Coke Oven Emissions | .1029(i) |
| Derricks | .181(j)(1) | 3,3'-Dichlorobenzidine (and Its Salts). | .1003(e)(1) |
| Hoisting Ropes | .179(e)(5) | 4-Dimethylaminoazobenzene | .1003(e)(1) |
| Manlifts | .68(b)(7)-(9) | Effective Dates | .1200(j) |
| Moving Parts | .179(e)(6) | Employee Information and Train- ing. | .1200(h) |
| Trucks | .178(e) | Ethyleneimine | .1003(e)(1) |
| Guide Posts | .217(d)(4) | Hazard Communication Program, Written. | .1200(e) |
| Gudgeon Pin | .181(a)(20) | Information and Training | .1200(h) |
| Guy Derricks | .181(a)(7) | Labels and Other Forms of Warn- ing. | .1200(f) |
| Hammers, Forging (see Forging Ham- mers). | | Labels, on Shipped Con- tainers. | .1200(f)(1) |
| Hand and Portable Powered Tools and Other Hand-Held Equipment (see Guarding of Portable Powered Tools; Portable Tools and Equip- ment, Other). | .241 to .244 | Labels, on Solid Materials | .1200(f)(4) |
| Definitions | .241 | Methyl Chloromethyl Ether | .1003(e)(1) |
| Hand and Portable Powered Tools and Equipment, General. | .242 | Methylene Chloride | .1052(k) |
| Compressed Air Used for Cleaning. | .242(b) | 4,4-Methylenedianiline | .1050(k) |
| General Requirements | .242(a) | Mixtures, Classification of | .1200(d)(3) |
| Hand Protection | .138 | Multi-Employer Workplaces | .1200(e)(2) |
| Hand Spraying Equipment (see Elec- trostatic Hand Spraying Equipment). | | alpha-Naphthylamine | .1003(e)(1) |
| Hand Tools | .242 | beta-Naphthylamine | .1003(e)(1) |
| Dead-Man Controls | .243(a)(2) | 4-Nitrophenyl | .1003(e)(1) |
| Electric Power Generation, Trans- mission, and Distribution. | .269(i) | N-Nitrosodimethylamine | .1003(e)(1) |
| Pulp, Paper, and Paperboard Mills | .261(c)(13) | beta-Propiolactone | .1003(e)(1) |
| Logging Operations | .266(e) | Purpose of Standard | .1200(a) |
| Handholds, Manlifts | .68(c)(4) | Safety Data Sheets | .1200(g) |
| Handling (see also Materials Handling and Storage). | | Scope and Application | .1200(b) |
| Ammonia, Anhydrous | .111 | Trade Secrets | .1200(i) |
| Compressed Gases | .101(b) | Welding | .252(c)(1)(iv) |
| | | Hazardous Chemicals, Occupational Exposure in Laboratories hazardous | .1450 |
| | | Hazardous Chemicals, Highly, Process Safety Management (see Chemicals, Hazardous) | .119 App. A |
| | | Hazardous Energy, Control of (see Lockout/Tagout).. | |
| | | Hazardous Materials.. | |
| | | Acetylene | .102 |
| | | Ammonia, Anhydrous, Storage and Handling of. | .111 |
| | | Blasting Agents | .109 |
| | | Bulk Oxygen Systems | .104 |
| | | Combustible Liquids | .106 |
| | | Compressed Gases, General Re- quirements. | .101 |
| | | DOT Markings | .1201 |
| | | Explosives and Blasting Agents ... | .109 |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. | Subject term | Section No. |
|---|-------------|--|----------------------|
| Flammable Liquids | .106 | RCRA (Resource Conservation and Recovery Act), Operations Conducted under. | .120(p) |
| Forklifts Used | .178(c)(2) | Scope, Applications, and Definitions. | .120(a) |
| Hazard Communication | .1200 | Safety and Health Program | .120(b) |
| Hazardous Wastes | .120 | Contractors and Subcontractors. | .120(b)(1)(iv) |
| Hydrogen | .103 | Sanitation at Temporary Workplaces. | .120(n) |
| Liquefied Petroleum Gases | .110 | Site Characterization and Analysis | .120(c) |
| Nitrous Oxide | .105 | Site Control | .120(d) |
| Oxygen | .104 | Elements of Site Control System. | .120(d)(3) |
| Process Safety Management, Highly Hazardous Chemicals. | .119 | Training | .120(e) |
| Spray Finishing Using Flammable and Combustible Materials. | .107 | Certification Training | .120(e)(6) |
| Hazardous Waste Operations and Emergency Response.. | | Curriculum Guidelines | .120 App. E |
| Compliance Guidelines | .120 App. C | Elements to Be Covered | .120(e)(2) |
| Decontamination | .120(k) | Emergency Response | .120(e)(7) |
| Decontamination Procedures | .120(k)(1) | Equivalent Training | .120(e)(9) |
| Emergency Response by Employees at Uncontrolled Hazardous Waste Sites. | .120(l) | Initial Training | .120(e)(3) |
| Elements of an Emergency Response Plan. | .120(l)(2) | Management and Supervisor Training. | .120(e)(4) |
| Handling Emergency Incidents, Procedures. | .120(l)(3) | Qualifications for Trainers | .120(e)(5) |
| Emergency Response to Hazardous Substance Releases. | .120(q) | Refresher Training | .120(e)(8) |
| Elements of an Emergency Response Plan. | .120(q)(2) | Uncontrolled Sites, Emergency Responses. | .120(l) |
| Plan, Emergency Response .. | .120(q)(1) | Work Practices, Engineering Controls, and PPE. | .120(g) |
| Training for | .120(q)(6) | Healthcare Professions and Related Industries, Exposures to Bloodborne Pathogens | 1030 |
| Engineering Controls, Work Practices, and PPE. | .120(g) | Hearing Conservation Program | .95(c) |
| for Substances Regulated in Subparts G and Z. | .120(g)(1) | Heating.. | |
| Totally Encapsulating Chemical Protective Suits. | .120(g)(4) | Dip Tanks | .125(g) |
| Handling Drums and Containers ... | .120(j) | Bulk Plants | .106(f)(2)(ii) |
| Laboratory Waste Packs | .120(j)(6) | Service Stations | .106(g)(6) |
| Sampling of Drum and Container Contents. | .120(j)(7) | Helicopters | .183 |
| Shipping and Transport | .120(j)(8) | Approach Distance | .183(o) |
| Shock-Sensitive Wastes | .120(j)(5) | Approaching Helicopter | .183(p) |
| Tank and Vault Procedures ... | .120(j)(9) | Briefing, Daily | .183(b) |
| Illumination | .120(m) | Communications | .183(r) |
| Laboratory Waste Packs | .120(j)(6) | Ground Lines | .183(l) |
| Medical Surveillance | .120(f) | Hooking and Unhooking Loads | .183(i) |
| Content of Medical Examinations and. | | Hooks, Cargo | .183(d) |
| Consultations | .120(f)(4) | Housekeeping | .183(g) |
| Examination by a Physician and Costs. | .120(f)(5) | Loose Gear and Objects | .183(f) |
| Frequency of Examinations ... | .120(f)(3) | Load Safety | .183(h) |
| Information Provided to the Physician. | .120(f)(6) | Personnel | .183(q) |
| Physician's Written Opinion ... | .120(f)(7) | Personal Protective Equipment (PPE). | .183(e) |
| Recordkeeping | .120(f)(8) | Signal Systems | .183(n) |
| Monitoring | .120(h) | Slings and Tag Lines | .183c |
| Initial Entry | .120(h)(2) | Static Charge | .183(j) |
| Monitoring of High Risk Employees. | .120(h)(4) | Visibility | .183(m) |
| Periodic Monitoring | .120(h)(3) | Weight Limitation | .183(k) |
| New Technology Programs | .120(o) | Hepatitis B (see also Bloodborne Pathogens) | .1030 |
| Personal Protective Equipment, Engineering Controls and Work Practices. | .120(g) | Hexavalent Chromium (see Chromium [VI]).. | |
| Totally-Encapsulating Chemical Protective Suits. | .120(g)(4) | Hinged Floor Covers | .23(a)(3)(i) |
| Personal Protective Equipment Test Methods. | .120 App. A | Hoist Limit Switches. | |
| Protection, Levels of Protection and Protective Gear. | .120 App. B | Cranes | .179(e)(5), .179(h) |
| Radioactive Wastes | .120(j)(4) | Powered Platforms | .66(f)(4), .66(g)(6) |
| Releases, Emergency Response to Hazardous Substance. | .120(q) | 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) |

| Subject term | Section No. | Subject term | Section No. |
|--|------------------|---|--|
| Liquefied Petroleum Gases | .110(b)(9) | Handling of Liquefied Hydrogen Inside Buildings Other Than Separate Buildings and Special Rooms. | .103(c)(2)(ii) |
| Semiconductors | .109(a)(12) | Specific Requirements | .103(c)(2)(i) |
| Sprinkler Systems | .159(c)(5) | Design Considerations at Specific Locations. | .103(c)(3) |
| Standpipe and Hose Systems | .158(c)(3) | Outdoor | .103(c)(3)(i) |
| Welding and Cutting | .253(e) | Separate Buildings | .103(c)(3)(ii) |
| Hot Metal, Forging and Hot Sources | .211(e) | Special Rooms | .103(c)(3)(iii) |
| Hot Work Permit (see Authorization). | .107(c)(3) | Operating Instructions | .103(c)(4) |
| Confined Spaces, Permit-Required | .146(f)(14) | Attendant | .103(c)(4)(ii) |
| Grain Handling Facilities | .272(f) | Grounding | .103(c)(4)(iv) |
| Process Safety Management of Highly Hazardous Chemicals. | .119(k) | Security | .103(c)(4)(iii) |
| Welding, Cutting, and Brazing | .252(a)(2) | Written Instructions | .103(c)(4)(i) |
| Hours of Transfer, Explosives | .109(f)(5) | Maintenance | .103(c)(5) |
| Housekeeping | .141(a)(3) | Scope | .103(a)(2) |
| Acrylonitrile | .1045(k) | Gaseous Hydrogen Systems | 103(a)(2)(i) |
| Arsenic, Inorganic | .1018(k) | Liquefied Hydrogen Systems | .103(a)(2)(ii) |
| Asbestos | .1001(k) | Testing | .103(c)(1)(vii) |
| Bloodborne Pathogens | .1030(d)(4) | Location of Liquefied Hydrogen Storage Handling of Liquefied Hydrogen Inside Buildings Other Than Separate Buildings and Special Rooms. | .103(c)(2)(ii) |
| Cadmium | .1027(k) | Specific Requirements | .103(c)(2)(i) |
| Chromium (VI) | .1026(j) | Design Considerations at Specific Locations. | .103(c)(3) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(k) | Outdoor | .103(c)(3)(i) |
| Formaldehyde | .1048(j) | Separate Buildings | .103(c)(3)(ii) |
| Grain Handling Facilities | .272(j) | Special Rooms | .103(c)(3)(iii) |
| Helicopters | .183(g) | Operating Instructions | .103(c)(4) |
| Industrial Plants | .106(e)(9) | Attendant | .103(c)(4)(ii) |
| Lead | .1025(h) | Grounding | .103(c)(4)(iv) |
| Materials Handling and Storage ... | .176(c) | Security | .103(c)(4)(iii) |
| 4,4-Methylenedianiline | .1050(l) | Written Instructions | .103(c)(4)(i) |
| Processing Plants, Flammable and Combustible Liquids. | .106(h)(8) | Maintenance | .103(c)(5) |
| Sanitation | .141(a)(3) | Scope | 103(a)(2) |
| Storage Areas | .176(c) | Gaseous Hydrogen Systems | .103(a)(2)(i) |
| Walking-Working Surfaces | .22(a) | Liquefied Hydrogen Systems | 103(a)(2)(ii) |
| Hydraulic Barkers | 261(e)(14) | Hydrostatic Tests (see also Testing). | .157(f) |
| Hydraulic Equipment | 217(b)(11) | Fire Extinguishers | .106(c)(7) |
| Hydraulically Designed Sprinkler Systems | .159(c)(11) | Piping | .106(f)(6) |
| Hydrogen | .103 | Ignition Sources.. | .125(e) |
| Definitions | .103(a)(1) | Bulk Plants | .106(e)(6) |
| Gaseous Hydrogen Systems | .103(b) | Dip Tanks | .107(l)(1) |
| Design | .103(b)(1) | Industrial Plants | .106(h)(7) |
| Containers | .103(b)(1)(i) | Powder Coatings | .106(g)(8) |
| Equipment Assembly | .103(b)(1)(iv) | Processing Plants | .107(c) |
| Marking | .103(b)(1)(v) | Service Stations | .107(c)(5) |
| Piping, Tubing, and Fittings ... | .103(b)(1)(iii) | Spraying Operations | .107(c)(1) |
| Safety Relief Devices | .103(b)(1)(ii) | Combustible Residues | .107(c)(4), .107(6) |
| Testing | .103(b)(1)(vi) | Conformance | .107(c)(9) |
| Location | .103(b)(2) | Electrical Wiring | .107(c)(3) |
| General | .103(b)(2)(i) | Grounding | .107(c)(7), (8) |
| Specific Requirements | .103(b)(2)(ii) | Hot Sources | .107(c)(2) |
| Design Consideration at Specific Locations. | 103(b)(3) | Lamps | .107(c)(2) |
| Outdoor Locations | .103(b)(3)(i) | Separation Minimum | .106(b)(6) |
| Separate Buildings | .103(b)(3)(ii) | Storage Tanks | .106(b)(6) |
| Special rooms | .103(b)(3)(iii) | Illumination (see Lighting).. | .6 |
| Maintenance | .103(b)(5) | Incorporation by Reference | .215(b)(12) |
| Operating Instructions | .103(b)(4) | Abrasive Wheel Machinery | .1020(c)(13) |
| Liquefied Hydrogen Systems | .103(c) | Access to Employee Exposure and Medical Records. | .145(d)(10) |
| Design | .103(c)(1) | Accident Prevention Signs and Tags. | .102(a), .102(b), .102(c) |
| Bonding and Grounding | .103(c)(1)(x) | Acetylene | .169(a)(2) |
| Containers | .103(c)(1)(i) | Air Receivers | .111(b)(1), .111(2), .111(7), .111(8), .111(11), .111(d)(1), .111(4) |
| Electrical Systems | .103(c)(1)(ix) | Ammonia, Anhydrous | .254(b)(1) |
| Equipment Assembly | .103(c)(1)(vii) | Arc Welding and Cutting | |
| Liquefied Hydrogen Vaporizers. | .103(c)(1)(viii) | | |
| Marking | .103(c)(1)(iii) | | |
| Piping, Tubing, and Fittings ... | .103(c)(1)(v) | | |
| Safety Relief Devices | .103(c)(1)(iv) | | |
| Supports | .103(c)(1)(ii) | | |
| Testing | 103(c)(1)(vii) | | |
| Location of Liquefied Hydrogen Storage. | .103(c)(2) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|--|
| Bakery Equipment | .263(i)(24), .263(k)(2) |
| Compressed Gases (General Requirements). | .101(a), .101(b), .101 (c) |
| Crawler Locomotive, and Truck Cranes. | .180(b)(2), .180(c)(1), .180(e)(2) |
| Derricks | .181(b)(2) |
| Dipping and Coating Operations ... | .124(b)(4) |
| Existing Installations (Mandatory) | .66 App. D(b)-(d) |
| Explosives and Blasting Agents | .109(i)(1), (6) |
| Eye and Face Protection | .133(b)(1), (2) |
| Fire Brigades | .156(e)(3), .156(4), .156(5) |
| Fixed Ladders | .27(b)(6) |
| Flammable Liquids | 106(b)(1), .106(2), .162(d)(3), .162(4), .162(g)(1), .162(i)(3), .162(j)(6) |
| Foot Protection | .136(b)(1), (2) |
| Forging Machines | .218(d)(4), .218(e)(1), .218(j), .218(j)(3) |
| Hazard Communication | .1200 |
| Hazardous Waste Operations and Emergency Response. | .120(a)(3) |
| Head Protection | .135(b)(1) |
| Hydrogen | .103(b)(1), .103(3), .103(c)(1) |
| Logging Operations | .266(d)(3), .266(e)(2), .266(f)(3), .266(4), .266(5) |
| Manlifts | .68(b)(1), .68(2), .68(3), .68(4), .68(c)(3), .68(4) |
| Means of Egress Compliance with Alternate Exit-Route Codes. | .35 |
| Means of Egress Coverage and Definitions. | .34 |
| Means of Egress Design and Construction Requirements for Exit Routes. | .36 |
| Means of Egress Maintenance, Safeguards, and Operational Features for Exit Routes. | .37 |
| Mechanical Power Presses | .217(b)(12) |
| Mechanical Power-Transmission Apparatus. | .219(c)(5) |
| Nitrous Oxide | .105 |
| Occupational Noise Exposure | .95(h)(2), .95(5), .95 App. B, .95 App. D, .95 App. I |
| Other Working Surfaces | .30(a)(3) |
| Overhead and Gantry Cranes | .179(b)(6), (c)(2) |
| Oxygen | .104(b)(4), .104(5), .104(6) |
| Oxygen-Fuel Gas Welding and Cutting. | .253(b)(1), .253(4), .253(c)(2), .253(d)(1), .253(4), .253(e)(4), .253(5), .253(6), .253(f)(6) |
| Powered Industrial Trucks | .178(a)(2), .178(3), .178(f)(1), .178(2) |
| Process Safety Management of Highly Hazardous Chemicals. | .119 |

