

**CHAPTER 13. GAS, LEAD AND NITRO AMIDO COMPOUNDS**

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**Authority**

The provisions of this Subchapter A issued under act of December 27, 1951 (P. L. 1793, No. 475) (35 P. S. §§ 1321—1329), unless otherwise noted.

**Source**

The provisions of this Subchapter A adopted September 1, 1956, amended through March 26, 1969), unless otherwise noted.

**GENERAL PROVISIONS****§ 13.1. Definitions.**

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

*Act*—The act of December 27, 1951 (P. L. 1793, No. 475) (35 P. S. §§ 1321—1329).

*Authorized attendant*—An employe of a manufacturer, distributor or user of liquefied petroleum gas who has been trained in the proper performance of his duties, with complete training recognition in the hazards involved in the handling of liquefied petroleum gas, and who has been officially authorized to perform designated duties by the employer.

*Bulk plant*—Any liquefied petroleum storage facility consisting of storage tank or tanks and related equipment used for the filling of smaller liquefied petroleum gas containers which are sold or delivered, or both, to wholesale or retail dealers or to users; the term shall include consumers of liquefied petroleum gas who use storage tanks to refill their own cylinders or tanks if the storage facilities are less than 2,000-gallon water capacity.

*Cylinder*—Any container constructed and maintained in accordance with the Interstate Commerce Commission cylinder specifications for use in storing and transporting liquefied petroleum gas.

*Dealer*—Any person who sells liquefied petroleum gas to customers located in this Commonwealth except:

- (i) Merchants who sell both liquefied petroleum gas and the container thereof where such container is 21/2 pounds water capacity or less.
- (ii) Public utilities regulated by the Public Utility Commission distributing liquefied petroleum gas by pipelines.
- (iii) Producers not selling to users directly.

*Industrial and utility user*—Any person who is the consumer of liquefied petroleum gas who maintains total storage capacity of 2,000-gallons water capacity or more.

*Industry*—Standards developed by the National Fire Protection Association for the storage and handling of liquefied petroleum gases (NFPA—58) and the installation of gas appliances and gas piping (NFPA—54).

*Liquefied petroleum gas*—Any substance in a liquefied or gaseous state which is composed predominately of any hydrocarbon such as propane, propylene, butane, normal butane or isobutane and butylene or their mixtures.

*NFPA*—National Fire Protection Association.

*Owner*—Any person who owns the storage tanks shall be considered the owner of the bulk plant or shall be considered the industrial or utility user.

*Person*—Any individual, firm, partnership, unincorporated association, corporation or municipality, and the Commonwealth.

*System*—An assembly of the cylinder or cylinders, tank or tanks and auxiliary equipment, with the piping connecting such parts. This term does not include any public utility distribution systems.

*Tank*—Any portable or stationary vessel intended for use on storing liquefied petroleum gas with a water weight capacity of more than 1,000 pounds avoirdupois.

**Source**

The provisions of § 13.1 amended October 27, 1978, 8 Pa.B. 2907. Immediately preceding text appears at serial pages (8285) and (8286).

**§ 13.2. Purpose.**

(a) This subchapter sets forth rules to safeguard the lives, limbs and health of the public and of workers where liquefied petroleum gas is manufactured, handled or used.

(b) The employer, employe and user of liquefied petroleum gas shall have the responsibility of complying with the provisions of this subchapter.

**§ 13.3. Administration.**

All industrial and utility users of liquefied petroleum gas with storage facilities in excess of 2,000 gallons water capacity, and all bulk plants and dealers in liquefied petroleum gas shall comply with the registration provisions of act of December 27, 1951 (P. L. 1793, No. 475), as amended (35 P. S. §§ 1321—1329).

**§ 13.4. Scope.**

(a) The provisions of this subchapter apply to the design, construction, transportation, handling, location, operation, and inspection of tanks, cylinders, equipment, piping, appliances, and transportation facilities utilized in the handling, transportation, and use of liquefied petroleum gas as defined in this subchapter.

(b) The provisions of §§ 13.11—13.29 (relating to general requirements) apply to all classes of vessels and equipment.

(c) The provisions of §§ 13.31—13.45 (relating to special requirements) apply to the particular vessels and equipment designated in each individual section, in addition to the requirements of §§ 13.11—13.29.

(d) Standards as developed for the 1976 edition of the Storage and Handling of Liquefied Petroleum Gases (NFPA # 58) and the 1969 edition of the Installation of Gas Appliances and Gas Piping (NFPA # 54), are part of these regulations by reference and shall govern only when they are more inclusive or more stringent than the Pennsylvania Regulations for Liquefied Petroleum Gas.

**Source**

The provisions of this § 13.4 amended October 27, 1978, 8 Pa.B. 2907. Immediately preceding text appears at serial page (8287).

