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Title 29 – Labor

Subtitle B – Regulations Relating to Labor

Chapter XVII – Occupational Safety and Health Administration, Department of Labor

Part 1915 – Occupational Safety and Health Standards for Shipyard Employment

Authority: 33 U.S.C. 941; 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754); 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), 1-2012 (77 FR 3912), or 8-2020 (85 FR 58393); 29 CFR part 1911; and 5 U.S.C. 553, as applicable.

Source: 47 FR 16986, Apr. 20, 1982, unless otherwise noted.

Subpart C Surface Preparation and Preservation

- § 1915.31 Scope and application of subpart.
- § 1915.32 Toxic cleaning solvents.
- § 1915.33 Chemical paint and preservative removers.
- § 1915.34 Mechanical paint removers.
- § 1915.35 Painting.
- § 1915.36 Flammable liquids.

Subpart C—Surface Preparation and Preservation

§ 1915.31 Scope and application of subpart.

The standards contained in this subpart shall apply to ship repairing and shipbuilding and shall not apply to shipbreaking.

§ 1915.32 Toxic cleaning solvents.

- (a) When toxic solvents are used, the employer shall employ one or more of the following measures to safeguard the health of employees exposed to these solvents.
 - (1) The cleaning operation shall be completely enclosed to prevent the escape of vapor into the working space.
 - (2) Either natural ventilation or mechanical exhaust ventilation shall be used to remove the vapor at the source and to dilute the concentration of vapors in the working space to a concentration which is safe for the entire work period.
 - (3) Employees shall be protected against toxic vapors by suitable respiratory protective equipment in accordance with the requirements of subpart I of this part and, where necessary, against exposure of skin and eye contact with toxic solvents and their vapors by suitable clothing and equipment.
- (b) The principles in the threshold limit values to which attention is directed in § 1915.4 will be used by the Department of Labor in enforcement proceedings in defining a safe concentration of air contaminants.
- (c) When flammable solvents are used, precautions shall be taken in accordance with the requirements of § 1915.36.

[47 FR 16986, Apr. 20, 1982, as amended at 61 FR 26351, May 24, 1996]

§ 1915.33 Chemical paint and preservative removers.

- (a) Employees shall be protected against skin contact during the handling and application of chemical paint and preservative removers and shall be protected against eye injury by goggles or face shields in accordance with the requirements of subpart I of this part.
- (b) When using flammable paint and preservative removers, precautions shall be taken in accordance with the requirements of § 1915.36.
- (c) When using chemical paint and preservative removers which contain volatile and toxic solvents, such as benzol, acetone and amyl acetate, the provisions of § 1915.32 shall be applicable.
- (d) When using paint and rust removers containing strong acids or alkalis, employees shall be protected by suitable face shields to prevent chemical burns on the face and neck.
- (e) When steam guns are used, all employees working within range of the blast shall be protected by suitable face shields. Metal parts of the steam gun itself shall be insulated to protect the operator against heat burns.

[47 FR 16986, Apr. 20, 1982, as amended at 61 FR 26351, May 24, 1996]

§ 1915.34 Mechanical paint removers.

- (a) **Power tools.**
 - (1) Employees engaged in the removal of paints, preservatives, rusts, or other coatings by means of power tools shall be protected against eye injury by using goggles or face shields in accordance with the requirements of subpart I of this part.
 - (2) All portable rotating tools used for the removal of paints, preservatives, rusts or other coatings shall be adequately guarded to protect both the operator and nearby workers from flying missiles.
 - (3) Portable electric tools shall be grounded in accordance with the requirements of § 1915.132.
 - (4) In a confined space, mechanical exhaust ventilation sufficient to keep the dust concentration to a minimum shall be used, or employees shall be protected by respiratory protective equipment in accordance with the requirements of subpart I of this part.
- (b) **Flame removal.**
 - (1) Hardened preservative coatings shall not be removed by flame in enclosed spaces unless the employees exposed to fumes are protected by air line respirators in accordance with the requirements of subpart I. Employees performing such an operation in the open air, and those exposed to the resulting fumes shall be protected by a fume filter type respirator in accordance with the requirements of subpart I of this part.
 - (2) Flame or heat shall not be used to remove soft and greasy preservative coatings.
- (c) **Abrasive blasting –**
 - (1) **Equipment.** Hoses and fittings used for abrasive blasting shall meet the following requirements:
 - (i) **Hoses.** Hose of a type to prevent shocks from static electricity shall be used.

- (ii) **Hose couplings.** Hose lengths shall be joined by metal couplings secured to the outside of the hose to avoid erosion and weakening of the couplings.
 - (iii) **Nozzles.** Nozzles shall be attached to the hose by fittings that will prevent the nozzle from unintentionally becoming disengaged. Nozzle attachments shall be of metal and shall fit onto the hose externally.
 - (iv) **Dead man control.** A dead man control device shall be provided at the nozzle end of the blasting hose either to provide direct cutoff or to signal the pot tender by means of a visual and audible signal to cut off the flow, in the event the blaster loses control of the hose. The pot tender shall be available at all times to respond immediately to the signal.
- (2) **Replacement.** Hoses and all fittings used for abrasive blasting shall be inspected frequently to insure timely replacement before an unsafe amount of wear has occurred.
- (3) **Personal protective equipment.**
- (i) Abrasive blasters working in enclosed spaces shall be protected by hoods and air line respirators, or by air helmets of a positive pressure type in accordance with the requirements of subpart I of this part.
 - (ii) Abrasive blasters working in the open shall be protected as indicated in paragraph (c)(3)(i) of this section except that when synthetic abrasive containing less than one percent free silica are used, filter type respirators approved jointly by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration for exposure to lead dusts, used in conjunction with the proper eye, face and head protection, may be used in accordance with subpart I of this part.
 - (iii) Employees, other than blasters, including machine tenders and abrasive recovery men, working in areas where unsafe concentrations of abrasive materials and dusts are present shall be protected by eye and respiratory protective equipment in accordance with the requirements of subpart I of this part.
 - (iv) The blaster shall be protected against injury from exposure to the blast by appropriate protective clothing, including gloves.
 - (v) Since surges from drops in pressure in the hose line can be of sufficient proportions to throw the blaster off the staging, the blaster shall be protected by a safety belt when blasting is being done from elevations where adequate protection against falling cannot be provided by railings.