| Subject term | Section No. |
|--|---|
| Pulp, Paper, and Paperboard Mills | .261(a)(3) and (4), .261(b)(1) and (2), .261(b)(6), .261(c)(2) and (3), .261(c)(8) and (10), .261(C)(14) and (15), .261(c)(16), .261(d)(1), .261(e)(3), .261(e)(7) and (9), .261(f)(4) and (5), .261(g)(1) and (g)(10), .261 (g)(11), .261(15) and (18), .261(h)(2), .261(i)(2) and (4), .261(j)(2) and (5), .261(k)(12), .261(l)(3) and (4), .261(m)(2) and (5) |
| Respiratory Protection | .134(c), .134(d)(1) and (4) |
| Sawmills | .265(c)(2), (c)(15), (c)(18) and (20), .265(d)(2) |
| Slings | .184 |
| Spray Finishing Using Flammable and Combustible Materials. | .107(d)(1), .107(j)(1), .107(l)(3) |
| Storage and Handling of Liquefied Petroleum Gases. | .110(b)(3) and (8), .110(b)(10) and (11), .110(b)(13), .110(b)(20), .110(d)(2), .110(e)(2) and (3) and (11), .110(g)(2), .110(h)(2), .110(i)(2) and (3) |
| Telecommunications | .268(f)(1), .268(i)(1), .268(j)(4), .268(n)(11), .268(s)(1) |
| Temporary Labor Camps | .142(i)(1) |
| Textiles | .262(c)(6) |
| Vehicle-Mounted Elevating and Rotating Work Platforms. | .67(c)(5) |
| Ventilation | .94(a)(2)to(6), .94(b)(3) and (4), .94(c)(2) and (3), .94(c)(5)to(7) |
| Welding, Cutting, and Brazing General Requirements. | .252, (a)(1), .252(b)(2), .252(d)(1) |
| Indoor Storage. | |
| Flammable and Combustible Liquids. | .106(b)(4), .106(d)(4) and (5), .106(e)(5), .106(g)(1)(iii), .106(h)(4)(i) |
| Rooms | .106(d)(4) |
| Industrial Plants. | |
| Flammable and Combustible Liquids. | .106(e) |
| Electrical Systems | .106(e)(7) |
| Fire Protection | .106(e)(5) |
| Housekeeping | .106(e)(9) |
| Incidental Storage | .106(e)(2) |
| Ignition Sources | .106(e)(6) |
| Maintenance | .106(e)(9) |
| Repairs, Equipment | .106(e)(8) |
| Tank Loading | .106(e)(4) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|-----------------------------|--|---------------------------|
| Unit Physical Operations | .106(e)(3) | Disclosure to Former Employee of Individual Employee's Record. | .1096(o) |
| Liquefied Petroleum | .110(d)(12), .110(f)(4) | Exceptions from Posting Requirements. | .1096(g) |
| Information Collection Requirements (OMB Control Numbers). | .8 | Exemptions for Radioactive Materials Packaged for Shipment. | .1096(h) |
| Insect Control. | | Exposure of Individuals to Radiation in Restricted Areas. | .1096(b) |
| Sanitation | .141(a)(5) | Exposure to Airborne Radioactive Material. | .1096(c) |
| Labor Camps | .142(j) | Immediate Evacuation Warning Signal. | .1096(f) |
| Inspection (See Also Term to Which It Applies). | | Instruction of Personnel, Posting .. | .1096(i) |
| Acrylonitrile | .1045(k)(2) | Notification of Incidents | .1096(l) |
| Asbestos | .1001(x)(3) | Nuclear Regulatory Commission Licensees. | .1096(p) |
| 1,3-Butadiene | .1051 App. A | Precautionary Procedures and Personal Monitoring. | .1096(d) |
| Cadmium | .1027(p)(2) | Records | .1096(n) |
| Coke Oven Emissions | .1029(f)(3) | Reports of Overexposure and Excessive Levels and Concentrations. | .1096(m) |
| Compressed Gas Cylinders | .101(a) | Storage of Radioactive Materials .. | .1096(j) |
| Control of Hazardous Energy (Lockout/Tagout). | .147(c)(6) | Waste Disposal | .1096(k) |
| Cotton Dust | .1043(m)(2) | Jacks.. | |
| Cranes. | | Definitions | .241(d) |
| Crawler | .180(d) | Fixed Truck | .178(k)(3) |
| Gantry | .179(j) | Loading | .244(a)(1) |
| Ropes | .179(m) | Marking | .244(a)(1) |
| Locomotive | .180(d) | Maintenance | .244(a)(2) |
| Overhead | .179(j) | Truck | .178(k)(3) |
| Ropes | .179(m) | Trucks | .213(s)(12) |
| Truck | .180(d) | Keys, Projecting | .219(h) |
| Derricks | .181(d) | Kiers | .262(q) |
| Diving, Pre-dive procedures | .421(g) | Kilns | .265(f) |
| Electric Power Generation, Transmission, And Distribution. | .269(a)(2)(iii) | Kitchens, Labor Camps | .142(i) |
| Electrical Protective Devices | .137(a)(3) | Labels.. | |
| Ethylene Oxide | .1047 App. A | Acrylonitrile | .1045(p)(3) |
| Fire Brigades | .156(b)(1) | Arsenic, Inorganic | .1018(p)(2)(iii) |
| Fire Extinguishers | .157(e) | Asbestos | .1001(j)(5) |
| Flammable Liquids | .106(c)(1) | Bloodborne Pathogens | .1030(g)(1) |
| Flooding, Tank Areas | .106(b)(5)(vi) | Benzene | .1028(j)(2) |
| Formaldehyde | .1048(j) | Cadmium | .1027(m)(3) |
| Gas Cylinders | .101(a) | Chromium (VI) | .1026(l)(1)(iii) |
| Grain Handling Facilities | .272(m)(1) | Coke Oven Emissions | .1029(l)(3) |
| Hazardous Waste Operations and Emergency Response. | .120(p)(1), .120(q)(1) | Cotton Dust | .1043(j)(2)(v) |
| Ionizing Radiation | .1096(f)(3) | 1,2-Dibromo-3-Chloropropane | .1044(o)(3) |
| Live-Line Tools | .269(j) | DOT Markings, Placards, and Labels. | .1201 |
| Laboratories | .1450 App. A | Electrical Specific Purpose Equipment and Installations. | .306(g)(1) |
| Ladders, Fixed | .27(f) | Ethylene Oxide | .1047(j)(2) |
| Ladders, Portable Wood | .25(b)(1) | Formaldehyde | .1048(h)(2)(ii)(B) |
| Logging Operations | .266(e)(1) | Hazard Communication | .1200(f) |
| Manlifts | .68(e) | Induction and Dielectric Heating Equipment. | .306(g)(1)(iv) |
| Methylene Chloride | .1052 App. A | Ionizing Radiation | .1096(e) |
| Methylenedianiline | .1050(e)(8) | Laboratories | .1450(h) |
| Power Presses | .217(e) | Lead | .1025(m)(1)(iii) |
| Powered Platforms | .66(g), .66(h) | Methylenedianiline | .1050(k)(2)(ii) |
| Process Safety Management of Highly Hazardous Chemicals. | .119(j)(4) | Vinyl Chloride | .1017(l)(3) |
| Pulp, Paper, and Paperboard Mills | | Labeling, Hazardous Chemicals | .1200 |
| Respirators | .261(g)(21) | Labor Camps, Temporary | .142 |
| Ropes, Cranes | .134(f) | Bathing and Hand Washing Facilities. | .142(f) |
| Ropes, Cranes | .179(m) | Beds, Cots, or Bunks | .142(b)(3) |
| Scaffolding | .28(c), .28(e), .28(g) | Communicable Diseases Reporting. | .142(l) |
| Slings | .184(d) | Facilities | (b) |
| Stairs, Fixed Industrial | .24(b) | First Aid | .142(k) |
| Telecommunications | .268(j)(1) | Furnishings | .142(b) |
| Textiles | .262(c)(5) | Floors | .142(b)(4), .142(b)(5) |
| Ventilation | .94(a)(4) | | |
| Welding, Cutting, and Brazing | .252(d)(1)(vii), .255(e) | | |
| Woodworking Machines | .213(s) | | |
| Instruction Signs, Manlifts | | | |
| Insulators | .68(c)(7) | | |
| Interior Hung Scaffolds | | | |
| Insulators | .107(h)(5) | | |
| Interior Hung Scaffolds | | | |
| Insulators | .28(p) | | |
| Ionizing Radiation | .1096 | | |
| Caution Signs, Labels, and Signals. | .1096(e) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. | Subject term | Section No. |
|--|---------------------------|---|--|
| Grounds | .142(a)(3) | Stepladders | .26(a)(3) |
| Heating, Cooking, and Water Heating Equipment | .142(b)(11) | Straight Ladders | .26(a)(2), (4) |
| Insect Control | .142(j) | Use | .26(c)(3) |
| Kitchens, Dining Halls, and Feeding Facilities | .142(i) | Ladders, Portable Wood | .25 |
| Laundry Facilities | .142(f) | Care | .25(d)(1) |
| Lighting | .142(g) | Rung Ladders | .25(c)(3) |
| Refuse Disposal | .142(h) | Sectional | .25(c)(3)(iv) |
| Rodent Control | .142(j) | Single | .25(c)(3)(ii) |
| Screens on Windows and Exterior Openings | .142(b)(8) | Trestle | .25(c)(3)(v) |
| Sewage Disposal | .142(e) | Two-Section | .25(c)(3)(iii) |
| Shelters | .142(b) | Side-Rolling Ladders | .25(c)(5) |
| Site | .142(a) | Special Purpose Ladders | .25(c)(4) |
| Size | .142(a)(2) | Masons' | .25(c)(4)(iii) |
| Sleeping Room Requirements | .142(b)(2), (b)(3) | Painters' | .25(c)(4)(ii) |
| Space | .142(b)(2), (b)(9) | Stepladders | .25(c)(2) |
| Stoves | .142(b)(10) | Trolley Ladders | .25(c)(5) |
| Toilet Facilities | .142(d) | Materials | .25(b) |
| Washing, Bathing, and Hand Washing | .142(f) | Use | .25(d)(2) |
| Waste Disposal | .142(h) | Ladderway Guarding | .23(a)(2) |
| Water Supply | .142(c) | Lamps(see also Lighting) | .107(c)(7), .107(c)(8), .305(j)(1) |
| Windows and Exterior Openings | .142(b)(7), .142(b)(8) | Landings, Manlifts | .68(b)(6), .68(b)(10) |
| Laboratories, Occupational Exposures to Hazardous Chemicals in (see Chemicals, Hazardous, Occupational Exposure in Laboratories) | .1450 | Lathers' Scaffolds (see also Plasterers' Scaffolds) | .28(o) |
| Laboratories and Production Facilities, HIV and HBV Research | .1030(e) | Lathes | .213(o) |
| Ladder-Jack Scaffolds | .28(q) | Laundry Facilities, Labor Camps | .142(f) |
| Ladder Stands, Manual Mobile; (See Work Platforms, Mobile) | .29(f) | Laundry Machinery and Operations | .264 |
| Ladders.. | | Miscellaneous Machines and Equipment | .264(c)(4) |
| Cranes | .179(d)(4), .179(o)(1) | Operating Rules | .264(d) |
| Electric Power Generation, Transmission, and Distribution | .269(h) | Markers | .264(d)(1)(iii) |
| Fixed | .27 | Mechanical Safeguards | .264(d)(2) |
| Manlifts | .68(b)(12) | Point-of-Operation Guards | .264(c) |
| Portable Metal | .26 | Starthing and Drying Machines | .264(c)(2) |
| Portable Wood | .25 | Washroom Machines | .264(c)(1) |
| Sawmills | .265(c)(10) | Lavatories | .141(d)(2) |
| Telecommunications | .268(h) | Lawn Mowers, Power | .243(e) |
| Ladders, Fixed | .27 | Forging Machines | .218(a)(1) |
| Cages | .27(c)(3), .27(d)(1) | General Requirements | .243(e)(1) |
| Clearances | .27(c) | Riding Rotary | .243(e)(2), .243(e)(4) |
| Cleats | .27(b)(1) | Walk-Behind | .243(e)(2), .243(e)(3) |
| Design | .27(a) | Lead | .1025, .252(c)(7) |
| Stresses | .27(a)(2) | Communication of Hazards | .1025(m)(l) |
| Deterioration | .27(b)(7) | Exposure Monitoring | .1025(d) |
| Electrolytic Action | .27(b)(5) | Housekeeping | .1025(h) |
| Extensions | .27(d)(3) | Hygiene Facilities and Practices | .1025(i) |
| Fastenings | .27(b)(3) | Indoors | .252(c)(7)(ii), .252(c)(7)(iii) |
| Grab Bars | .27(c)(5), (d)(4) | Medical Removal Protection | .1025(k) |
| Ladder Extensions | .27(d)(3) | Medical Surveillance | .1025(j) |
| Landing Platforms | .27(d)(2) | Methods of Compliance | .1025(e) |
| Maintenance | .27(f) | Observation of Monitoring | .1025(o) |
| Pitch | .27(e) | Permissible Exposure Limit(PEL) | .1025(c) |
| Rungs | .27(b)(1) | Protective Work Clothing and Equipment | .1025(g) |
| Safety Devices | .27(d)(5) | Recordkeeping | .1025(n) |
| Side Rails | .27(b)(2) | Respiratory Protection | .1025(f) |
| Splices | .27(b)(4) | Ventilation | .252(c)(7)(iii) |
| Welding | .27(b)(6) | Leakage,Bulk Oxygen Systems | .104(b)(2)(iii) |
| Wells | .27(d)(1) | Lever, Hand-Operated | .217(b)(5) |
| Ladders, Portable Metal | .26 | Lifelines (see also Safety Belts).. | |
| Care | .26(c)(2) | Chicken Ladders | .28(t)(2) |
| Electrical Safety-Related Work Practices | .333(c)(7) | Confined Spaces | .252(b)(4)(iv) |
| Extension Ladders | .26(a)(2), (4) | Crawling Boards | .28(t)(2) |
| General Requirements | .26(a)(1) | Electric Power Generation, Transmission, and Distribution | .269(g)(2)(iii) |
| Platform Ladders | .26(a)(5) | Grain Handling Facilities | .272(h)(1), .272(g)(2) |
| | | Powered Platforms | .66(d)(9), App. C |
| | | Pulp, Paper, and Paperboard Mills | .261(g)(2)(ii), .261(j)(5)(ii) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|---|---|---|---|
| Scaffolding | .28(g)(9), .28(j)(4), .28(u)(6) | Motor Fuel, Liquefied Petro- leum as a. | .110(e) |
| Welding, Cutting and Brazing | .252(b)(4)(iv) | Odorizing Gases | .110(b)(1) |
| Lighting (see also Lamps).. | | Regulating Containers and Equipment. | .110(b)(6), .110(c)(5), .110(e)(9) |
| Container Areas | .110(d)(16) | Scope | .110(i) |
| Cranes | .179(c)(4), (g)(7) | Service Stations | .110(h) |
| Electric Equipment, Workspace About. | .303(g)(1)(v), .303(h)(3)(ii) | Sources of Ignition, Electrical Equipment and Other. | .110(b)(17) |
| Electrical Safety-Related Work Practices. | .333(c)(4) | Storage | .110 |
| Hazardous Waste Operations | .120(m) | Storage of Containers Await- ing Use or Resale. | .110(f) |
| Labor Camps | .142(g) | Systems Using Containers Other Than DOT Con- tainers. | .110(d) |
| Machinery, Basement Areas | .219(c)(5) | Tank Car Loading | .110(b)(15) |
| Manlifts | .68(b)(6)(iii), .68(14) | Transfer of Liquids | .110(b)(14) |
| Operating Areas, Industrial Trucks Pulp, Paper, and Paperboard Mills | .178(h) .261(b)(2), .261(c)(10), .261(k)(21) | Transport Trucks | .110(b)(15) |
| Sawmills | .265(c)(9), .263(c)(23)(iii) | Truck Loading or Unloading, Points and Operations. | .110(b)(15) |
| Spray Booths | .107(b)(10) | Trucks Conversion | .178(d), .178(q)(12) |
| Storage Areas | .178(h) | Liquid Fuels.. | |
| Lighting Receptacles.. | | Handling and Storage | .178(f) |
| Cranes | .179(g)(7) | Service Stations | .106(g) |
| Liquefied Hydrogen Systems(see Hy- drogen). | | Liquid Heaters, Spray | .107(e)(7) |
| Liquefied Petroleum Gases, Storage and Handling of. | .110 | Liquid Transfer.. | |
| Appliances, Requirements for | .110(b)(20) | Ammonia, Anhydrous | .111(b)(12), (f)(6) |
| Attendants, During Transfer of Liq- uids. | .110(b)(14) | Flammable Liquids | .106(e)(2)(iv), .106(e)(3)(vi), .106(f)(3)(vi), .106(g), .106(h)(4), .107(e)(4), .107(e)(9) |
| Basic Rules | .110(b) | Liquefied Petroleum Gases | .110(b)(14) |
| Approval of Equipment and Systems. | .110(b)(2) | Load Handling.. | |
| Construction of Containers | .110(b)(3) | Crawler Locomotives and Truck Cranes. | .180(h) |
| Odorizing Gases | .110(b)(1) | Attaching | .180(h)(2) |
| Requirements for Construction and Original Testing of Containers. | .110(b)(3) | Holding | .180(h)(4) |
| Buildings.. | | Moving | .180(h)(3) |
| Engines, Portable, in Build- ings. | .110(e)(12) | Size | .180(h)(1) |
| Engines, Stationary, in Build- ings. | .110(e)(11) | Derricks | .181 |
| Industrial Trucks Inside Build- ings. | .110(e)(13) | Attaching | .181(i)(2) |
| Piping Gas into Buildings | .110(b)(13) | Boom Securing | .181(i)(6) |
| Condensed Gas Drips | .110(d)(9) | Holding | .181(i)(4) |
| Containers Other Than DOT Containers. | .110(d) | Moving | .181(i)(3) |
| Containers, Awaiting Use or Resale, Storage of. | .110(f) | Size | .181(i)(1) |
| Cylinder Systems | .110(c) | Winch Heads | .181(i)(5) |
| Definitions | .110(a) | Overhead and Gantry Cranes | .179(n) |
| Drains | .110(d)(11) | Attaching | .179(n)(2) |
| Electrical Equipment and Other Sources of Ignition. | .110(b)(17), .110(b)(18) | Hoist Limit Switches | .179(n)(4) |
| Engines in Buildings | .110(e)(11), (e)(12) | Moving | .179(n)(3) |
| Equipment, Approval of | .110(b)(2) | Size | .179(n)(1) |
| Fire Protection | .110(d)(14), .110(f)(7), .110(h)(14) | Load Ratings | |
| Gaging Devices, Liquid-Level Garaging LP-Gas-Fueled Ve- hicles. | .110(b)(19) | Cranes | .180(c) |
| Ignition (see Sources of) | .110(b)(17) | Derricks | .181(c) |
| Liquefied Petroleum Gas Service Stations. | .110(h) | Overhead and Gantry Cranes | .179(b)(5) |
| Liquid-Level Gaging Devices | .110(b)(19) | Loading | |
| Liquids, Transfer of | .110(b)(14) | Bulk Plants | .106(f)(3) |
| Loading or Unloading Points and Operations of Trucks. | .110(b)(15) | Explosives | .109(e)(3) |
| Location of Containers and Regulated Equipment. | .110(b)(6) | Industrial Plants | .106(e)(4) |
| | | Liquefied Petroleum Gases | .110(b)(15) |
| | | Processing Plants | .106(h)(5) |
| | | Scaffolds | .29(a)(2) |
| | | Lockout/Tagout.. | |
| | | Bakery Equipment | .263(k)(12)(i) |
| | | Confined Spaces, Permit-Required | .146(f)(8) |
| | | Control of Hazardous Energy | .147 |
| | | Control Sequence | .147(d) |
| | | Employee Training and Com- munication. | .147(c)(7) |
| | | Energy Control Program | .147(c)(1) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|--|
| Release Procedures, from Lockout/Tagout. | .147(e) |
| Scope, Application and Purpose. | .147(a) |
| Testing or Positioning of Machines, Equipment or Components. | .147(f) |
| Training | .147(c)(7) |
| Electric Power Generation, Transmission, and Distribution. | .269(d), .269(m) |
| Electrical Safety-Related Work Practices. | .333(b)(1), (2) |
| Definitions | .399 |
| Forging Machines | .218(h)(2) |
| Grain Handling Facilities | .272(h)(2)(i), .272(e)(1)(ii) |
| Inspection, Periodic | .147(c)(6) |
| Powered Platforms | .66(f)(3)(i)(J) |
| Process Safety Management of Highly Hazardous Chemicals. | .119(f)(4), .119 App.C10 |
| Pulp, Paper, and Paperboard Mills | .261(b)(1) |
| Locomotive Cranes (see also Crawler Locomotives, and Truck Cranes) | .180 |
| Logging Operations | .266 |
| Chain Saws | .266(e)(2) |
| Chipping | .266(h)(4) |
| Environmental Conditions | .266(d)(5) |
| Explosives | .266(d)(10) |
| First Aid | .266(d)(2), .266(i)(7), .266 App. A, .266 App. B |
| Hand and Portable Powered Tools | .266(e) |
| Harvesting | .266(h) |
| Bucking | .266(h)(3) |
| Felling | .266(h)(2) |
| Limbing | .266(h)(3) |
| Loading | .266(h)(6) |
| Machines for Moving Materials | .266(f) |
| Designated Operator | .266(f)(2) |
| Exhaust Systems | .266(f)(6) |
| FOPS/ROPS | .266(f)(3) |
| Guarding | .266(f)(8) |
| Brakes | .266(f)(7) |
| Machine Access | .266(f)(5) |
| Overhead Guard | .266(f)(4) |
| Personal Protective Equipment | .266(d)(1) |
| Seat Belts | .266(d)(3) |
| Storage | .266(h)(8) |
| Training | .266(i) |
| Certification | .266(i)(10) |
| Content | .266(i)(3) |
| Designated Trainer | .266(i)(8) |
| First-Aid | .266(i)(7), .266 App. B |
| Frequency | .266(i)(2) |
| Meetings | .266(i)(11) |
| Vehicles | .266(g) |
| Inspection | .266(g)(2) |
| Instructions | .266(g)(3) |
| Maintenance | .266(g)(1) |
| Work Areas | .266(d)(6) |
| Log Handling (See Also Sawmills) | .265(d) |
| Longshoring | .16(a) |
| Looms | .262(n) |
| Low Pressure Tanks | .106(b)(1)(iv) |
| LP-Gases(see Liquefied Petroleum Gases, Storage and Handling of). | |
| Lumber Handling | .265(c)(27), .265(c)(28) |
| Lunchrooms | .141(g) |
| Asbestos | .1001(i)(3), .1001(f)(5), .1018(m)(3), .1018(m)(5) |
| Arsenic, Inorganic | .1018(m)(3), .1018(m)(5) |