**§ 13.5. Penalty.**

Any person who violates any of the provisions of this subchapter and any regulations of the Department, or who interferes with the Department or its duly authorized representative in the enforcement of such provisions shall be subject to summary proceedings before an alderman, magistrate, or justice of the peace, and upon conviction shall be penalized under the provisions of act of May 2, 1929 (P. L. 1513, No. 451) (35 P. S. § 1318) and section 7 of act of December 27, 1951 (P. L. 1793, No. 475) (35 P. S. § 1327).

**§ 13.6. Certificates of registration.**

(a) A person shall be billed for each class of registration required by section 3.2 of the act (35 P. S. § 1323.2).

(b) Dealers shall be billed for one certificate based on the total number of customers served regardless of the number of locations used in the dealership.

(c) Bulk plant owners shall be billed for a certificate for each location of bulk plants.

(d) Industrial and utility users shall be billed for a certificate for each location of usage.

(e) Certificates shall be posted at the location of each bulk plant and industrial and utility usage and the original certificate shall be posted at the main office of dealers with photocopies of the certificate to be posted at each dealership location.

**Source**

The provisions of this § 13.6 adopted October 27, 1978, 8 Pa.B. 2907.

**§ 13.7. Notification to Department.**

The owner of a bulk plant shall, 15 days prior to the installation modification or removal of storage facilities, notify the Boiler Division, Bureau of Occupational and Industrial Safety, of these activities.

**Source**

The provisions of this § 13.7 adopted October 27, 1978, 8 Pa.B. 2907.

**GENERAL REQUIREMENTS****§ 13.11. Suitability.**

(a) Tanks, cylinders, equipment and appliances utilized in the storage, handling, and use of liquefied petroleum gas shall be of a type and construction suitable for such purpose.

(b) Shutoff valves and equipment, liquid or gas which may be subjected to container pressure shall be suitable for liquefied petroleum gas service and be designed for not less than 250 pounds per square inch.

(c) No connectors or fittings shall be utilized throughout liquefied petroleum gas systems unless suitable for the particular purpose used. The design and material used in all connectors and fittings shall provide strength sufficient to prevent failure within the maximum pressure to which they may be subjected in normal operation.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.12. Refilling.**

No person other than the owner and those authorized by the owner to do so shall fill, or refill any liquefied petroleum gas tank or cylinder for any purpose.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.13. Odorizing.**

(a) All liquefied petroleum gases shall be effectively odorized so as to give positive indication, by distinctive odor, of the presence of gas in case of leakage, unless this requirement is waived when no useful purpose can be gained, and upon approval by the Board.

(b) The degree of odorization shall be at least that produced by the use of one pound of ethyl mercaptan, 1 pound of thiophane, or 1 2/5 pounds of amyl mercaptan per 10,000 gallons of liquefied petroleum gas or equivalent.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.14. Safety devices.**

Safety devices shall be installed and maintained in good condition whenever the provisions of this subchapter require it.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.15. Location of tanks and cylinders.**

(a) Tanks and cylinders shall be located outside of buildings other than buildings especially provided and meeting industry standards for this purpose, except that cylinders may be temporarily used indoors under all of the following conditions:

- (1) If used for demonstration purposes and the cylinder has a maximum water capacity of 12 pounds.
  - (2) If used with a completely self-contained gas hand torch or similar equipment, and the cylinder has a maximum water capacity of 2-1/2 pounds.
  - (3) When used for industrial purposes, the maximum capacity limitation may be extended up to 300 pounds.
  - (4) When used as motor fuel in industrial trucks covered by industry standards.
- (b) Whenever it is practicable, tanks shall be installed above ground. When installed below ground, they shall conform to all of the following requirements:
- (1) Before installation they shall be treated with a special corrosive resisting coating, which shall consist of the following:
    - (i) Hot-dip galvanizing.
    - (ii) Two preliminary applications of red lead followed by a heavy coating of coal tar or asphalt, or other approved treatment.
  - (2) During the operation of placement underground, care shall be taken to prevent damage to the coating on the tank.
  - (3) Proper care shall be taken in the selection of the spot where the tank is placed so that adequate precautions can be taken to avoid future shifting and settling.
  - (4) Inspection certificates shall be posted and kept readily available to Department inspectors.