[47 FR 16986, Apr. 20, 1982, as amended at 61 FR 26351, May 24, 1996]

§ 1915.35 Painting.

(a) **Paints mixed with toxic vehicles or solvents.**

- (1) When paints mixed with toxic vehicles or solvents are sprayed, the following conditions shall apply:
 - (i) In confined spaces, employees continuously exposed to such spraying shall be protected by air line respirators in accordance with the requirements of subpart I of this part.

- (ii) In tanks or compartments, employees continuously exposed to such spraying shall be protected by air line respirators in accordance with the requirements of subpart I. Where mechanical ventilation is provided, employees shall be protected by respirators in accordance with the requirements of subpart I of this part.
- (iii) In large and well ventilated areas, employees exposed to such spraying shall be protected by respirators in accordance with the requirements of subpart I of this part.
- (2) Where brush application of paints with toxic solvents is done in confined spaces or in other areas where lack of ventilation creates a hazard, employees shall be protected by filter respirators in accordance with the requirements of subpart I of this part.
- (3) When flammable paints or vehicles are used, precautions shall be taken in accordance with the requirements of § 1915.36.
- (4) The metallic parts of air moving devices, including fans, blowers, and jet-type air movers, and all duct work shall be electrically bonded to the vessel's structure.
- (b) ***Paints and tank coatings dissolved in highly volatile, toxic and flammable solvents.*** Several organic coatings, adhesives and resins are dissolved in highly toxic, flammable and explosive solvents with flash points below 80 °F. Work involving such materials shall be done only when all of the following special precautions have been taken:
 - (1) Sufficient exhaust ventilation shall be provided to keep the concentration of solvent vapors below ten (10) percent of the lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.
 - (2) If the ventilation fails or if the concentration of solvent vapors reaches or exceeds ten (10) percent of the lower explosive limit, painting shall be stopped and the compartment shall be evacuated until the concentration again falls below ten (10) percent of the lower explosive limit. If the concentration does not fall when painting is stopped, additional ventilation to bring the concentration to below ten (10) percent of the lower explosive limit shall be provided.
 - (3) Ventilation shall be continued after the completion of painting until the space or compartment is gas free. The final determination as to whether the space or compartment is gas free shall be made after the ventilating equipment has been shut off for at least 10 minutes.
 - (4) Exhaust ducts shall discharge clear of working areas and away from sources of possible ignition. Periodic tests shall be made to ensure that the exhausted vapors are not accumulating in other areas within or around the vessel or dry dock.
 - (5) All motors and control equipment shall be of the explosion-proof type. Fans shall have nonferrous blades. Portable air ducts shall also be of nonferrous materials. All motors and associated control equipment shall be properly maintained and grounded.
 - (6) Only non-sparking paint buckets, spray guns and tools shall be used. Metal parts of paint brushes and rollers shall be insulated. Staging shall be erected in a manner which ensures that it is non-sparking.
 - (7) Only explosion proof lights, approved by the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the Mine Safety and Health Administration or the U.S. Coast Guard, shall be used.

- (8) A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.
- (9) The face, eyes, head, hands, and all other exposed parts of the bodies of employees handling such highly volatile paints shall be protected. All footwear shall be non-sparking, such as rubbers, rubber boots or rubber soled shoes without nails. Coveralls or other outer clothing shall be of cotton. Rubber, rather than plastic, gloves shall be used because of the danger of static sparks.
- (10) No matches, lighted cigarettes, cigars, or pipes, and no cigarette lighters or ferrous articles shall be taken into the area where work is being done.
- (11) All solvent drums taken into the compartment shall be placed on nonferrous surfaces and shall be grounded to the vessel. Metallic contact shall be maintained between containers and drums when materials are being transferred from one to another.
- (12) Spray guns, paint pots, and metallic parts of connecting tubing shall be electrically bonded, and the bonded assembly shall be grounded to the vessel.
- (13) All employees continuously in a compartment in which such painting is being performed shall be protected by air line respirators in accordance with the requirements of subpart I of this part and by suitable protective clothing. Employees entering such compartments for a limited time shall be protected by filter cartridge type respirators in accordance with the requirements of subpart I of this part.
- (14) All employees doing exterior paint spraying with such paints shall be protected by suitable filter cartridge type respirators in accordance with the requirements of subpart I of this part and by suitable protective clothing.

[47 FR 16986, Apr. 20, 1982, as amended at 61 FR 26351, May 24, 1996; 67 FR 44541, July 3, 2002]

§ 1915.36 Flammable liquids.

- (a) In all cases when liquid solvents, paint and preservative removers, paints or vehicles, other than those covered by § 1915.35(b), are capable of producing a flammable atmosphere under the conditions of use, the following precautions shall be taken:
 - (1) Smoking, open flames, arcs and spark-producing equipment shall be prohibited in the area.
 - (2) Ventilation shall be provided in sufficient quantities to keep the concentration of vapors below ten (10) percent of their lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.
 - (3) Scrapings and rags soaked with these materials shall be kept in a covered metal container.
 - (4) Only explosion proof lights, approved by the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the Mine Safety and Health Administration or the U.S. Coast Guard, shall be used.

- (5) A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.
- (6) Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use.