| Subject term | Section No. |
|--|------------------------------|
| Cadmium | .1027(j)(4), .1027(p)(2)(vi) |
| Coke Oven Emissions | .1029(i)(3), (i)(5) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(l)(3) |
| Lead | .1025(i)(4) |
| Location | .141(g)(1), .141(g)(2) |
| Methylenedianiline | .1050(j)(3) |
| Waste Disposal Containers | .141(g)(3) |
| Machinery and Machine Guarding | .211-.222 |
| Abrasive Wheel Machinery | .215 |
| Anchoring Fixed Machinery | .212(b) |
| Bakeries | .263(c) |
| Barrels | .212(a)(4) |
| Blades Exposure | .212(a)(5) |
| Calenders | .216 |
| Containers | .212(a)(4) |
| Definitions | .211 |
| Drums | .212(a)(4) |
| Forging Machines | .218 |
| Machines, General Requirements for All | .212 |
| Anchoring Fixed Machinery | .212(b) |
| Machine Guarding | .212(a) |
| Mills | .216 |
| Point of Operation | .212(a)(3) |
| Power Presses | .217 |
| Power Transmission Equipment | .219 |
| Types | .212(a)(1) |
| Woodworking Machinery | .213 |
| Machines.. | |
| Abrasive Wheels | .215 |
| Definitions | .211 |
| Forging | .218 |
| Laundry | .264 |
| Logging Operations | .266(f) |
| Mills and Calenders | .216 |
| Power Transmission, Mechanical Presses, Mechanical | .219 |
| Textiles | .262 |
| Woodworking | .213 |
| Magazines, Explosives | .109(c)(2) |
| Class I | .109(c)(3) |
| Class II | .109(c)(4) |
| Maintenance (see also Term to Which It Applies) | |
| 13 Carcinogens (4-Nitrophenyl, etc.). | .1003(c)(5) |
| Acetylene Generators | .253(f)(7) |
| Arc Welding and Cutting | .254(d)(9) |
| Building Maintenance Powered Platforms. | .66 |
| Bulk Oxygen Systems | .104(b)(10) |
| Cranes | .179(l), .180(f) |
| Derricks | .181(f) |
| Dip Tanks | .125(e)(4) |
| Employee Alarm Systems | .165(d) |
| Exposure records | .1020(d)(1) |
| Fire Extinguishers | .157(e) |
| Fire Prevention Plans | .37 |
| Flanges | .215(c)(9) |
| Forging Machines | .218(a)(2) |
| Gaseous Hydrogen Systems | .103(b)(5) |
| Industrial Plants | .106(e)(9) |
| Jacks | .244(a)(2) |
| Ladders, Fixed | .27(f) |
| Liquefied Hydrogen Systems | .103(c)(5) |
| Logging Operations | .266(g)(1) |
| Mechanical Power Presses | .217(e) |
| Medical Records | .1020(d)(1) |
| Powder Coatings | .107(g), (l)(4) |
| Powered Industrial Trucks | .178(q) |
| Processing Plants | .106(h)(8) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|---|------------------------------------|---|---|
| Records, Medical and Exposure ... | .1020(d)(1) | Materials Handling and Storage.. | |
| Resistance Welding | .255(e) | Aisles and Passageways | .176(a) |
| Standpipe and Hose System | .158(e) | Clearance Limit Signs | .176(e) |
| Sprinkler Systems | .159(c)(2) | Cranes, Crawler Locomotives, and Trucks. | .180 |
| Woodworking Machinery Requirements. | .213(s) | Electric Power Generation, Transmission, and Distribution. | .269(k) |
| Manifolding Gas Cylinders | .253(c) | Guarding Openings | .176(g) |
| Fuel-Gas | .253(c)(1) | Handling Materials, General | .176 |
| Operating Procedures | .253(c)(5) | Hazardous Materials, Retention of DOT Markings. | .1201 |
| Oxygen | .253(c)(2), (3) | Hazardous Waste Operations | .120(j), (p)(6) |
| Portable Outlet Headers | .253(c)(4) | Housekeeping | .176(c) |
| Manholes. | | Mechanical Equipment, Use of | .176(a) |
| Electric Power Generation, Transmission, and Distribution. | .269(t)(2) | Secure Storage | .176(b) |
| Telecommunications | .268(o) | Powered Industrial Trucks | .178 |
| Guarding Floor and Wall Openings | .23(a)(6) | Pulp, Paper, and Paperboard Mills | .261(c), (d), (m) |
| Manlifts | .68 | Railroad Cars, Rolling | .176(f) |
| Belts | .68(c)(1)(ii) | Telecommunications | .268(k) |
| Brakes | .68(c)(1)(i) | Maximum Allowable Concentration | |
| Clearances | .68(b)(11) | Fluorine | .252(c)(5)(ii) |
| Design | .68(b)(3) | Welding Contamination | .252(c)(1)(iii) |
| Exit Protection | .68(b)(8) | Mechanical Handling Equipment. | |
| Floor Openings | .68(b)(5), (7) | Clearances | .176(a) |
| Guardrails | .68(b)(8)(i), (10)(iv) | Powered Industrial Trucks | .177(e), .178 |
| Guards | .68(b)(7), (9) | Mechanical Power Presses | .217 |
| Handholds | .68(c)(4) | Definitions | .211(d) |
| Inspections | .68(e) | Design, Construction, Setting and Feeding Dies. | |
| Instruction Signs | .68(c)(7) | Guide Post Hazards | .217(d)(4) |
| Ladders | .68(b)(12) | Unitized Tooling | .217(d)(5) |
| Landings | .68(b)(6) | Dies | .217(d) |
| Lighting | .68(b)(6), .68(b)(iii), .68(b)(14) | Guarding and Construction | .217(b) |
| Machinery | .68(c) | Air Counterbalance Cylinders | .217(b)(9)(iii)-(v) |
| Mechanical Requirements | .68(c) | Air Controlling Equipment | .217(b)(10) |
| Operating Rules | .68(d) | Brakes, Friction | .217(b)(2) |
| Platforms | .68(c)(3) | Electrical Controls | .217(b)(8) |
| Speed | .68(c)(2) | Foot Pedals | .217(b)(4) |
| Standards Sources | .68(b)(4) | Full Revolution Clutches | .217(b)(3) |
| Steps | .68(c)(3) | Hazards to Personnel from Broken or Falling Machine Components. | .217(b)(1) |
| Stops | .68(c)(5), (6) | Hydraulic Equipment | .217(b)(11) |
| Warning Signs | .68(c)(7) | Lever, Hand-Operated | .217(b)(5) |
| Weather Protection | .68(b)(15) | Part Revolution Clutches | .217(b)(7) |
| Marine Service Stations | .106(g)(4) | Pressure Vessels | .217(b)(12), .217(b)(9)(i), .217(b)(ii) |
| Marine Terminals | .16(b) | Treadles, Foot Pedals | .217(b)(4) |
| Marking Physical Hazards, Safety Color Codes | .144 | Trips, Two-Hand | .217(b)(6) |
| Sawmills | .265(c)(11) | Inspection, Maintenance, and Modification of Presses. | .217(e) |
| Markings (see also Signs and Tags, Specifications for Accident Prevention; Marking Physical Hazards, Safety Color Codes). | | Modifications | .217(e)(2) |
| Bulk Oxygen Systems | .104(b)(8)(viii) | Records | .217(e)(1) |
| Compressed Gas Cylinders | .253(b)(1) | Training Maintenance Personnel. | .217(e)(3) |
| Electric Equipment | | Operation of Power Presses | .217(f) |
| General | .303(e) | Clearances, Work Area | .217(f)(3) |
| Hazardous Locations | .307(b)(2)(ii) | Instructions to Operators | .217(f)(2) |
| Explosives | .109(d)(2)(ii) | Overloading | .217(f)(4) |
| Eye and Face Protection | .133(a)(4) | Point of Operation, Safeguarding .. | .217(c) |
| Gaseous Hydrogen Systems | .103(b)(1)(v) | Hand Feeding Tools | .217(c)(4) |
| Hazardous Materials, Retention of DOT Markings. | .1201 | Power Press Guarding and Construction (see Mechanical Power Press Guarding and Construction). | .217(b) |
| Liquefied Hydrogen Systems | .103(c)(1)(iii) | Requirements, General | .217(a) |
| Liquefied Petroleum Gases | .110(b)(5), (c) | Excluded Machines | .217(a)(5) |
| Load Ratings.. | | Mechanical Power-Transmission Guarding.. | |
| Cranes | .180(c)(2) | Definitions in 1910.219 | .211(f) |
| Derricks | .181(c) | Mechanical Power-Transmission Apparatus. | .219 |
| Powered Industrial Trucks | .178(a)(3) | Approved Materials | .219(o) |
| Physical Hazards | .144 | | |
| Sawmills | .265(c)(11) | | |
| Mason's Adjustable Multiple Point Suspension Scaffolds | .25(c)(4)(iii) | | |
| Masons' Ladders | .213(n) | | |
| Matching Machines | .1200 | | |
| Material Safety Data Sheets, Chemical Hazards Information. | | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|---|------------------|
| Guards for Horizontal Overhead Belts. | .219(o)(3) |
| Guards for Horizontal Overhead Rope and Chain Drives. | .219(o)(4) |
| Guardrails and Toeboards | .219(o)(5) |
| Minimum Requirements | .219(o)(1) |
| Wood Guards | .219(o)(2) |
| Bearings and Facilities for Oiling .. | .219(j) |
| Belt, Rope, and Chain Drives | .219(e) |
| Belt Tighteners | .219(e)(6) |
| Cone-Pulley Belts | .219(e)(5) |
| Horizontal Belt and Rope | .219(e)(1) |
| Overhead Horizontal Belts | .219(e)(2) |
| Vertical and Inclined Belts | .219(e)(3) |
| Vertical Belts | .219(e)(4) |
| Belt Shifters, Clutches, Shippers, Poles, Perches, and Fasteners. | .219(l) |
| Belt Shifters | .219(l)(1) |
| Belt Shippers and Shipper Poles. | .219(l)(2) |
| Care of Equipment | .219(p) |
| Bearings | .219(p)(3) |
| Belts, Care of | .219(p)(6) |
| General Care | .219(p)(1) |
| Hangers | .219(p)(4) |
| Lubrication | .219(p)(7) |
| Pulleys | .219(p)(5) |
| Shafting | .219(p)(2) |
| Chains | .219(f) |
| Clutches | .219(k), .219(l) |
| Collars and Couplings | .219(i) |
| Collars | .219(i)(1) |
| Couplings | .219(i)(2) |
| Couplings | .219(i) |
| Cutoff Couplings | .219(k) |
| Drives, Chain | .219(e) |
| Friction Drives, Guarding | .219(g) |
| Gears, Sprockets, and Chains | .219(f) |
| Gears | .219(f)(1) |
| Hand-Operated Gears | .219(f)(2) |
| Openings for Oil | .219(f)(4) |
| Sprockets and Chains | .219(f)(3) |
| Guarding Friction Drives | .219(g) |
| Guarding of Clutches, Cutoff Couplings, and Clutch Pulleys. | .219(k) |
| Guards | .219(k)(1) |
| Engine Rooms | .219(k)(2) |
| Keys, Setscrews, and Other Projections. | .219(h) |
| Prime-Mover Guards | .219(b) |
| Cranks and Connecting Rods | .219(b)(2) |
| Extension Piston Rods | .219(b)(3) |
| Flywheels | .219(b)(1) |
| Tail Rods or Extension Piston Rods. | .219(b)(3) |
| Projections, Keys, Setscrews, and Other. | .219(h) |
| Pulleys | .219(d) |
| Broken Pulleys | .219(d)(3) |
| Guarding Pulleys | .219(d)(1) |
| Location of Pulleys | .219(d)(2) |
| Speeds, Pulley | .219(d)(4) |
| Requirements, General | .219(a) |
| Textile Industry, Requirements for. | .219(a)(3) |
| Setscrews | .219(h) |
| Shafting | .219(c) |
| Basements, Power-Transmission Apparatus Located in. | .219(c)(5) |
| Guarding Horizontal Shafting | .219(c)(2) |
| Guarding Vertical and Inclined Shafting. | .219(c)(3) |