#### Cross References

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

### § 13.16. Piping.

- (a) As is provided by the National Fire Protection Association (NFPA—58), piping may consist of any of the following:
- (1) Seamless copper.
  - (2) Brass.
  - (3) Steel.
  - (4) Aluminum, except that it shall not be used in exterior locations or where it is in contact with masonry, plastic walls or insulation.
- (b) Except as provided in subsection (a), piping shall consist of wrought iron, steel, brass, or copper.
- (c) Piping or tubing shall be of sufficient strength to withstand mechanical handling at the required working pressure, but in no case less than 125 pounds per square inch for gas and 250 pounds per square inch for liquid.
- (d) Containers of 125 or more gallons water capacity manufactured after July 1, 1962, shall be provided with an approved device for liquid evacuation, the size

of which shall be 3/4 inch National Pipe Thread minimum. A plugged opening will not satisfy this requirement.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.17. Hose.**

(a) Hose shall be fabricated of materials which will not deteriorate through action of liquefied petroleum gas and shall be of sufficient strength to withstand mechanical handling at maximum developed pressure or excess temperatures.

(b) Flexible hose may be used on the low pressure side of a system provided that it is of substantial construction and that connectors are designed for such use.

(c) Hose shall be so installed that it will not be adversely affected by high temperatures from the consuming appliance.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.18. Transfer of liquids.**

(a) Only an authorized attendant shall connect, disconnect and remain close to the operation at all times during transfer of liquefied petroleum gas.

(b) Transfer of liquids shall not be performed in proximity to any open flame or other source of ignition.

(c) No person or persons shall fill or refill any tank or cylinder with liquefied petroleum gas unless such vessel is designed and constructed for that purpose, in accordance with this subchapter, and with authorization from the owner.

(d) Gas or liquid shall not be vented to the atmosphere to assist in transferring contents of one container to another except that this shall not preclude the use of listed pumps utilizing LP-Gas in the vapor phase as a source of energy, and venting such gas to the atmosphere at a rate not to exceed that from a No. 31 drill size opening. Such venting and liquid transfer shall be located not less than 50 feet from the nearest building.

(e) Tanks and cylinders shall be gauged and charged only in the open air or in buildings specially constructed or provided for that purpose.

(f) The maximum vapor pressure of liquefied petroleum gas which may be transferred into a tank or cylinder shall be in accordance with accepted practice in the industry for the particular type of gas being handled.

(g) Smoking by any person engaged in the transfer of liquefied petroleum gas into tanks or cylinders shall be prohibited during any stage of connecting, disconnecting or transfer.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.19. Density.**

The maximum permitted filling density shall not exceed ratings established by the industry.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.20. Vessels filled at installation.**

Filling connections on tanks and cylinders which are filled at the installation shall be provided with effective automatic check valves.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.21. Vaporizers.**

Vaporizers shall not be installed inside of any storage tank or cylinder.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.22. Fuel for internal combustion engines.**

(a) Intake and discharge connections on tanks as well as on cylinders, which are used to supply fuel directly to internal combustion engines, shall be labeled to designate whether they communicate with vapor or liquid space.

(b) A positive automatic shutoff valve or regulator shall be provided in the fuel system to prevent flow of gas to the mixer when the engine is not running.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.23. Regulators.**

Pressure reducing regulators shall be connected to the shutoff valve directly or by means of a suitable flexible connection. In either case the connection shall be rigidly supported.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.24. Openings.**

There shall be no more than two plugged openings on a tank or cylinder of 2,000 or less gallons water capacity.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.25. Settings.**

Tanks and cylinders shall be set upon firm foundations or otherwise firmly secured. Vessels shall have flexible piping connections or special fittings if a settling condition may affect the safety of the connections.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.26. Electrical equipment.**

All electrical equipment and connections shall be installed according to the provisions of Chapter 39, Subchapter B (relating to electric safety) and shall be so maintained as to provide special protection where such precautions are indicated.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.27. Repairs and maintenance.**

(a) No repairs by welding shall be made on any pressure part of a liquefied petroleum gas system, until the system has been purged.

(b) Repairs by welding shall be made only by a qualified welder employed by a manufacturer of equipment, or by a distributor or user authorized to do so after approval by the Department.

(c) Tanks and cylinders shall be kept properly painted or otherwise treated to provide adequate protection against effects of weather exposure.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.28. Fire hazards.**

Readily ignitable material including weeds and long dry grass shall be removed within ten feet of any tank or cylinder, and the area maintained in a clear condition.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**§ 13.29. Instructions.**

(a) Every employe whose duties involve the handling of liquefied petroleum gas, or the installation, repair, or maintenance of liquefied petroleum gas systems, shall be thoroughly instructed on the properties of liquefied petroleum gas and trained in all details in his responsibilities with respect to safe practices in the handling, transportation, and use of it. Distributors shall furnish complete instructions to employes and users on the proper care and use of systems which they install for service.

(b) No person other than a representative of the owner, or distributor of such vessel or of recognized service agency, such as a fire department, police department, civil defense agency, or other public agency shall connect or disconnect any tank or cylinder.

(c) Owners or distributors of tanks and cylinders shall remove such vessels from establishments within ten days of notification to do so.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.96 (relating to filling of cylinders).