| Subject term | Section No. |
|--|------------------------------------|
| Inclined Shafting | .219(c)(3) |
| Installation | .219(c)(1) |
| Projecting Shaft Ends | .219(c)(4) |
| Power-Transmission Apparatus in Basements, Rooms or Towers, Locks. | .219(c)(5) |
| Vertical Shafting | .219(c)(3) |
| Sprockets | .219(f) |
| Standard Guards, General Requirements for. | .219(m) |
| Materials | .219(m)(1) |
| Methods of Manufacture | .219(m)(2) |
| Textile Industry, General Requirements for the. | .219(a)(3) |
| Medical Evaluations.. | |
| 13 Carcinogens | .1003(g) |
| Acrylonitrile | .1045(n) |
| Arsenic, Inorganic | .1018(n) |
| Asbestos | .1001(f) |
| Benzene | .1028(i) |
| Bloodborne Pathogens | .1030(f)(1), (3) |
| 1,3-Butadiene | .1051(k)(5)-(7) |
| Cadmium | .1027(l) |
| Chromium (VI) | .1026(k) |
| Coke Oven Emissions | .1029(j) |
| Cotton Dust | .1043(h) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(m) |
| Ethylene Oxide | .1047(i) |
| Formaldehyde | .1048(l) |
| Hazardous Waste Operations and Emergency Response. | .120(f) |
| Laboratories | .1450(g) |
| Lead | .1025(j), App. C |
| Methylene Chloride | .1052(j)(4), (i) |
| 4,4-Methylenedianiline | .1050(m) |
| Respiratory Protection | .134(e) |
| Vinyl Chloride | .1017(k) |
| Medical Removal.. | |
| Benzene | .1028(i)(8), (9) |
| Cadmium | .1027(l)(11)-(12), App. A |
| Formaldehyde | .1048(l)(8), (9) |
| Lead | .1025(k), (n)(3), App.B, App. C |
| Methylenedianiline | .1050(m)(9), (n)(5) |
| Methylene Chloride | .1052(j)(11)-(13) |
| Medical Services and First Aid | .151 |
| Eye Flushing | .151(c) |
| First Aid | .151(b) |
| First Aid Kits | .151 App. A |
| Hazardous Waste Operations and Emergency Response. | .120(f) |
| Medical Surveillance | .120(f) |
| Medical Personnel Advice and Consultation. | .151(a) |
| Labor Camps, Temporary | .142(k) |
| Logging Operations | .266(d)(2), (i)(7), App. A, App. B |
| Telecommunications | .268(c)(3) |
| Textiles | .262(pp) |
| Welding, Cutting, and Brazing | .252(c)(13) |
| Mercantile Occupancies | .106(d)(5)(iv) |
| Mercury | .252(c)(10) |
| Metal Cutting (see Cutting; Welding) | |
| Metal Ladders, Portable (see also Ladders, Portable Metal) | .26 |
| Methods of Compliance.. | |
| Acrylonitrile | .1045(g) |
| Arsenic, Inorganic | .1018(g) |
| Asbestos | .1001(f) |
| Benzene | .1028(f) |
| Bloodborne Pathogens | .1030(d) |
| 1,3-Butadiene | .1051(f) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|---------------------|--|---------------------------------|
| Cadmium | .1027(f) | Mixing. | |
| Chromium (VI) | .1026(f) | Blasting Agents | .109(g)(2), (3), (h)(3), (4) |
| Coke Oven Emissions | .1029(f) | Explosives | .109(h)(3), (4) |
| Cotton Dust | .1043(e) | Molding Machines | .213(n) |
| DBCP (1,2-Dibromo-3-Chloropropane) | .1044(g) | Monitoring | |
| Ethylene Oxide | .1047(f) | Benzene Oxide | .1028(e) |
| Formaldehyde | .1048(f) | 1,3-Butadiene | .1051(d) |
| Lead | .1025(e) | Cadmium | .1027(d) |
| Methylene Chloride | .1052(f) | Coke Oven Emissions | .1029(e) |
| 4,4-Methylenedianiline | .1050(g) | Cotton Dust | .1043(d) |
| Vinyl Chloride | .1017(f) | Electric Power Generation, Transmission, and Distribution | .269(e)(11) |
| Methyl Chloromethyl Ether (see also 13 Carcinogens) | .10 | Grain Handling Facilities | .272(q)(4)(ii), .272(l)(1) |
| Methylene Chloride | .1052 | Motor Fuels | .110 |
| Employee Information and Training. | .1052(l) | Motor Vehicles.. | |
| Exposure Monitoring | .1052(d) | Ammonia, Anhydrous | .111(f) |
| Hazard Communication | .1052(k) | Motorized Hand Trucks (see also Powered Industrial Trucks) | .178 |
| Hygiene Facilities | .1052(i) | Multi-Piece Rim Wheels, and Single Piece, Servicing | .177 |
| Medical Surveillance | .1052(j) | alpha-Naphthylamine (see also 13 Carcinogens). | .1004 |
| Methods of Compliance | .1052(f) | beta-Naphthylamine (see also 13 Carcinogens). | .1009 |
| Permissible Exposure Limit(PEL) .. | .1052(c) | Nationally Recognized Testing Laboratories, Definition and Requirements for. | .7 |
| Protective Work Clothing and Equipment. | .1052(h) | Alternative Test Standard | .7(d) |
| Recordkeeping | .1052(m) | Fees | .7(f) |
| Regulated Areas | .1052(e) | Implementation | .7(e) |
| Respiratory Protection | .1052(g) | Laboratory Requirements | .7(b) |
| 4,4-Methylenedianiline | .1050 | OSHA Recognition, Procedures for. | .7, App. A |
| Communication of Hazards | .1050(k) | Test Standards | .7(c) |
| Emergency Situations | .1050(d) | Needle Beam Scaffolds | .28(n) |
| Exposure Monitoring | .1050(e) | 4-Nitrobiphenyl (see also 13 Carcinogens). | .1003 |
| Housekeeping | .1050(l) | N-Nitrosodimethylamine (see also 13 Carcinogens). | .1016 |
| Hygiene Facilities and Practices .. | .1050(j) | Nitrous Oxide | .105 |
| Medical Surveillance | .1050(m) | Noise Exposure (see Occupational Noise Exposure) | .95 |
| Methods of Compliance | .1050(g) | Non-ionizing Radiation | .97 |
| Observation of Monitoring | .1050(o) | Electromagnetic Radiation | .97(a) |
| Permissible Exposure Limit (PEL) .. | .1050(c) | Definitions | .97(a)(1) |
| Protective Work Clothing and Equipment. | .1050(i) | Radiation Protection Guide | .97(a)(2) |
| Recordkeeping | .1050(n) | Scope | .97(a)(4) |
| Regulated Areas | .1050(f) | Warning Symbol | .97(a)(3) |
| Respiratory Protection | .1050(h) | Nonpotable Water | .120(n)(2) |
| Microwave Transmission | .268(p), .269(s)(1) | Noxious Gases, Storage Areas | .178(i) |
| Mill Roll Heights | .216(a)(4) | Nozzles | |
| Mills, Pulp, Paper and Paperboard (see Pulp, Paper and Paperboard Mills) | .261 | Abrasive Blasting | .94(a)(2)(iii), .244(b) |
| Mills and Calenders in the Rubber and Plastics Industries. | .216 | Gasoline | .106(g)(3)(vi) |
| Calender Safety Controls | .216(c) | Standpipe | .158(c)(4) |
| Definitions | .211(c) | Occupational Health and Environmental Control. | Subpart G |
| Location Protection | .216(d) | Occupational Noise Exposure | .95 |
| Requirements, General | .216(a) | Access to Information and Training Materials. | .95(l) |
| Auxiliary Equipment | .216(a)(3) | Administrative Controls | .(b)(1) |
| Mill Roll Heights | .216(a)(4) | Appendices | .95(n) |
| Mill Safety Controls | .216(b) | Mandatory Appendices A, B, C, D, and E. | .95(n)(1) |
| Auxiliary Equipment | .216(b)(3) | Informational Appendices F and G. | .95(n)(2) |
| Roll Heights, Mill | .216(a)(4) | Audiometric Testing Program | .95(g) |
| Safety Controls, Mill | .216(b) | Audiometric Test Requirements | .95(h) |
| Auxiliary Equipment | .216(b)(3) | Sound Exceeding the Limits in Table G-16. | .95(b)(1) |
| Roll Heights, Mill | .216(a)(4) | Employee Notification | .95(e) |
| Safety Controls, Mill | .216(b) | Engineering Controls | .95(b)(1) |
| Auxiliary Equipment | .216(b)(3) | Exemptions | .95(o) |
| Safety Trip Control | .216(b)(1) | | |
| Stopping Limits | .216(f) | | |
| Switches, Trip and Emergency | .216(e) | | |
| Trip and Emergency Switches | .216(e) | | |
| Mills, Rubber and Plastics Industry.. | | | |
| Definitions | .211(c) | | |
| Location Protection | .216(d)(1) | | |
| Roll Heights | .216(a)(4) | | |
| Safety Controls | .216(b) | | |
| Auxiliary Equipment | .216(b)(3) | | |
| Safety Trip Control | .216(b)(1) | | |
| Stopping Limits | .216(f)(1), (2) | | |
| Switches, Trip and Emergency | .216(e) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|---|-----------------------------------|
| Hearing Conservation Program | .95(c) |
| Hearing Protector Attenuation | .95(j) |
| Hearing Protectors | .95(i) |
| Monitoring | .95(d) |
| Observation of Monitoring | .95(f) |
| Personal Protective Equipment | .95(b)(1), (c), (i), (j) |
| Protection Against Effects of Noise Exposures Listed in Table G-16. | .95(a) |
| Recordkeeping | .95(m) |
| Exposure Measurements | .95(m)(1) |
| Audiometric Tests | .95(m)(2) |
| Record Retention | .95(m)(3) |
| Access to Records | .95(m)(4) |
| Transfer of Records | .95(m)(5) |
| Training Program | .95(k) |
| Odorizing Gases | .110(b)(1) |
| OMB Control Numbers (Information Collection Requirements). | .8 |
| Open-Sided Floors | .23(c) |
| Openings (see also Floor Openings [Holes], Wall Openings [Holes]) | .23 |
| Tanks: Inside | .106(b)(4)(iv) |
| Organic Peroxide Coatings (see also Dual Component Coatings). | .107(m) |
| Outdoor Storage. | |
| Flammable Liquids | .106(d)(6) |
| Outlet Headers, Welding | .253(c)(4) |
| Protective Equipment | .253(e)(4) |
| Outrigger Scaffolds | .28(e) |
| Outside Storage Trucks | .178(c)(2)(ix), .178(c)(2)(xi) |
| Ovens | .263(l) |
| Direct-Fire | .263(l)(10) |
| Direct Re-circulating | .263(l)(11) |
| Electrical Heating Equipment | .263(l)(8) |
| General Requirements | .263(l)(9) |
| Indirect Re-circulating | .263(l)(15) |
| Location | .263(l)(1) |
| Mechanical Parts | .263(l)(3) |
| Overflow Pipes, Dip Tanks | .125(b) |
| Overhead Cranes (see Overhead and Gantry Cranes). | .179 |
| Overhead and Gantry Cranes. | |
| Access to Crane | .179(c)(2) |
| Adjustments | .179(l)(3) |
| Brakes | .179(f) |
| Bridge Bumpers | .179(e)(2) |
| Cabs | .179(c) |
| Clearances from Obstruction | .179(b)(6) |
| Effective Dates | .179(b)(2) |
| Electric Equipment | .179(g) |
| Fire Extinguishers | .179(c)(3), .179(o)(3) |
| Footwalks and Ladders | .179(d) |
| General Requirements, Application | .179(b)(1) |
| Guards | .179(e)(5), .179(e)(6) |
| Handrails | .179(d)(3), .179(d)(4)(ii) |
| Hoisting Equipment | .179(h) |
| Hoisting Rope Guards | .179(e)(5) |
| Inspections | .179(j), .179(m) |
| Ladders and Stairways | .179(d)(4) |
| Lighting | .179(c)(4) |
| Load Handling | .179(n) |
| Maintenance | .179(l) |
| Modifications | .179(b)(3) |
| Moving Parts, Guards | .179(e)(6) |
| Rail Clamps | .179(b)(4) |
| Rail Sweeps | .179(e)(4) |
| Rated Loads | |
| Markings, Rated Load | .179(b)(5) |
| Test, Rated Load | .179(k)(2) |
| Repairs | .179(l)(3) |

| Subject term | Section No. |
|--|-------------------|
| Rope Inspection | .179(m) |
| Stairways | .179(d)(4) |
| Stops, Bumpers, Rail Sweeps, and Guards. | .179(e) |
| Testing | .179(k) |
| Toeboards | .179(d)(3) |
| Trolley Bumpers | .179(e)(3) |
| Trolley Stops | .179(e)(1) |
| Warning Devices | .179(i) |
| Wind Indicators | .179(b)(4) |
| Overhead Lines | |
| Crawler Locomotive, and Truck Cranes. | .180(j) |
| Derricks | .181(j)(5) |
| Electrical Safety-Related Work Practices. | .333(c)(3) |
| Electric Power Generation, Transmission, and Distribution. | .269(q)(2) |
| Telecommunications | .268(n)(9) |
| Overspray Collectors | .107(b)(6) |
| Oxygen | .104 |
| Bulk Oxygen Systems | .104(b) |
| Definitions | .104(b)(1) |
| Distance Between Systems and Exposures. | .104(b)(3) |
| Combustible Liquid Storage Above-Ground. | .104(b)(3)(vii) |
| Combustible Liquid Storage Below-Ground. | .104(b)(3)(viii) |
| Combustible Structures, Proximity to. | .104(b)(3)(ii) |
| Fire Resistive Structures | .104(3)(iii) |
| Flammable Gas Storage | .104(b)(3)(ix) |
| Flammable Liquid Storage Above-Ground. | .104(b)(3)(v) |
| Flammable Liquid Storage Below-Ground. | .104(b)(3)(vi) |
| General | .104(b)(3)(i) |
| Highly Combustible Materials | .104(b)(3)(x) |
| Openings | .104(b)(3)(iv) |
| Slow-Burning Materials | .104(b)(3)(xi) |
| Ventilation | .104(b)(3)(xii) |
| Equipment Assembly and Installation. | .104(b)(8) |
| Cleaning | .104(b)(8)(i) |
| Electrical Wiring | .104(b)(8)(ix) |
| Installation | .104(b)(8)(iv) |
| Joints | .104(b)(8)(ii) |
| Placarding | .104(b)(8)(viii) |
| Security | .104(b)(8)(vi) |
| Testing | .104(b)(8)(v) |
| Venting | .104(b)(8)(vii) |
| Liquid Oxygen Vaporizers | .104(b)(7) |
| Grounding | .104(b)(7)(iv) |
| Heating | .104(b)(7)(iii) |
| Mounts and Couplings | .104(b)(7)(i) |
| Relief Devices | .104(b)(7)(ii) |
| Location | .104(b)(2) |
| Accessibility | .104(b)(2)(ii) |
| Congested Areas | .104(b)(3)(xiii) |
| Dikes | .104(b)(2)(v) |
| Elevation | .104(b)(2)(iv) |
| Exceptions | .104(b)(3)(xviii) |
| General | .104(b)(2)(i) |
| Leakage | .104(b)(2)(iii) |
| Maintenance | .104(b)(10) |
| Operating Instructions | .104(b)(9) |
| Piping, Tubing, and Fittings | .104(b)(5) |
| Safety Relief Devices | .104(b)(6) |
| DOT Containers | .104(b)(6)(ii) |
| ASME Containers | .104(b)(6)(iii) |
| Insulation | .104(b)(6)(iv) |
| Reliability | .104(b)(6)(v) |
| Storage Containers | .104(b)(4) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|---|---|--|
| Construction—Gaseous | .104(b)(4)(iii) | Coke Oven Emissions | .1029(h) |
| Construction—Liquid | .104(b)(4)(ii) | Compliance Guidelines for Hazard Assessment and PPE Selection, Non-mandatory. | Subpart I App. B |
| Foundations and Supports | .104(b)(4)(i) | Cotton Dust | .1043(f) |
| Oxygen-Fuel Gas Welding and Cutting | .253 | DBCP (1,2-Dibromo-3-Chloropropane). | .1044(j) |
| Cylinders | .253(b) | Electrical Protective Equipment | .137 |
| Cylinders, Storage of | .253(b)(2) | Electrical Safety-Related Work Practices, Use of PPE. | .333(c)(2), .335(a) |
| Fuel-Gas Cylinder Storage | .253(b)(3) | Electric Power Generation, Transmission, and Distribution. | .269(g) |
| Manifolding | .253(c) | Eye | .133 |
| Operating Procedures | .253(b)(5) | Shade Number Guide (Welding, Cutting, Brazing). | .252(b)(2) |
| Oxygen Storage | .253(b)(4) | Face | .133 |
| Outlet Headers | .253(c)(4) | Ethylene Oxide | .1047(g) |
| Piping Systems | .253(d) | Face Protection | .133 |
| Pressure Relief Devices | .252(e)(2) | Fire Brigades | .156(e) |
| Protective Equipment, Hose, and Regulators. | .253(e) | Foot Protection | .136 |
| Shutoff Valve | .253(c)(4)(ii), .253(c)(4)(iv), .253(d)(3)(iii), .253(d)(vi), .253(e)(4)(iii) | Formaldehyde | .1048(d) |
| Oxygen Manifolds | | General Requirements | .132 |
| High Pressure | .253(c)(2) | Hazardous Waste Operations | .120(g) |
| Low Pressure | .253(c)(3) | Hand Protection | .138 |
| Painters' Stepladders | .25(c)(4) | Head Protection | .135 |
| Paints. | | Lead | .1025(g) |
| Color Code | .144 | Logging Operations | .266(d)(1) |
| Paper and Paperboard Mills (see also Pulp, Paper, and Paperboard Mills). | .261 | Methylene Chloride | .1052(h) |
| Passageways, Working Surfaces | .22(b) | 4,4-Methylenedianiline | .1050(i) |
| Permissible Exposure Limits | .1000 | Noise Exposure | .95(b)(1) |
| Acrylonitrile | .1045(c) | Pulp, Paper, and Paperboard Mills | .261(g)(2), .261(i)(4), .261(k)(3) |
| Asbestos | .1001(c) | References for Further Information | Subpart I App. A |
| Arsenic, Inorganic | .1018(c) | Respiratory Protection | .134 |
| Benzene | .1028(c) | Fit Testing Procedures for Respiratory Protection. | .134 App. A |
| 1,3-Butadiene | .1051(c) | Information for Employees Using Respirators When Not Required Under the Standard. | .134 App. D |
| Cadmium | .1027(c) | OSHA Respirator Medical Evaluation Questionnaire. | .134 App. C |
| Chromium (VI) | .1026(c) | Respirator Cleaning Procedures. | .134 App. B-2 |
| Coke Oven Emissions | .1029(c) | User Seal Check Procedures | .134 App. B-1 |
| Confined Spaces, Permit-Required | .146(b) | Sawmills | .265(c)(17)(ii) |
| Cotton Dust | .1043(c) | Telecommunications | .268(e), (f) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(c) | Textiles | .262(qq)(1) |
| Electric Power Generation, Transmission, and Distribution. | .269(x) | Welding | .252-.255 |
| Ethylene Oxide | .1047(c) | Booths | .252(b)(2)(iii) |
| Formaldehyde | .1048(c) | Cable | .252(b)(1)(ii) |
| Hazardous Waste Operations and Emergency Response. | .120(a)(3), .120(c)(5), .120(c)(7), .120(e)(3), .120(f)(2)-(3), .120(g), .120(h), .120(n)(6)-(7), .120(p)(1) | Clothing | .252(b)(3) |
| Laboratories | .1450(c) | Eye Protection | .252(b)(2) |
| Lead | .1025(c) | Helmets | .252(b)(2) |
| Methylene Chloride | .1052(c) | Railing | .252(b)(1)(i) |
| 4,4-Methylenedianiline | .1050(c) | Shade Numbers, Lenses | .252(b) |
| Process Safety Management of Highly Hazardous Chemicals. | .119(d)(1) | Pest Control (see Rodent and Pest Control) | .144 |
| Respiratory Protection | .134(b) | Physical Hazards Markings (see also Color Codes, Safety, for Marking Physical Hazards). | .144 |
| Ventilation | .94(b)(2) | Physician's Written Opinion (see also Medical Evaluations). | |
| Vinyl Chloride | .1017(c) | Acrylonitrile | .1045(n)(6) |
| Personal Protective Equipment | Subpart I | Arsenic, Inorganic | .1018(n)(6) |
| Abrasive Blasting | .94(a)(5) | Asbestos | .1001(i)(7) |
| Acrylonitrile | .1045(j) | Benzene | .1028(i)(7) |
| Arsenic, Inorganic | .1018(j) | Cadmium | .1027(l)(10), (15)(i) |
| Asbestos | .1001(h) | Coke Oven Emissions | .1029(j)(5) |
| Benzene | .1028(h) | Cotton Dust | .1043(h)(5) |
| Bloodborne Pathogens | .1030(c)(2), (c)(3), (d)(2) | DBCP (1,2-Dibromo-3-Chloropropane). | .1044(m)(5) |
| 1,3-Butadiene | .1051(i) | | |
| Cadmium | .1027(i) | | |
| Chromium (VI) | .1026(h) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. | Subject term | Section No. |
|--|----------------------------|--|---------------------------|
| Ethylene Oxide | .1047(i)(4) | Portable Stepladders (see Stepladders, Portable). | |
| Fire Brigades | .156(b)(2) | Portable Tank Storage (see Tanks, Storage, Portable). | |
| Formaldehyde | .1048(l)(7) | Portable Tanks (see Tanks, Storage, Portable). | |
| Hazardous Waste Operations and Emergency Response. | .120(f)(7) | Portable Tools (see also Powered Tools, Hand and Portable). | .244 |
| Laboratories | .1450(g)(4) | Portable Tools and Equipment, Other .. | .244 |
| Lead | .1025(n)(2) | Abrasive Blast Cleaning Nozzles .. | .244(b) |
| Methylenedianiline | .1050(m)(8) | Jacks, Loading and Marking | .244(a)(1) |
| Respiratory Protection, Medical Determination. | .134(6) | Operation and Maintenance | .244(a)(2) |
| Piers and Wharves (see also Wharves). | | Portable Welding Machines (see Welding Machines, Portable). | |
| Trucks Used | FGV.178(c)(2)(x) | Portable Wood Ladders (see also Ladders, Portable Wood). | .25 |
| Pipes. | | Powder Coatings | .107(l) |
| Dip Tanks | .125(b) | Power Presses, Mechanical (see Mechanical Power Presses). | .217 |
| Flammable Liquids | .107(e)(6) | Definitions | .211(d) |
| Overflow | .125(b) | Powered Industrial Trucks (see also Forklifts). | |
| Piping (see Piping, Fittings, and Tubing; Piping, Valves, and Tubing). | | Approval Labels | .178(a)(3), .178(a)(7) |
| Piping, Fittings, and Tubing. | | Batteries, Changing and Charging .. | .178(g) |
| Ammonia, Anhydrous | .111(b)(7) | Combustible Dusts | .178(c)(2)(vi) |
| Bulk Oxygen Systems | .104(b)(5) | Converted Industrial Trucks | .178(d), .178(q)(12) |
| Gaseous Hydrogen Systems | .103(b)(1)(ii), (iii) | Design and Construction | .178(a)(2) |
| Liquefied Hydrogen Systems | .103(c)(1)(iv), (v) | Designated Locations | .178(c) |
| Liquefied Petroleum Gases | .110(b)(8) | Designations, Trucks | .178(b) |
| Safety Relief Devices | .103(b)(1)(ii), (c)(1)(iv) | Dockboards (Bridge Plates) | .178(j) |
| Piping Systems, Oxygen-Fuel | .253(d) | Fire Protection | .178(a)(1) |
| Fittings | .253(d)(1) | Front End Attachments, on Trucks .. | .178(a)(5) |
| Installation | .253(d)(3) | Fuel Handling and Storage | .178(f) |
| Painting | .253(d)(4) | Gases and Fumes, Control of .. | .178(i) |
| Piping | .253(d)(1) | Grain Handling, Combustible Dust .. | .178(c)(2)(vi) |
| Piping Joints | .253(d)(2) | Hazardous Materials | .178(c)(2) |
| Pressure Relief Devices | .253(e)(2) | Lighting for Operating Areas | .178(h) |
| Protective Equipment | .253(e)(3), (4) | Loading | .178(o) |
| Signs | .253(d)(4) | Maintenance, of Industrial Trucks .. | .178(q) |
| Station Outlets | .253(e)(4) | Markings, Nameplates and | .178(a)(6) |
| Testing | .253(d)(5) | Modifications | .178(a)(4) |
| Piping, Valves, and Fittings. | | Operation, of the Truck | .178(p) |
| Flammable and Combustible Liquids. | .106(c) | Repairs, Maintenance of | .178(q) |
| Corrosion Protection | .106(c)(5) | Safety Guards | .178(e) |
| Design | .106(c)(1) | Stability of Powered Industrial Trucks. | .178 App. A |
| Joints | .106(c)(3) | Training, Operator | .178(l) |
| Materials | .106(c)(2) | Avoidance of Duplicative Training. | .178(l)(5) |
| Supports | .106(c)(4) | Certification | .178(l)(6) |
| Testing | .106(c)(7) | Dates | .178(l)(7) |
| Valves | .106(c)(6) | Refresher Training and Evaluation. | .178(l)(4) |
| Liquefied Petroleum Gases | .110(h)(7) | Training Program Implementation. | .178(l)(2) |
| Processing Plants | .106(h)(4)(ii) | Training Program Content | .178(l)(3) |
| Pits | .23(a)(5) | Traveling | .178(n) |
| Drains | .110(d)(11) | Truck Operations | .178(m) |
| Planing Machines | .213(n) | Trucks and Railroad Cars | .178(k) |
| Plasterers' Scaffolds | .28(o) | Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms Subpart F. | |
| Plastics Industry (see also Mills, Rubber and Plastics Industry) | | Powered Platforms for Building Maintenance. | .66 |
| Auxiliary Equipment | .216(a)(3) | Application | .66(b) |
| Platform Lift Trucks (see also Powered Industrial Trucks). | .178 | Existing Installations | .66(b)(2) |
| Platforms, Scaffolds (see also Listings Under Specific Type Scaffold). | | New Installations | .66(b)(1) |
| Guarding | .23(c) | Assurance | .66(c) |
| Manlifts | .68(c)(3) | Definitions | .66(d) |
| Pneumatic Powered Tools | .243(b) | Fall Protection | .66(f)(5) |
| Airhoses | .243(b)(2) | Inspection and Tests | .66(g) |
| Portable | .243(b)(1) | Hoist Inspection | .66(g)(6) |
| 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 | | |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|----------------|--|-------------------------------|
| Installations and Alterations ... | .66(g)(1) | Stabilizer Tie Length | .66 App. A 6 |
| Maintenance, Inspection and Replacement, Suspension Wire Rope. | .66(g)(5) | Suspension and Securing of Powered Platforms (Equivalency). | .66 App. A 11 |
| Maintenance Inspections and Tests. | .66(g)(3) | Tie-in Guides | .66 App. A 4 |
| Periodic Inspections and Tests. | .66(g)(2) | Training | .66 App. A 10 |
| Special Inspection of Governors and Secondary Brakes. | .66(g)(4) | Use of the Appendix | .66 App. A 1 |
| Maintenance | .66(h) | Wire Rope Inspection | .66 App. A 8 |
| Building Face Guiding Members. | .66(h)(6) | Appendix B Exhibits (Advisory) | .66 App. B |
| Cleaning | .66(h)(2) | Appendix C Personal Fall Arrest System. | .66 App. C |
| General Maintenance | .66(h)(1) | Mandatory (Section I) | .66 App. C |
| Inoperative Safety Devices | .66(h)(7) | Non-Mandatory (Section II) | .66 App. C |
| Periodic Re-shackling of Suspension Wire Ropes and Rope Connections. | .66(h)(4) | Appendix D Existing Installations. | |
| Periodic Re-socketing of Wire Rope Fastenings. | .66(h)(3) | Mandatory | .66 App. D |
| Roof Systems | .66(h)(5) | Powered Tools, Hand and Portable. | |
| Powered Platform Installations | | Abrasive Wheels | .243(c) |
| Affected Parts of Buildings | .66(e) | Compressed Air Cleaning | .242(b) |
| Building Maintenance | .66(e)(10) | Definitions | .241 |
| Cable Stabilization | .66(e)(8) | Employees | .242(a) |
| Electrical Requirements | .66(e)(11) | Explosive Actuated Fastening | .243(d) |
| Elevated Track | .66(e)(6) | Guarding | .243 |
| Emergency Planning | .66(e)(9) | Lawn Mowers, Power | .243(e) |
| Equipment Stops | .66(e)(4) | Pneumatic Powered | .243(b) |
| General Requirements | .66(e)(1) | Woodworking | .243(a) |
| Maintenance Access | .66(e)(5) | Presses (see also Mechanical Power Presses). | |
| Roof Guarding | .66(e)(3) | Cold Trimming | .218(g)(2) |
| Tie-Down Anchors | .66(e)(7) | Forging | .218(f) |
| Tie-In Guides | .66(e)(2) | Hydraulic Forging | .218(f)(2) |
| Powered Platform Installations-Equipment. | .66(f) | Trimming | .218(g) |
| Construction Requirements | .66(f)(2) | Pressure Gages, Air Receivers | .169(b)(3) |
| General Requirements | .66(f)(1) | Pressure Vessels | .106(b)(1)(v), .217(b)(12) |
| Hoisting Machines | .66(f)(4) | Chemical Plants | .106(i)(3) |
| Suspended Equipment | .66(f)(5) | Distilleries | .106(i)(3) |
| Button-Guide Stabilized Platforms. | .66(f)(5)(vi) | Pulp, Paper, and Paperboard Mills | .261(g)(16), (17) |
| General Requirements | .66(f)(5)(i) | Refineries | .106(i)(3) |
| Ground-Rigged Working Platforms. | .66(f)(5)(iv) | Pressures (see Safety Relief Devices) | |
| Intermittently Stabilized Platforms. | .66(f)(5)(v) | Prime Mover Guards | .219(b) |
| Single Point Suspended Working Platforms. | .66(f)(5)(iii) | Primers, Ammunition | .109(j)(4) |
| Supported Equipment | .66(f)(6) | Process Safety Management of Highly Hazardous Chemicals (see also Chemicals). | .119 |
| Suspension Methods | .66(f)(3) | Application | .119(a) |
| Carriages | .66(f)(3)(i) | Changes to Management of Process Chemicals, Technology, Equipment, and Procedures. | .119(l) |
| Lockout | .66(f)(3)(i) | Chemicals, List of Highly Hazardous Chemicals, Toxic and Reactive, Thresholds. | .119, App. A |
| Transportable Outriggers | .66(f)(3)(ii) | Compliance Audits | .119(o) |
| Two- and Four-Point Suspended Working Platforms. | .66(f)(5)(ii) | Contactors | .119(h) |
| Suspension Wire Ropes and Rope Connections. | .66(f)(7) | Contract Employer Responsibilities. | .119(h)(3) |
| Reshacking Hoists | .66(h)(4) | Employer Responsibilities | .119(h)(2) |
| Operations | .66(i) | Emergency Planning and Response. | .119(n) |
| Training | .66(i)(1) | Employee Participation | .119(c) |
| Use | .66(i)(2) | Hot Work Permit | .119(k) |
| Personal Fall Protection | .66(j) | Incident Investigation | .119(m) |
| Scope | .66(a) | Inspection and Testing | .119(j)(4) |
| Appendix A Advisory Guidelines ... | .66 App. A | Mechanical Integrity | .119(j) |
| Assurance | .66 App. A 2 | Operating Procedures | .119(f) |
| Building Anchors (Intermittent Stabilization Systems). | .66 App. A 5 | Pre-startup Safety Review | .119(i)(1) |
| Design Requirements | .66 App. A 3 | Process Hazard Analysis | .119(e) |
| General Maintenance | .66 App. A 9 | Process Safety Information | .119(d) |
| Intermittent Stabilization Systems. | .66 App. A 7 | Trade Secrets | .119(p) |
| | | Training | .119(g) |
| | | Training, Documentation of ... | .119(g)(3) |
| | | Training for Process Maintenance Activities. | .119(j)(3) |
| | | Processing Plants, Flammable and Combustible Liquids. | .106(h) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|--|
| Application | .106(h)(1) |
| Buildings | .106(h)(3) |
| Fire Protection | .106(h)(6) |
| Housekeeping | .106(h)(8) |
| Ignition Sources | .106(h)(7) |
| Liquid Handling | .106(h)(4) |
| Loading | .106(h)(5) |
| Location | .106(h)(2) |
| Maintenance | .106(h)(8) |
| Professional Engineer (PE). | |
| Manually Propelled Mobile Ladder Stands and Scaffolds (Towers). | .29(b)(5), (d)(3) |
| Powered Platforms for Building Maintenance. | .66(c)(2) |
| Safety Requirements for Scaffolding. | .28(b)(16), .28(c)(4), .28(d)(11), .28(e)(3) |
| Profile Lathes | .213(o) |
| Projections | .219(h) |
| beta-Propiolactone (see also 13 Carcinogens). | .1013 |
| Protective Clothing (see Clothing, Protective; Personal Protective Equipment). | |
| Protective Equipment, Piping (see also Personal Protective Equipment). | .253(e) |
| Hoses and Connections | .253(5) |
| Pressure-Reducing Regulations | .253(6) |
| Stations Outlet | .253(4) |
| Pulleys | .219(d), (k), (p)(5) |
| Pulp, Paper, and Paperboard Mills | .261 |
| Barking Devices | .261(c)(12) |
| Belt Conveyors | .261(c)(15) |
| Bleaching | .261(h) |
| Chemical Processes | .261(g) |
| Cranes | .261(c)(8) |
| Finishing Room | .261(1) |
| Hand Tools | .261(c)(13) |
| Handling of Pulpwood and Pulp Chips. | .261(c), (d) |
| Hydraulic Barkers | .261(e)(14) |
| Machine Room | .261(k) |
| Materials Handling | .261(m) |
| Mechanical Pulp Processes | .261(i) |
| Personal Protective Equipment | .261(d)(1) |
| Lifelines | .261(g)(4)(i), (15)(iii), (j)(5)(ii) |
| Respirators | .261(g)(2)(i) |
| Pulpwood | |
| Preparation | .261(e) |
| Removal | .261(c)(14) |
| Rag and Old Paper | .261(f) |
| Safe Practices | .261(b) |
| Emergency Lighting | .261(b)(2), (c)(10), (k)(21) |
| Emergency Showers | .261(g)(18)(i) |
| Lockouts | .261(b)(1) |
| Pressure Vessels | .261(g)(17) |
| Signs | |
| Conveyors | .261(c)(16) |
| Traffic | .261(c)(9) |
| Standards Sources | .261(a)(3), (4) |
| Stock Preparation | .261(j) |
| Storage | .261(c), (d) |
| Chocking Rolls | .261(d)(4) |
| Clearances | .261(d)(2) |
| Piling | .261(d)(3) |
| Traffic Warning Signs | .261(c)(9) |
| Pumps, Gasoline (see also Service Stations). | |
| Pyrotechnics | .109(k), .119 |
| Qualified Employees, Qualified Person. | |
| Acrylonitrile | .1045 App. B |
| Air Contaminants | .1000(e) |

| Subject term | Section No. |
|---|--|
| Arc Welding and Cutting | .254(d)(9)(i) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044 App. B |
| Electrical | |
| General | .303(g)(2)(i), (h)(2), (h)(5)(ii) |
| Scope | .331(a), (b), (c) |
| Selection and use of work practices. | .333(b)(2), .333(c)(2), .333(c)(3)(ii), .333(c)(10) |
| Special Systems | .308(a)(1), (a)(6), (g)(1)(ii) |
| Specific Purpose Equipment and Installations. | .306(a)(2)(ii), .306(c)(5) |
| Training | .332(b)(3) |
| Use of Equipment | .334(c)(1) |
| Wiring Design and Protection | .304(e)(2), (f)(1) |
| Wiring Methods, Components, and Equipment for General Use). | .305(a)(2), .305(a)(3), .305(d)(1), .305(d)(2) |
| Electric Power Generation, Transmission, and Distribution. | .269(a)(1), .269(a)(2), .269(g)(2), .269(k)(2), .269(l)(1), .269(p)(4) |
| Ethylene Oxide | .1047 App. B |
| Explosives and Blasting Agents | .109(f)(3)(iv)(c) |
| Hazardous Waste Operations and Emergency Response. | .120(c)(2) |
| Hydrogen | .103(f)(4)(ii) |
| Methylene Chloride | .1052 App. A |
| Powered Platforms for Building Maintenance. | .66 App. B, App. C |
| Sawmills | .265(c)(24) |
| Radial Saws | .213(h) |
| Radiation. | |
| Non-ionizing | .97 |
| 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)(1) |
| Rated Load Test | |
| Crawler, Locomotive, and Truck Cranes. | .180(e)(2) |
| Overhead and Gantry Cranes | .179(k)(2) |
| Recordkeeping. | |
| Asbestos | .1001(m) |
| Acrylonitrile | .1045(q) |
| Arsenic, Inorganic | .1018(q) |
| Benzene | .1028(k) |
| Bloodborne Pathogens | .1030(h) |
| 1,3-Butadiene | .1051(m) |
| Cadmium | .1027(n) |
| Chromium (VI) | .1026(m) |
| Coke Oven Emissions | .1029(m) |
| Commercial Diving | .440 |
| Cotton Dust | .1043(k) |
| Cranes | |
| Crawler, Locomotive and Truck, Inspection Records | .180(d)(6) |
| Rope Inspection Records | .180(g) |
| Production-Crane "Rated Load Test". | .180(e)(2) |
| Overhead and Gantry | .179(k)(2), (m)(1), (2) |
| Derricks | .181(g) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(p) |

| Subject term | Section No. | Subject term | Section No. |
|---|--------------------|---|---|
| Ethylene Oxide | .1047(k) | Safety Pins | .255(b)(8) |
| Exposure Records | .1020(d)(1) | Stop Buttons | .255(b)(7) |
| Formaldehyde | .1048(a) | Thermal Protection | .255(a)(2) |
| Hazardous Waste Operations and Emergency Response. | .120(f)(8) | Resistors. | |
| Injury and Illness Records (see 1904) | | Cranes | .179(g)(4) |
| Labor Camps | .142(l)(1), (2) | Respirators (see also Gas Mask Can- isters). | .134 |
| Lead | .1025(e) | Abrasive Blasting | .94(a)(1)(ii), (a)(5) |
| Manlifts | .68(e)(3) | Air Supply | .94(a)(6), .134(d) |
| Mechanical Power Presses | .217(e)(1) | Employer Provided | .134(a)(2) |
| Medical Records | .1020(d)(1) | Fire Brigades | .156(f) |
| Methylene Chloride | .1052(m) | Inspection | .134(f) |
| 4,4-Methylenedianiline | .1050(n) | Positive-Pressure | .156(f)(2) |
| Noise | .95(m) | Pulp, Paper, and Paperboard Mills | .261(g)(2), .261(g)(6), .261(g)(10), .261(g)(15)(ii) |
| Power Presses Inspection | .217(e)(1) | Textiles | .262(qq)(2) |
| Powered Platforms Inspection | .66(g) | Welding | .252(c)(4), (5), (7), (8), (9), (10) |
| Welding Equipment, Resistance Welding. | .255(e) | Respiratory Protection (see also Res- pirators). | .134 |
| Refineries, Chemical Plants, and Dis- tilleries. | .106(i) | 13 Carcinogens | .1003(d)(1) |
| Application | .106(j) | Acrylonitrile | .1450(i) |
| Fire Protection | .106(i)(5) | Ammonia, Anhydrous | .111(b)(10) |
| Pressure Vessels | .106(i)(3) | Arsenic, Inorganic | .1018(h) |
| Process Unit Location | .106(i)(4) | Asbestos | .1001(g) |
| Storage Tanks | .106(i)(1) | Air Quality | .94(a)(6), .134(d) |
| Wharves | .106(i)(2) | Air Supply | .94(a)(6), .134(d) |
| Refrigerated Containers. | | Benzene | .1028(g) |
| Ammonia, Anhydrous | .111(d) | 1,3-Butadiene | .1051(h) |
| Refueling. | | Cadmium | .1027(g) |
| Cranes | .180(i)(4) | Coke Oven Emissions | .1029(g) |
| Derricks | .181(j)(4) | Cotton Dust | .1043(f) |
| Trucks | .178(p)(2) | DBCP (1,2-Dibromo-3- Chloropropane). | .1044(h) |
| Refuse. | | Ethylene Oxide | .1047(g) |
| Disposal | .142(h) | Fire Brigades | .156(f) |
| Receptacles | .141(a)(4) | Fit Testing | .134(f), .1025(f)(3), .1048(g)(3) |
| Regulated Areas | | Formaldehyde | .1048(g) |
| 13 Carcinogens | .1003(d) | Chromium (VI) | .1026(g) |
| Arsenic, Inorganic | .1018(f) | Lead | .1025(f) |
| Asbestos | .1001(e) | Methylene Chloride | .1052(g) |
| Benzene | .1028(d) | 4,4-Methylenedianiline | .1050(h) |
| 1,3-Butadiene | .1051(e) | Permissible Practices | .134(a)(1) |
| Cadmium | .1027(e) | Respirators | .134(a)(2), (b), (c) |
| Chromium (VI) | .1026(e) | Use | .134(e)(5) |
| Coke Oven Emissions | .1029(d) | Vinyl Chloride | .1017(g) |
| Cotton Dust | .1043(e) | Rim Wheels, Multi-Piece and Single Piece, Servicing. | .177 |
| DBCP (1,2-Dibromo-3- Chloropropane). | .1044(e) | Definitions | .177(b) |
| Ethylene Oxide | .1047(e) | Employee Training | .177(c) |
| Formaldehyde | .1048(e) | Safe Operating Procedure | .177(f) |
| Lead | .1025(e) | Single Piece Wheel Rims, Safe Operating Procedures. | .177(g) |
| Methylene Chloride | .1052(e) | Scope | .177(a) |
| 4,4-Methylenedianiline | .1050(f) | Tire Chart, Ordering from OSHA .. | .177 App. B |
| Vinyl Chloride | .1017(e) | Tire Servicing Equipment | .177(d) |
| Relief Devices (see Safety Relief De- vices). | | Wheel Component Accessibility | .177(e) |
| Remote Gas Pumping Systems | .106(g)(3)(v) | Ring Test | .215(d)(1) |
| Reporting Requirements: All items that must be reported to OSHA. | | Ripsaws | .213(c) |
| Residue Disposal (see Waste Dis- posal). | | Rodent and Pest Control. | |
| Resistance Welding | .255 | Labor Camps, Temporary | .142(j) |
| Disconnecting Means | .306(d)(2) | Sanitation | .141(a)(5) |
| Flash Welding Equipment | .255(d) | Rolling Scaffolds (see Work Platforms, Mobile). | |
| Guarding | .255(a)(4), (b)(4) | Roll-Over Protection . | |
| Installation | .255(a)(1) | Electric Power Generation, Trans- mission, and Distribution. | .269(p)(1)(iv) |
| Maintenance | .255(e) | Logging Operations | .266(f)(3)(i) |
| Portable Welding Machines | .255(c) | Telecommunications | .268(j)(2)(i) |
| Spot and Seam Welding | .255(b) | Roofing Brackets | .28(s) |
| Capacitor Discharge Welding | .255(b)(2) | Catch Platforms | .28(s)(3) |
| Foot Switches | .255(b)(6) | | |
| Grounding | .255(b)(9) | | |
| Interlocks | .255(b)(3) | | |
| Shields | .255(b)(5) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|---|
| 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 |
| Rubber Industry (see also Mills, Rubber and Plastics Industry). | |
| Auxiliary Equipment | .216(a)(3), (b)(3) |
| Mills and Calenders | .216 |
| Rung Ladders, Portable | .25(c)(3) |
| Running Ropes | |
| Cranes | .179(m)(1), .180(g)(1) |
| Derricks | .181(g)(1) |
| Runway Conductors | |
| Cranes | .179(g)(6) |
| Runway Protection | .23(c) |
| Safety Belts (see also Lifelines; Safety Straps) | |
| Powered Platforms | .66(f)(5)(ii), .66(f)(ii)(L), .66(f)(ii)(M), .66(f)(iii)(B), .66(j), .66App. C |
| Pulp, Paper, and Paperboard Mills | .261(g)(4), (15) |
| Scaffolding | .28(j)(4), (n)(8), (s)(3), (t)(2), (u)(6) |
| Telecommunications | .268(g)(1) |
| Welding | .252(b)(4)(iv) |
| Safety Devices | |
| Ladders | .27(d)(5) |
| Safety Guard Design, Abrasive Wheel Machinery. | .215(a)(2), .215(b)(10)-(12) |
| Safety Instruction Signs | .145(c)(3), (d)(6) |
| Safety Relief Devices. | |
| Ammonia, Anhydrous | .111(a)(2), .111(b)(6), .111(b)(8), .111(b)(9), (d)(4), .111(f)(3), .111(f)(5) |
| Bulk Oxygen Systems | .104(b)(6), (7)(ii) |
| Compressed Gases | .101(c) |
| Flammable Liquids | .107(e)(8) |
| Gaseous Hydrogen Systems | .103(b)(1)(ii) |
| Liquefied Hydrogen Systems | .103(c)(1)(iv) |
| Liquefied Petroleum Gases | .110(b)(10), .110(c)(7), .110(d)(4), .110(e)(7), .110(h)(4) |
| Non-DOT Containers | .110(d)(4) |
| Spraying | .107(e)(8) |
| Welding/Cutting, Oxygen-Fuel Gas | .253(c)(3), (d)(3) |
| Safety Straps | .268(g)(2) |
| Safety-Toe Footwear (see Foot Protection) | |
| Sanding Machines | .213(p), .243(a)(3) |
| Sanitation | .141 |

| Subject term | Section No. |
|---|---|
| Application | .141(a)(1) |
| Change Rooms | .141(e) |
| Clothes Drying Facilities | .141(f) |
| Consumption of Food and Beverages on Premises. | .141(g) |
| Food Handling | .141(h) |
| Hazardous Waste Operations, Temporary Workplaces. | .120(n) |
| Housekeeping | .141(a)(3) |
| Insect Control | .141(a)(5) |
| Lunchrooms | .141(g) |
| Rodent Control | .141(a)(5) |
| Toilet Facilities | .141(c) |
| Vermin Control | .141(a)(5) |
| Washing Facilities | .141(d) |
| Waste Disposal | .141(a)(4) |
| Water Supply | .141(b) |
| Sawmills | .265 |
| Bins, Bunkers, Hoppers, and Fuel Houses. | .265(c)(23) |
| Lighting | .265(c)(23)(iii) |
| Loading Bins | .265(c)(23)(ii) |
| Blower Systems | .265(c)(20) |
| Building Facilities | .265(c) |
| Docks | .265(c)(4) |
| Emergency Exits | .265(c)(6) |
| Fire Escapes | .265(c)(6) |
| Floors | .265(c)(3) |
| Lighting | .265(c)(9) |
| Platforms | .265(c)(4) |
| Stairways | .265(c)(5) |
| Handrails | .265(c)(5)(ii) |
| Lighting | .265(c)(5)(iii) |
| Tanks | .265(c)(8) |
| Vats | .265(c)(8) |
| Walkways | .265(c)(4) |
| Work Areas | .265(c)(2) |
| Burners | .265(c)(29) |
| Chippers | .265(c)(21) |
| Conveyors | .265(c)(18) |
| Definitions | .265(b) |
| Exhaust Systems | .265(c)(20) |
| Gas Piping and Appliances | .265(c)(15) |
| General Requirements | .265(a) |
| Guarding | .265(c)(18)(ii), (c)(23)(i), .265(e)(3) |
| Hydraulic Systems | .265(c)(13) |
| Kilns, Dry | .265(f) |
| Lighting | .265(c)(9) |
| Log Breakdown (see Saws) | .265(e) |
| Log Handling, Sorting, and Storage. | .265(d) |
| Barking Devices | .265(d)(4) |
| Log Decks | .265(d)(3) |
| Storage Areas | .265(d)(2) |
| Unloading | .265(d)(1) |
| Unloading Areas | .265(d)(2) |
| Lumber | |
| Loading | .265(c)(28) |
| Piling | .265(c)(27) |
| Storage | .265(c)(27) |
| Marking Physical Hazards | .265(c)(11) |
| Protective Equipment | .265(c)(17)(iii) |
| Refuse Removal | .265(c)(20)(vi) |
| Ropes, Cables, Slings, and Chains. | .265(c)(24) |
| Stackers and Unstackers, Mechanical. | .265(c)(26) |
| Traffic Control | .265(c)(31) |
| Tramways | .265(c)(19) |
| Trestles | .265(c)(19) |
| Vehicles | .265(c)(30) |
| Saws. | |
| Band | .213(i), .265(e)(2)(i) |

| Subject term | Section No. | Subject term | Section No. |
|--------------------------------------|----------------------------|---|--|
| Band Resaws | .213(i), .265(e)(3) | Ignition Sources | .106(g)(8) |
| Chain | .266(e)(2) | Marine Stations | .106(g)(4) |
| Circular | .213(f), .243(a)(1) | Multi-Piece Rim Wheels, Servicing | .177 |
| Circular Resaws | .213(e), .265(e)(3)(ii) | Storage | .106(g)(1) |
| Cracked | .243(a)(4) | Waste Disposal | .106(g)(7) |
| Drag | .213(r) | Liquefied Petroleum Gases | .110(h) |
| Edgers | .265(e)(5) | Containers | .110(h)(2) |
| Head | .265(e)(2) | Accessories | .110(h)(3) |
| Single Circular | .265(e)(2)(iii) | Capacity | .110(h)(5) |
| Twin Circular | .265(e)(2)(iv) | Installation | .110(h)(6) |
| Whole-Log Sash Gang | .265(e)(2)(v) | Protecting Fittings | .110(h)(7), (9) |
| Inspection | .213(s) | Valves | .110(h)(3) |
| Planers | .265(e)(6) | Dispensing Devices | .110(h)(11) |
| Radial | .213(h) | Electrical Systems | .110(h)(13) |
| Ripsaws | .213(c) | Fire Protection | .110(h)(14) |
| Swing Cutoff | .213(g) | Fittings | .110(h)(7) |
| Table | .213(d) | Piping | .110(h)(9) |
| Trimmer | .265(e)(4) | Pumps | .110(h)(10) |
| Scaffolding (see also Scaffolds). | | Safety Relief Valves | .110(h)(4) |
| Safety Requirements | .28 | Truck Unloading | .110(h)(8) |
| Scaffolds (see also Ladder Stands | | Valves | .110(h)(7) |
| Listings by Names of Scaffolds). | | Setscrews | .219(h) |
| Boatswain's Chair | .28(j) | Sewage Disposal | .142(e) |
| Bricklayers' Square | .28(l) | Shafting Guarding. | |
| Carpenters' Bracket | .28(k) | Horizontal | .219(c)(2) |
| Chicken Ladders | .28(t) | Inclined | .219(c)(3) |
| Coupler, Mobile | .29(d) | Vertical | .219(c)(3) |
| Crawling Boards | .28(t) | Sheaves. | |
| Decorators' | .28(o) | Crane Hoists | .179(h)(1) |
| Float | .28(u) | Shelters, Labor Camps (see also Fac- | |
| Horse | .28(m) | ilities, Labor Camps). | .142(b) |
| Interior Hung | .28(p) | Ship Scaffolds (see also Float Scaf- | |
| Ladder-Jack | .28(q) | olds). | .28(u) |
| Masons' Adjustable Multiple-Point | | Side-Rolling Ladders | .25(c)(5) |
| Suspension. | .28(f) | Signs and Tags, Specifications for Ac- | .145 |
| Needle Beam | .28(n) | cident Prevention (see also Mark- | |
| Outrigger | .28(e) | ings; Caution Signs and Labels; La- | |
| Plasterers' | .28(o) | bels; Warning Devices and Signs). | |
| Powered Platforms | .66 | 13 Carcinogens | .1003(e)(2) |
| Roofing Brackets | .28(s) | Accident Prevention | .145 |
| Ship | .28(u) | Classification of Signs Ac- | .145(c) |
| Single-Point Adjustable Suspen- | | ording to Use. | |
| sion. | .28(i) | Definitions | .145(b) |
| Stone Setters' Adjustable Multiple | | Biological Hazards | .145(e)(4), .145(f)(8) |
| Point Suspension. | .28(h) | Bloodborne Pathogens | .1030(g)(1)(ii) |
| Suspension | .28(f), (g), (h), (i) | Caution Signs and Tags | .145(c)(2), .145(d)(4), .145(f)(6) |
| Swinging | .28(g) | Colors | .145(d)(6) |
| Tube and Coupler | .28(c) | Cotton Dust | .1043(j) |
| Tube and Coupler, Mobile | .29(d) | Danger Signs and Tags | .145(c)(1), .145(d)(2), .145(f)(5) |
| Tubular Welded Frame | .28(d), .29(b) | Design of Signs and Tags | .145(d), .145(f)(4) |
| Tubular Welded Sectional Folding | | Electric Power Generation, Trans- | .269(u)(4)(iii) |
| Two-Point Suspension | .29(c) | mission, and Distribution. | |
| Window-Jack | .28(g) | Electric Wiring | .306(a) |
| Wood Pole | .28(r) | Hazardous Materials, Retention of | .1201 |
| Scaffolds, Manual Mobile (see also | | DOT Markings. | |
| Work Platforms, Mobile). | .29 | Instruction Signs, Manlifts | .68(c)(7) |
| Scientific Diving (see Diving, Sci- | | Personal Protective Equipment | .261(c)(16), (9) |
| entific). | | Powered Platforms | .66(f)(7)(vi) |
| Scissor Lift | .29 | Pulp, Paper, and Paperboard | .261(c)(9), .261(c)(16) |
| Semigantry Cranes (see Gantry | | Mills, Traffic Warning Signs and | |
| Cranes). | | Signals. | |
| Separation Walls (see also Distances | | Radiation Warning Symbol | .97(a)(3) |
| from Hazards). | | Safety Instruction Signs | .145(c)(3), .145(d)(6) |
| Ammonium Nitrate | .109(i)(5) | Slow-Moving Vehicles, Emblem for | .145(d)(10) |
| Service Stations. | | Specifications | .145 |
| Flammable and Combustible Liq- | .106(g) | Telecommunications | .268(d)(1) |
| uids. | | Welding | .253(d)(4) |
| Dispensing Systems | .106(g)(3) | Wording of Signs and Tags | .145(e) |
| Drainage | .106(g)(7) | Single-Point Adjustable Suspension | .28(i) |
| Electrical Equipment | .106(g)(5) | Scaffolds. | |
| Fire Protection | .106(g)(9) | | |
| Handling | .106(g)(1) | | |
| Heating Equipment | .106(g)(6) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|---|
| 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 |
| Alloy Steel Chain Slings | .184(e) |
| Definitions | .184(b) |
| Fiber-Rope Slings, Natural and Synthetic | .184(h) |
| Inspections | .184(d) |
| Metal Mesh Slings | .184(g) |
| Safe Operating Practices | .184(c) |
| Scope | .184(a) |
| Web Slings, Synthetic | .184(i) |
| Wire-Rope Slings | .184(f) |
| 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), .107(l)(4)(iii), .107(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 |
| Logging Operations | .266 |
| Plastics Industry | .216 |
| Pulp, Paper, and Paperboard Mills | .261 |
| Rubber Industry | .216 |
| Sawmills | .265 |
| 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 Using Flammable and Combustible Materials. | |
| Air Flow | .94(c)(6) |
| Application, Scope | .107(n) |
| Automobile Undercoating in Garages | .107(k) |
| Clean Air | .94(c)(7)(f) |
| Combustible Liquids Storage | .107(e) |
| Curing Apparatus | .107(j) |
| Drying Apparatus | .107(j) |
| Drying, Curing, or Fusion Apparatus | .107(j) |
| Dual Component Coatings | .107(m) |
| Electrical and Other Sources of Ignition | .107(c) |
| Conformance | .107(c)(1) |
| Electrical Systems | .107(c) |
| Electrostatic Apparatus, Fixed | .107(h) |
| Electrostatic Hand Spraying Equipment | .107(i) |
| Fire Protection | .107(f) |
| Flammable Liquids Storage | .107(e) |
| Flammable Liquids and Liquids with Flashpoints Greater Than 199.4 °F (93 °C) | .107(e) |

| Subject term | Section No. |
|--|--------------------|
| Fusion Apparatus | .107(j) |
| Hand Spraying Equipment, Electrostatic | .107(i) |
| Ignition Sources | .107(c) |
| Location | .94(c)(2) |
| Maintenance, Operations and | .107(g) |
| Make-Up Air | .94(c)(7) |
| Operations and Maintenance | .107(g) |
| Organic Peroxide Coatings | .107(m) |
| Peroxide Coatings | .107(m) |
| Powder Coatings | .107(l) |
| Protection | .107(f) |
| Scope | .107(n) |
| Spray Booths | .107(b), .94(c)(3) |
| Undercoatings, Automobile, in Garages | .107(k) |
| Velocity and Air Flow Requirements | .94(c)(6) |
| Ventilation | .107(d), .94(c)(5) |
| Spray Liquid Heaters | .107(e)(7) |
| Spraying Operations | .107(g) |
| Sprinkler Systems, Automatic | .159 |
| Acceptance Tests | .159(c)(3) |
| Design | .159(c)(1) |
| Drainage | .159(c)(7) |
| Hose Connections | .159(c)(5) |
| Hydraulically Designed | .159(c)(11) |
| Maintenance | .159(c)(2) |
| Protection of Piping | .159(c)(6) |
| Sprinkler Alarms | .159(c)(9) |
| Sprinkler Spacing | .159(c)(10) |
| Water Supply | .159(c)(4) |
| Sprinklers. | |
| Dip Tanks | .125(f) |
| Sprockets | .219(f) |
| Stability Margin. | |
| Crane Loads | .180(c)(1)(i)-(iv) |
| Stainless Steel Cutting | .252(c)(12) |
| Stairs, Fixed Industrial | .24 |
| Handrails | .24(h) |
| Length of Stairways | .24(g) |
| Railings | .24(h) |
| Rise Angle | .24(e) |
| Strength | .24(c) |
| Treads | .24(f) |
| Vertical Clearance | .24(i) |
| Width | .24(d) |
| Standards Sources. | |
| Air Receivers | .169(a)(2) |
| Life Safety Code | .39 |
| Standpipe and Hose Systems | .158 |
| Equipment | .158(c) |
| Hose | .158(c)(3) |
| Hose Outlets and Connections | .158(c)(2) |
| Nozzles | .158(c)(4) |
| Reels and Cabinets | .158(c)(1) |
| Exception for Class I Standpipe Systems | .158(a)(2) |
| Protection of Standpipes | .158(b) |
| Scope and Application | .158(a) |
| Tests and Maintenance | .158(e) |
| Acceptance Tests | .158(e)(1) |
| Maintenance | .158(e)(2) |
| Water Supply | .158(d) |
| Stands, Ladder (see also Scaffolds; Work Platforms, Mobile). | |
| Stationary Derricks (see also Derricks) | .181 |
| Static Sparks | .219(p)(2)(ii) |
| Steps (see Stairs, Fixed Industrial) | |
| Stapladders | |
| Portable Metal | .26(a)(3) |
| Stapladders, Portable | .25(c)(2) |
| Sticking Machines | .213(n) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|---|----------------------|---|---|
| Stiffleg Derricks (see also Derricks) | .181 | Table Saws | .213(d) |
| Stone Setters' Adjustable Multiple-Point Suspension Scaffolds | .28(h) | Tags (see Signs and Tags, Specification for Accident Prevention). Tagout (see Lockout/Tagout). | |
| Stopping Limits, Mills and Calenders ... | .216(f) | Tanks (see also Cargo Tanks—Portable Tanks). | |
| Stops (see also Safety Devices) | | Hardening | .126(a)(1)(i), .126(a)(1)(ii) |
| Manlifts | .68(c)(5), (6) | Tempering | .126(a) |
| Storage (see also Materials Handling Storage; Storage Areas; Tanks, Storage; Tanks, Storage, Portable). | | Tanks, Dip (see also Dip Tanks) | .123-.126 |
| Ammonia, Anhydrous | .111 | Tanks, Storage. | |
| Ammonium Nitrate | .109(i) | Flammable and Combustible Liquids. | .106(b) |
| Bakery Equipment | .263(d)(6) | Atmospheric Tanks | .106(b)(1)(iii) |
| Blasting Agents | .109(g)(5) | Construction | .106(b)(1) |
| Buildings | .106(d)(5) | Corrosion | .106(b)(1)(vi) |
| Mercantile Occupancies | .106(d)(5)(iv) | Diking | .106(b)(2)(vii) |
| Office Occupancies | .106(d)(5)(iii) | Ignition Sources | .106(b)(6) |
| Warehouses | .106(d)(5)(v) | Installation.. | |
| Calcium Carbide | .253(g) | Above Ground, Outside | .106(b)(2) |
| Clothing | .107(g)(4) | Inside Buildings | .106(b)(4) |
| Compressed Gas Cylinders | .253(b)(2)-(4) | Underground | .106(b)(3) |
| Compressed Gases | .101(b) | Low Pressure Tanks | .106(b)(1)(iv) |
| Containers, Bulk Oxygen | .104(b)(4), (6) | Materials | .106(b)(1)(i) |
| Electric Power Generation, Transmission, and Distribution. | .269(k)(2) | Pressure Vessels | .106(b)(1)(v) |
| Explosives | .109(c), (e)(2), (b) | Supports | .106(b)(5) |
| Flammable and Combustible Liquids. | .106(b), (d) | Testing | .106(b)(7) |
| Inside Storage Rooms | .106(d)(4) | Venting | .106(b)(2)(iv), .106(b)(2)(v), .106(b)(2)(vi), .106(b)(3)(iv), .106(b)(4)(ii)-(iii) |
| Storage Inside Buildings | .106(d)(5) | Telecommunications | .268 |
| Storage Outside Buildings | .106(d)(6) | Approach Distances | .268(b)(7) |
| Grain Handling Facilities | .272(g)-(h) | Battery Handling | .268(b)(2) |
| Hydrogen | .103(c)(2) | Cable Fault | .268(l) |
| Indoor Rooms | .106(d)(5) | Definitions | .268(s) |
| Ionizing Radiation | .1096(j) | Employee Protection | .268(d) |
| Liquefied Petroleum Gases | .110 | Grounding | .268(m) |
| Logs | .265(d) | Ladders | .268(h) |
| Logging Operations | .266(h)(8) | Material Handling and Other Equipment. | .268(j) |
| Lumber | .265(c)(27) | Graders, Scrapers, Tractors | .268(j)(1) |
| Pulp, Paper, and Paperboard Mills | .261(c), (d) | Elevating/Rotating Work Platforms | .268(j)(3) |
| Service Stations | .106(g)(1) | Derricks | .268(j)(4) |
| Small Arms Ammunition | .109(j) | Materials Handling and Storage ... | .268(k) |
| Spray Finishing Using Flammable and Combustible Materials. | .107(e) | Microwave Transmission | .268(p) |
| Storage Areas. | | Overhead Lines | .268(n) |
| Aisles and Passageways | .176(a) | Testing Wood Poles | .268(n)(2), (3) |
| Bridge Plates | .178(k)(4) | Outside Work Platforms | .268(n)(7) |
| Clearance Signs | .176(e) | Energized Power Conductors | .268(n)(10) |
| Clearances | .176(a) | Personal Climbing Equipment | .268(g) |
| Dockboards | .178(j), (k)(4) | Safety Straps | .268(g)(2) |
| Housekeeping | .176(c) | Pole Climbers | .268(g)(3) |
| Lighting | .178(h) | Personal Protective Equipment | .268(i) |
| Noxious Gases | .178(i) | Head Protection | .268(i)(1) |
| Railroad Cars | .178(k)(2), (4) | Eye Protection | .268(i)(2) |
| Sawmills | .265(d)(2) | Rubber Insulating Equipment | .268(f) |
| Securing | .176(b) | Telecommunications Centers | .268(b)(1) |
| Trucks, Highway | .178(k)(1), (3), (m) | Training | .268(c) |
| Storage Batteries (see Battery Charging and Charging). | | Tree Trimming | .268(q) |
| Storage Bins (see Storage). | | Electrical Hazards | .268(q)(2) |
| Storage Bridge Cranes (see Gantry Cranes). | | Storm Work | .268(q)(3) |
| Storage, Tanks (see Tanks, Storage; Tanks, Storage, Portable). | | Underground Lines | .268(o) |
| Straight Ladders, Portable Metal | .26(a)(2) | Guarding Manholes | .268(o)(1) |
| Surface Grinders | .215(b)(5) | Entering Manholes/Vaults | .268(o)(2) |
| Swing Frame Grinders | .215(b)(6) | Joint Manholes | .268(o)(3) |
| Swing-Head Lathes | .213(o) | Tanks, Storage, Portable. | |
| Swinging Locomotive Cranes | .180(i)(6) | Flammable and Combustible Liquids. | .106(d) |
| Swinging Scaffolds (see also Two-Point Suspension Scaffolds). | .28(g) | Application | .106(d)(1)(i) |
| Switches. | | Capacity | .106(d)(2) |
| Electric | .305(c) | Design | .106(d)(2) |
| Cranes | .179(g)(5) | Exceptions | .106(d)(1), (2) |
| Trip and Emergency | .216(e) | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|-----------------------|
| 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) |
| Testing. | |
| Bulk Oxygen | .104(b)(8)(v) |
| Cranes | .179(k), .180(e) |
| Electric Power Generation, Transmission, and Distribution. | .269(o) |
| Fire Extinguishers | .157(e) |
| Gaseous Hydrogen Systems | .103(b)(1)(vi) |
| Liquefied Hydrogen Systems | .103(c)(1)(vii) |
| Piping | .106(c)(7) |
| Powered Platforms | .66(g) |
| Sprinkler Systems | .159(c)(3) |
| Standpipe and Hose Systems | .158(e) |
| Storage Tanks | .106(b)(7) |
| Textiles | .262 |
| 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(j) |
| 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) |
| Folder, Overhead | .262(jj) |
| Garnett Machines | .262(f) |
| Gill Box | .262(k) |
| Hand Bailing Machine | .262(hh) |
| Handling | .262(oo) |
| 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)(1) |
| Pickers | .262(d) |
| Power Transmission | .219(a)(3) |
| Printing Machine | .262(dd) |
| Rings Frames | .262(j) |
| Roll Bench | .262(ii) |
| Rope Washers | .262(bb) |
| Sanforizing and Palmer Machine | .262(aa) |
| Shearing Machines | .262(o) |
| Slashers | .262(h) |
| Slubbers | .262(j) |
| Spinning Mules | .262(g) |
| Standards Sources | .262(a)(2) |
| Staple Cutters | .262(ff) |
| Tanks, Open | .262(ll) |
| Tenter Frames | .262(t) |
| Tumbler, Laundry Washer | .262(cc) |
| Warpers | .262(i) |
| Worsted Drawing | .262(l) |
| Toe Protection (see Foot Protection). | |
| Toeboards. | |
| Cranes | .179(d)(3) |
| Definition | .21(a)(9) |
| Power Transmission Apparatus | .219(o)(5) |

| Subject term | Section No. |
|--|---|
| Powered Platforms | .66(f)(5)(i)(G) |
| Walking-Working Surfaces | .23(a)(2), (3)(ii), (e) |
| Toilet Facilities | .141(c) |
| Construction | .141(c)(2) |
| Hazardous Waste | .120(n)(3) |
| Labor Camps | .142(d) |
| Lavatories | .141(d)(2) |
| Minimum Numbers | .141(c)(1), (d)(2) |
| Towels | .141(d)(3)(v) |
| Washing Facilities | .141(d) |
| Tongs, Upsetters | .218(h)(4) |
| Tooling | .217(d)(5) |
| Torch Valves, Welding | .252(a)(4)(ii) |
| Towels | .141(d)(3)(v) |
| Towers, Scaffolds (see Ladder Stands and Scaffolds; Work Platforms, Mobile). | .29 |
| Toxic and Hazardous Substances | Subpart Z |
| Tractors (see also Powered Industrial Trucks). | .178, .268(j)(1) |
| Training | .217(e)(3) |
| 13 Carcinogens (4-Nitrophenyl, etc.). | .1003(e)(4) |
| Acrylonitrile | .1045(o) |
| Aerial Lift Operation Personnel Requirements. | .67(c)(2) |
| Arsenic, Inorganic | .1018(o) |
| Asbestos | .1001(j)(7) |
| Bloodborne Pathogens | .1030(g)(2) |
| HIV and HBV Research | .1030(e)(5) |
| Training Records | .1030(h)(2) |
| Benzene | .1028(j)(3) |
| Cadmium | .1027(m)(4) |
| Chemicals, Occupational Exposure in Laboratories. | .1450(f) |
| Chromium (VI) | .1026(l)(2) |
| Coke Oven Emissions | .1029(k) |
| Confined Spaces, Permit-Required | .146(g), .146(i), .146(k), .146 App. E 1-2, .146 App. F (B) |
| Control of Hazardous Energy (Lockout/Tagout). | .147(c)(1), (7) |
| Removal Procedures | .147(e)(3) |
| Outside Personnel | .147(f)(2) |
| Cotton Dust | .1043(i) |
| Cranes, Overhead and Gantry | .179(n)(3) |
| DBCP (1,2-Dibromo-3-Chloropropane). | .1044(n) |
| Diving, Qualifications | .410 |
| Diving, Training | App. C |
| Electric Power Generation, Transmission, and Distribution. | .269(a)(2) |
| Control of Hazardous Energy | .269(d)(2) |
| Enclosed Spaces Entry | .269(e)(2) |
| Live-Line Bare-Hand Work | .269(q)(3) |
| Coal and Ash Handling | .269(v)(11) |
| Electrical Safety-Related Work Practices. | .332 |
| Emergency Action Plans | .38(e), (f) |
| Emergency Response | .120(q)(6) |
| Employee Alarm Systems | .165(d)(5) |
| Explosives and Blasting Agents | |
| Operation of Transportation Vehicles. | .109(d)(3), (g)(3) |
| Bulk Delivery and Mixing Vehicles. | .109(h)(4) |
| Ethylene Oxide | .1047(j)(3) |
| Fire Brigades | .156(c) |
| Fire Detection Systems | .164(c)(4) |
| Fire Extinguishers, Portable | .157(d), (f), (g) |
| Overhead and Gantry Cranes | .179(o)(3) |
| Crawler, Locomotives, and Truck Cranes. | .180(i)(5) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|---------------------|---|------------------|
| Fire Extinguishing Systems | .160(b)(2), (b)(10) | Resistance Welding | .255(a)(3) |
| Fire Prevention Plans | .39(d) | Transmission Pipeline Welding | .252(d)(1) |
| First Aid | .151 | Construction Standards | .252(d)(1)(v) |
| Electric Power Generation, Transmission and Distribu- tion. | .269(b)(1) | Electric Shock | .252(d)(1)(iii) |
| Logging | .266 App. B | Field Shop Operations | .252(d)(1)(ii) |
| Telecommunications | .268(c)(3) | Flammable Substances | .252(d)(1)(vi) |
| Flammable and Combustible Liq- uids. | .106(b)(5) | Pressure Testing | .252(d)(1)(iv) |
| Forging Machines | .218(a)(2) | X-ray Inspection | .252(d)(1)(vii) |
| Formaldehyde | .1048(n) | Transportation. | |
| Grain Handling Facilities | .272(e) | Blasting Agents | .109(g)(6) |
| Contractors | .272(i)(1) | Explosives | .109(d) |
| Rescue | .272(g)(5) | Fire Extinguishers | .109(d)(2)(iii) |
| Hazardous Chemicals (Hazard Communication). | .1200(h) | Markings | .109(d)(2)(ii) |
| Hazardous Waste Operations and Emergency Response. | .120(e) | Vehicles | .109(d)(2), (3) |
| Treatment, Storage and Dis- posal Facilities. | .120(p)(7) | Trapdoors | .23(a)(5) |
| Emergency Response | .120(q)(6) | Traps, Air Receivers | .169(b)(2) |
| Hearing Protection | .95(k) | Treads, Stairs | .24(f) |
| Use of Hearing Protectors | .95(i)(4) | Treadles | .217(b)(4) |
| Chromium (VI), Employee Infor- mation and Training. | .1026(l)(2) | Tree-Trimming. | |
| Laundry Machine and Operations | .264(d)(1) | Electrical Line-Clearance | .269(r), (x) |
| Lead | .1025(l) | Electrical Safety-Related Work Practices. | .331(c)(1) |
| Liquefied Petroleum Gases, Stor- age. | .110(b)(16) | Electrical Safety, Definitions | .339 |
| Watch Service | .110(d)(12) | Telecommunications | .268(g) |
| Logging Operations | .266(i), App. B | Trestle Ladders, Portable. | |
| Manlift Personnel Requirements ... | .68(b)(1) | Metal | .26(a)(4) |
| Mechanical Power Presses | | Wood | .25(c)(3)(v) |
| Maintenance Personnel | .217(e)(3), (h)(10) | Trimming Presses | .218(g) |
| Operator Training | .217(h)(13) | Trips, Two-Hand | .217(b)(6) |
| Methylene Chloride | .1052(l) | Trolley Bumpers, Cranes | .179(e)(3) |
| 4' Methyleneedianiline | .1050(k)(4) | Trolley Ladders, Portable | .25(c)(5) |
| 4-Nitrophenyl | .1003(e)(4) | Trolley Stops, Cranes | .179(e)(1) |
| Noise Exposure | .95(k) | Truck Cranes (see also Crawler, Loco- motive, and Truck Cranes). | .180 |
| Powered Industrial Trucks | .178(l) | Trucks | .178(k), (m) |
| Powered Platforms for Building Maintenance | | Forklift | .261(c)(1) |
| Care and Use | .66 App. C | Hand | .261(m)(1) |
| Operations Training | .66(i)(1) | Highway | .178(k), (m) |
| Process Safety Management of Highly Hazardous Chemicals. | .119(g) | Powered Industrial | .178 |
| Contractor Training | .119(h)(3) | Trucks, Powered Industrial (see also Powered Industrial Trucks). | .28(c) |
| Notification of Change in Process. | .119(i)(3) | Tube and Coupler Scaffolds | .28(c) |
| Process Maintenance Activi- ties. | .119(j)(4) | Tube and Coupler Scaffolds, Mobile ... | .29(d) |
| Radiation, Ionizing | .1096(i)(2) | Tubing (see Piping, Fittings, and Tub- ing). | |
| Respiratory Protection | .134(k) | Tubular Welded Frame Scaffolds | .28(d) |
| Rim Wheels, Servicing | .177(c) | Tubular Welded Frame Scaffolds, Mo- bile. | .29(b) |
| Signs and Tags | .145(c) | Tubular Welded Sectional Folding Scaffolds. | .29(c) |
| Standpipe and Hose Systems | .158(e)(2) | Turning Machines | .213(o) |
| Telecommunications | .268(c) | Two-Point Suspension Scaffolds | .28(g) |
| Battery Handling | .268(b)(2) | Two-Section Rung Ladders | .25(c)(3)(iii) |
| Cable Fault Locating | .268(l)(1) | Underground Storage Tanks, Flam- mable Liquids. | .106(b)(3) |
| Derrick Trucks | .268(j)(4) | Location | .106(b)(3)(i) |
| Manholes | .268(o) | Depth and Cover | .106(b)(3)(ii) |
| Tree Trimming | .268(q) | Corrosion Protection | .106(b)(3)(iii) |
| Temporary Labor Camps (First Aid). | .142(k) | Vents | .106(b)(3)(iv) |
| Truck Operators (see Powered In- dustrial Trucks; Explosives and Blasting Agents; Telecommuni- cations) | | Upsetters | .218(h) |
| Vinyl Chloride | .1017(j) | Dies Changing | .218(h)(5) |
| Welding, Cutting, and Brazing | .252(a)(2) | Lockouts | .218(h)(2) |
| Arc Welding and Cutting | .254(a)(3) | Manual Controls | .218(h)(3) |
| Oxygen-Fuel Gas Welding and Cutting. | .253(a)(4) | Supporting Foundations | .218(h)(1) |
| | | Tongs | .218(h)(4) |
| | | Valves (see also Piping, Valves, and Fittings). | |
| | | Air Receivers | .169(b)(3) |
| | | Liquefied Petroleum Gases | .110(b)(7) |
| | | Non-DOT Containers | .110(d)(3) |
| | | Vaporizers. | |
| | | Liquefied Petroleum Gases | .110(b)(11) |
| | | Liquid Hydrogen | .103(c)(1)(viii) |
| | | Liquid Oxygen | .104(b)(7) |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|--|---|
| Vehicle-Mounted Elevating and Rotating Work Platforms | .67 |
| Definitions Applicable to This Section. | .67(a) |
| General Requirements | .67(b) |
| Specific Requirements | .67(c) |
| Bursting Safety Factor | .67(c)(4) |
| Electrical Tests | .67(c)(3) |
| Extensible and Articulating Boom Platforms. | .67(c)(2) |
| Ladder Trucks and Tower Trucks. | .67(c)(1) |
| Welding Standards | .67(C)(5) |
| Manlifts | .68 |
| Definitions Applicable to This Section. | .68(a) |
| General Requirements | .68(b) |
| Mechanical Requirements | .68(c) |
| Emergency Stop | .68(c)(6) |
| Handholds | .68(c)(4) |
| Machines, General | .68(c)(1) |
| Platforms or Steps | .68(c)(3) |
| Speed | .68(c)(2) |
| Up Limit Stops | .68(c)(5) |
| Operating Rules | .68(d) |
| Proper Use of Manlifts | .68(d)(1) |
| Periodic Inspection | .68(e) |
| Frequency | .68(e)(1) |
| Inspection Record | .68(e)(3) |
| Items Covered | .68(e)(2) |
| Vehicles. | |
| Logging Operations | .266(g) |
| Sawmills | .265(c)(30) |
| Vehicles, Slow-Moving, Signs | .145(d)(10) |
| Veneer Machinery | .30(c) |
| Cutters | .213(q), (s)(13) |
| Ventilation. | |
| 13 Carcinogens | .1003(c)(4), (d)(4) |
| Asbestos | .1001(f)(1) |
| Arsenic, Inorganic | .1018(k)(5) |
| Bakery Equipment | .263(l)(10) |
| Bloodborne Pathogens | .1030(e)(4)(vi) |
| Cadmium | .1027(f)(3), (k)(6) |
| Chromium (VI) | .1026(j)(2), App. A, Exhibit A-3 |
| Confined Spaces, Permit-Required Cotton Dust | .146(c)(5), App. C |
| Cranes, Overhead and Gantry | .1043(e)(4) |
| 1,2-Dibromo-3-Chloropropane | .179(e)(4) |
| Dipping and Coating Operations | .1044(k)(1), App. B |
| Flashpoints Greater Than 199.4 deg C. | .124(b), (j)(4) |
| Flashpoints Greater Than 199.4 deg C. | .125(f) |
| Electric Power Generation, Transmission, and Distribution Enclosed Spaces. | .269(e) |
| Explosives and Blasting Agents | .109(c)(3), (i)(2), (i)(4) |
| Flammable Liquids | .106(a)(31), .106(d)(4), .106(e)(2), .106(e)(3), .106(e)(7), .106(f)(2), .106(h)(3) |
| Forging Machines | .218(a)(1) |
| Formaldehyde | .1048 App. A |
| Grain Handling Facilities Entry into Grain Storage Structures. | .272(g) |
| Hazardous Locations, Definitions | .399 |
| Hazardous Waste Operations and Emergency Response. | .120(n)(7) |
| Hydrogen | .103(b)(3)(ii), (c)(3)(ii) |
| Laboratories | .1450(b) |

| Subject term | Section No. |
|--|---|
| Lead | .1025(e)(4) |
| Liquefied Petroleum Gases, Storage and Handling. | .110(a)(13) |
| Oxygen | .104(b)(3) |
| Powered Industrial Trucks | .178(c)(2), .178(g)(2) |
| Pulp, Paper, and Paperboard Mills | .261(f)(2), .261(g)(20), .261(h)(2) |
| Resistance Welding | .255(d)(1) |
| Respiratory Protection | .134(a) |
| Sawmills | .265(c)(7), (d)(2) |
| Spray Finishing Operations | .107(d), (h)(11), (i)(8)-(9), (k), (l)(2), (l)(7) |
| Telecommunications | |
| Battery Handling | .268(b)(2) |
| Ladder Storage, Wooden | .268(h)(4) |
| Tent Heaters | .268(i)(3) |
| Underground Lines (Manholes, Unvented Vaults). | .268(o) |
| Welding, Cutting, and Brazing | .252(b)(4), (c) |
| Wiring Methods, Components, and Equipment. | .305(a)(1) |
| for General Use | (j)(7) |
| Ventilation Standard | .94 |
| Abrasive Blasting | .94(a) |
| Air Supply and Air Compressors. | .94(a)(6) |
| Blast-Cleaning Enclosures | .94(a)(3) |
| Definitions Applicable to This Paragraph. | .94(a)(1) |
| Dust Hazards from Abrasive Blasting. | .94(a)(2) |
| Exhaust Ventilation Systems | .94(a)(4) |
| Operational Procedures and General Safety. | .94(a)(7) |
| Personal Protective Equipment. | .94(a)(5) |
| Scope | .94(a)(8) |
| Grinding, Polishing, and Buffing Operations. | .94(b) |
| Application | .94(b)(2) |
| Definitions Applicable to This Paragraph. | .94(b)(1) |
| Exhaust Systems | .94(b)(4) |
| Hood and Branch Pipe Requirements. | .94(b)(3) |
| Hood and Enclosure Design | .94(b)(5) |
| Scope | .94(b)(6) |
| Spray Finishing Operations | .94(c) |
| Definitions Applicable to This Paragraph. | .94(c)(1) |
| Design and Construction of Spray Booths. | .94(c)(3) |
| Design and Construction of Spray Rooms. | .94(c)(4) |
| Location and Application | .94(c)(2) |
| Make-Up Air | .94(c)(7) |
| Scope | .94(c)(8) |
| Velocity and Air Flow Requirements. | .94(c)(6) |
| Ventilation | .94(c)(5) |
| Venting, Tanks. | |
| Aboveground | .106(b)(2)(iv)-(vi) |
| Inside | .106(b)(4)(ii) |
| Portable | .106(d)(2)(ii) |
| Underground | .106(b)(3)(iv) |
| Vents (see Venting). | |
| Vermin Control | .141(a)(5) |
| Vinyl Chloride | .1017 |
| Emergency Situations | .1017(i) |
| Hazardous Operations | .1017(h) |
| Medical Surveillance | .1017(k) |

| Subject term | Section No. | Subject term | Section No. |
|---|-------------|--|----------------------------|
| Methods of Compliance | .1017(f) | Other Working Surfaces | .30 |
| Monitoring | .1017(d) | Portable Metal Ladders | .26 |
| Permissible Exposure Limit (PEL) | .1017(c) | Portable Wood Ladders | .25 |
| Regulated Areas | .1017(e) | Scaffolding, Safety Requirements for. | .28 |
| Respiratory Protection | .1017(g) | Boatswain's Chairs | .28(j) |
| Communication of Hazards | .1017(i) | Bricklayers' Square Scaffolds | .28(l) |
| Training | .1017(j) | Carpenters' Bracket Scaffolds | .28(k) |
| Walking-Working Surfaces; Subpart D | .21 | Chicken Ladders | .28(t) |
| Definitions | .21 | Crawling Boards | .28(t) |
| Fixed Industrial Stairs | .24 | Decorators' Scaffolds | .28(o) |
| Angle of Stairway Rise | .24(e) | Float or Ship Scaffolds | .28(u) |
| Application of Requirements .. | .24(a) | General Requirements for All Scaffolds. | .28(a) |
| Railings and Handrails | .24(h) | Horse Scaffolds | .28(m) |
| Stair Strength | .24(c) | Interior Hung Scaffolds | .28(p) |
| Stair Treads | .24(f) | Ladder-Jack Scaffolds | .28(q) |
| Stair Width | .24(d) | Large Area Scaffolds | .28(o) |
| Stairway Platforms | .24(g) | Needle Beam Scaffold | .28(n) |
| Vertical Clearance | .24(i) | Outrigger Scaffolds | .28(e) |
| Where Fixed Stairs Are Required. | .24(b) | Plasterers', Decorators', and Large Area Scaffolds. | .28(o) |
| Fixed Ladders | .27 | Powered Platforms | .66 |
| Clearance | .27(c) | Roofing Brackets | .28(s) |
| Clearance in Back of Grab Bar. | .27(c)(5) | Scope | .28(v) |
| Clearance in Back of Ladder Climbing Side | .27(c)(4) | Ship Scaffolds | .28(u) |
| Hatch Cover | .27(c)(7) | Suspension Scaffolds, Adjustable Single-Point Suspension Scaffolds, Masons'. | .28(i) |
| Ladders with Cages or Baskets. | .27(c)(3) | Adjustable Multiple-Point | .28(f) |
| Ladders Without Cages or Wells. | .27(c)(2) | Suspension Scaffolds, Stone Setters' Adjustable Multiple-Point. | .28(h) |
| Step-Across Distance | .27(c)(6) | Swinging Scaffolds, Two-Point Suspension. | .28(g) |
| Design Requirements | .27(a) | Tube and Coupler Scaffolds .. | .28(c) |
| Design Stresses | .27(a)(2) | Tubular Welded Frame Scaffolds. | .28(d) |
| Maintenance | .27(f) | Two-Point Suspension Scaffolds (Swinging). | .28(g) |
| Pitch | .27(e) | Window-Jack Scaffolds | .28(r) |
| Specific features | .27(b) | Wood Pole Scaffolds, Requirements for. | .28(b) |
| Electrolytic Action | .27(b)(5) | Scaffolds (Towers), Manually Propelled Rolling. | .29 |
| Fastenings | .27(b)(3) | Stairs, Fixed Industrial | .24 |
| Protection from Deterioration | .27(b)(7) | Wall Openings, Guarding | .23 |
| Rungs and Cleats | .27(b)(1) | Working Surfaces, Other | .30 |
| Side Rails | .27(b)(2) | Wall Cranes (see Gantry Cranes) | |
| Splices.27(b)(4). | | Wall Openings (Holes) | .23(b) |
| Welding | .27(b)(6) | Warehouses. | |
| Special Requirements | .27(d) | Ammonium Nitrate | .109(i)(4) |
| Cages or Wells | .27(d)(1) | Flammable Liquids | .106(d)(5)(v) |
| Grab Bars | .27(d)(4) | Warning Devices and Signs (see also Signs and Tags, Specifications for Accident Prevention). | |
| Ladder Extensions | .27(d)(3) | Arsenic, Inorganic | .1018 App. A |
| Landing Platforms | .27(d)(2) | Asbestos | .1001(j)(4) |
| Ladder Safety Devices | .27(d)(5) | Benzene | .1028(j)(2) |
| Floor and Wall Openings, Guarding. | .23 | Bloodborne Pathogens | .1030(e)(2), (g)(1) |
| Open-Sided Floors, Platforms, and Runways. | .23(c) | Cadmium | .1027(m)(2) |
| Protection for Floor Openings | .23(a) | Coke Oven Emissions | .1029 App. A |
| Protection for Wall Openings and Holes. | .23(b) | Confined Spaces, Permit-Required | .146(h)(4)-(5) |
| Railings, Toe Boards, and Covers. | .23(e) | Cotton Dust | .1043(j)(1) |
| Stairway Railings and Guards | .23(d) | Cranes | .179(i) |
| General Requirements | .22 | Electric Power Generation, Transmission, and Distribution. | .269(v)(11)(x), .269(w)(6) |
| Aisles and Passageways | .22(b) | Electrical | |
| Covers and Guardrails | .22(c) | General | .303(g)(2), (h)(5) |
| Floor Loading, Protection | .22(d) | Specific Purpose Equipment and Installations. | .306(c)(8)-(9) |
| Guardrails | .22(c) | Explosives and Blasting Agents | .109(e)(1), (e)(5) |
| Housekeeping | .22(a) | Lead | .1025(m)(2), App. B |
| Guarding Floor and Wall Openings and Holes (see above). | .23 | Manlifts | .68(c)(7) |
| Ladders, Fixed | .27 | | |
| Ladders, Portable Metal | .26 | | |
| Ladders, Portable Wood | .25 | | |
| Ladders, Mobile Stands | .29 | | |
| Manually Propelled Mobile Ladder Stands and Scaffolds (Towers). | .29 | | |

Pt. 1910, Index

29 CFR Ch. XVII (7–1–13 Edition)

| Subject term | Section No. |
|---|------------------------------------|
| Nonionizing Radiation | .97(a)(3) |
| Pulp, Paper, and Paperboard Mills | .261(c)(9) |
| Sawmills | .265(c)(6), (e)(1) |
| Spray Finishing Using Flammable and Combustible Materials | .107(j)(4)(v) |
| Telecommunications | .268(d)(1) |
| Welding, Cutting, Brazing, General Requirements | .252(b)(4)(vii) |
| Washing Facilities | .141(d), .142(f), .120(n)(6) |
| Waste Disposal | .141(a)(4) |
| Bulk Plants | .106(f)(7) |
| Containers | .141(g)(3) |
| Dip Tanks | .125(e)(4)(ii), .125(e)(4)(iii) |
| Labor Camps | .142(e), (h) |
| Processing Plants | .106(h)(8)(iii) |
| 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 and Cutting | |
| Flash Welding Equipment; Oxygen-Fuel Gas Welding and Cutting; Resistance Welding; Welding Machines, Portable) | .251-.255 |
| Acetylene Generators | .253(f) |
| Authorization (Hot Work Permit) | .252(a)(2)(iv) |
| Beryllium | .252(c)(8) |
| Cadmium | .252(c)(9) |
| Calcium Carbide Storage | .253(g) |
| Chemicals, Highly Hazardous, Process Safety Management, Hot-Work Permits | .119(k) |
| Cleaning Compounds | .252(c)(11) |
| Concentrations, Maximum Allowable | .252(c)(1)(iii) |
| Confined Spaces | .252(a)(4), (c)(4) |
| Ventilation | .252(c)(2), (c)(4) |
| Cutting Containers | .252(a)(3) |
| Contamination | .252(c)(1)(i) |
| Definitions | .251 |
| Eye Protection | .252(b)(2) |
| Goggles | .252(b)(2)(i)(B) |
| Shade Number Guide | .252(b)(2)(ii)(H) |
| Fire Protection | .252(a)(2)(i) |
| Fire Watch | .252(a)(2)(iii), (x), (xiv) |
| First Aid Equipment | .252(c)(13) |
| Fluorine Compounds | .252(c)(5) |
| Hazard Communication | .252(c)(1)(iv) |
| Hoods | .252(c)(3) |
| Labels | .252(c)(1)(iv) |
| Ladders, Fixed | .27(b)(6) |
| Lead | .252(c)(7) |
| Liquefied Petroleum Gases | .110(b)(4) |
| Mercury | .252(c)(10) |
| Operating Procedures | .253(b)(5) |
| Piping Systems, Mechanical | .252(d)(2) |
| Personnel Protection | .252(b) |
| Helmets | .252(b)(2)(i)(A) |
| Lifelines | .252(b)(4)(iv) |
| Precautions | .252(a)(2), .255(e) |
| Prohibited Areas | .252(a)(2)(vi) |

| Subject term | Section No. |
|---|-----------------|
| Screens | .252(c)(1)(ii) |
| Spot and Seam | .255(b) |
| Stainless Steels | .252(c)(12) |
| Supervisor Responsibility | .252(a)(2)(xiv) |
| Transmission Pipelines | .252(d)(1) |
| Ventilation | .252(c)(2) |
| X-ray Inspection | .252(d)(1)(vii) |
| 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, .268(h) |
| Wood Pole Scaffolds | .28(b) |
| Wood Shapers | .213(m) |
| Wooden Guards | .219(o)(2) |
| Woodworking Machinery Requirements | .213 |
| Bandsaws and Band Resaws | .213(i) |
| Boring and Mortising Machines | .213(l) |
| Circular Resaws | .213(e) |
| Circular Saws, Self-Feeding | .213(f) |
| Construction of Machinery, General | .213(a) |
| Controls | .213(b) |
| Cross-Cut Table Saws, Hand-Fed | .213(d) |
| Definitions | .211(a) |
| Drag Saws | .213(r) |
| Glue Spreaders, Roll-Type | .213(r) |
| Inspection and Maintenance | .213(s) |
| Woodworking Machines | |
| Hand-Fed Crosscut Table Saws | .213(d) |
| Hand-Fed Ripsaws | .213(c) |
| Jointers | .213(j) |
| Machine Controls and Equipment | .213(b) |
| Maintenance | .213(s) |
| Matching Machines | .213(n) |
| Miscellaneous Woodworking Machines | .213(r) |
| Molding Machines | .213(n) |
| Mortising Machines | .213(l) |
| Planing, Molding, Sticking, and Matching Machines | .213(n) |
| Profile and Swing-Head Lathes and Wood Heel Turning Machine | .213(o) |
| Radial Saws | .213(h) |
| Resaws, Circular | .213(e) |
| Ripsaws, Hand-Fed | .213(c) |
| Sanding Machines | .213(p) |
| Self-Fed Circular Saws | .213(f) |
| Sticking | .213(n) |
| Swing Cutoff Saws | .213(g) |
| Swing Head Lathes | .213(o) |
| Table Saws | .213(d) |
| Tenoning Machines | .213(k) |
| Turning Machines, Wood Heel | .213(o) |

Occupational Safety and Health Admin., Labor

Pt. 1910, Index

| Subject term | Section No. | Subject term | Section No. |
|--|----------------------------|---|---|
| Veneer Cutters and Wringers | .213(q) | Cotton Dust | .1043(e)(3), (g) |
| Wood Heel Turning Machines | .213(o) | 1,2-Dibromo-3-Chloropropane | .1044(g)(2) |
| Wood Shapers and Similar Equipment. | .213(m) | Diving, Commercial Safe Practices Manual. | .440(b)(2) |
| Woodworking Machines, Inspection and Maintenance. | .213(s) | Electric Power Generation, Transmission, and Distribution, Energy Control Procedures. | .269(d)(2) |
| Woodworking Machines, Miscellaneous. | .213(r) | Electrical | |
| Woodworking Tools, Portable Powered | .243(a) | Wiring Design and Protection, Assured Equipment Grounding Conductor Program. | .304(b)(3) |
| Belt Sanding Machines | .243(a)(3) | Selection and Use of Work Practices, Lockout and Tagging. | .333(b)(2) |
| Circular Saws | .243(a)(1) | Ethylene Oxide | .1047(f)(2) |
| Cracked Saws | .243(a)(4) | Grain Handling Facilities | .272(j), |
| Dead-Man Controls | .243(a)(2) | Hazard Communication | .1200(e) |
| Grounding | .243(a)(5) | Hazardous Waste Operations and Emergency Response. | .120(b), .120(d), .120(l), .120(p), .120(q) |
| Sanding Machines | .243(a)(3) | Laboratories, Chemical Hygiene Plan. | .1450(e) |
| Work Platforms | .66, .67 | Lead | .1025(e)(3) |
| Elevating and Rotating | .67 | Methylenedianiline | .1050(g)(2) |
| Powered Platforms | .66 | Process Safety Management of Highly Hazardous Chemicals. | .119(c)(1), (d), (f)(1), (j)(2) |
| Vehicle-Mounted | .67 | Respiratory Protection | .134(c) |
| Application | .67(b)(1) | Vinyl Chloride | .1017(f), (i) |
| Design | .67(b)(2) | X-ray Inspections, Mechanical Piping Systems. | .252(d)(2)(ii) |
| Work Platforms, Mobile (see also Scaffolds). | .29(e) | Zinc, Welding/Cutting | .252(c)(6) |
| Working Surfaces (see also Walking-Working Surfaces). | .30 | Confined Spaces | .252(c)(6)(i) |
| Written Programs (see also Emergency Action Plans; Fire Prevention Plan). | | Indoors | .252(c)(6)(ii), .252(c)(6)(ii) |
| Acrylonitrile | .1045(g)(2) | | |
| Asbestos | .1001(f)(2) | | |
| Arsenic, Inorganic | .1018(g)(2) | | |
| Benzene | .1028(f)(2) | | |
| Bloodborne Pathogens | .1030 | | |
| Coke Oven Emissions | .1029(f)(6) | | |
| Confined Spaces, Permit-Required Control of Hazardous Energy (Lockout/Tagout). | .146(c)(4), (d) .147(c) | | |