**SPECIAL REQUIREMENTS FOR TANKS****§ 13.31. Construction, test and inspection.**

(a) Liquefied petroleum gas tanks shall be designed, constructed, tested and inspected according to §§ 3.141—3.145 and 3.151—3.156.

(b) Inspection of aboveground tanks shall be according to regular Department procedure.

(c) Safety equipment and connections to underground tanks shall be annually inspected by the Department. Complete inspection of the underground tank itself shall be required at least once every 5 years. To comply with this section, a metal plate at least 60 square inches in area and of substantially the same material and finish as the tank, stamped with the number of the vessel, shall be buried adjacent to the tank and dug up at least once every 5 years. If the plate shows evidence of corrosion the tank itself shall be completely exposed for inspection.

(d) Annual certificates of operation shall be obtained as required by the act of May 2, 1929 (P. L. 1513, No. 451) known as Boiler Regulation Law (35 P. S. § 1301—1318.1).

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).

**§ 13.32. Location.**

(a) Tanks shall be located with respect to the nearest building or line of adjoining property which may be built upon according to the following table:

<i>Water capacity per container (in gallons)</i>	<i>Minimum Distances Containers</i>		<i>Between aboveground containers (in feet)</i>
	<i>underground</i>	<i>aboveground</i> (in feet)	
Less than 125	10	None	None
125—500	10	10	3
501—2,000	25	25	3
Over 2,000	50	50	3

(b) The distance requirements described in subsection (a) may be reduced to not less than ten feet for a single container of 1,200 or less gallons water capacity if the container is at least 25 feet from another LP-Gas container of more than 125 gallons water capacity.

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); 34 Pa. Code § 13.4 (relating to scope); and 34 Pa. Code § 13.33 (relating to bulk storage).

**§ 13.33. Bulk storage.**

(a) In cases of bulk storage in heavily populated or congested areas, special care shall be taken to ascertain safe limits of tank capacity, total storage and proper distances from buildings and other areas.

(b) In industrial installations involving tanks of large capacity, where serious mutual exposures between the tank and adjacent properties prevail, the Department may require fire walls designed and constructed in accordance with good engineering practices.

(c) In the case of buildings devoted exclusively to gas manufacturing and distributing operations the distance specified in § 13.32 (relating to location) may be reduced. Tanks may not be located without regard to the safety of employees or the public.

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).

**§ 13.34. Support of storage tanks.**

(a) Storage tanks installed above ground, except for skid tanks, shall be provided with substantial masonry or noncombustible structural supports on firm masonry foundations.

(b) Horizontal tanks shall be mounted on saddles to permit expansion and contraction. Every tank shall be so supported to prevent the concentration of excessive loads on the supporting portion of the shell. Structural metal supports may be employed when they are protected against fire in an effective manner. Suitable means of preventing corrosion shall be provided on that portion of the tank in contact with the foundations or saddles.

(c) Tanks of 2,000 or less gallons water capacity may be installed with ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the tank shell to the ground does not exceed 24 inches.

(d) Tanks with the foundations attached, that is, portable or semiportable tanks with suitable steel runners or skids and usually known in the industry as skid tanks, shall have the supports designed, installed and used in accordance with accepted practice in the industry.

(e) Skids or lugs for attachment of skids shall be firmly secured. However, skid tanks shall not be used in place of tank trucks, tank trailers or tank semitrailers for regular deliveries.

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).

**§ 13.35. Escape pipes.**

Escape pipes from safety relief valves on tanks of 2,000 or more gallons water capacity shall be provided and shall discharge into the atmosphere at least seven feet in a vertical direction from the tank and shall be unobstructed. They shall be fitted with loose raincaps at the pipe terminal. Escape pipes shall be arranged so that the discharge into the atmosphere is more than five feet from any building opening.

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).

**§ 13.36. Hose.**

Where hose is to be used for transferring liquid from one tank to another, wet hose is recommended. Such hose shall be equipped with suitable shutoff valves at the discharge end. Precautions shall be taken to prevent excessive hydrostatic pressure in the hose.

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).<sup>3</sup>

**§ 13.37. Stamping and marking.**

(a) Each tank to be used for liquefied petroleum gas, hereafter constructed and installed, shall be stamped with the ASME symbol and marked as required by § 3.144 (relating to marking). In addition, the water capacity of the tank shall be marked in pounds or gallons (U.S. Standard), and the overall length and diameter of the vessel shall also be placed on the tank.

(b) Tanks used in storing, handling or transporting liquefied petroleum gas in industrial establishments shall be clearly marked on their outer surface with the type of liquefied petroleum gas which they contain.

**Cross References**

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).

**§ 13.38. Safety equipment.**

(a) Safety relief valves of a type designed for use with liquefied petroleum gas shall be provided on all tanks. They shall be of a design and construction generally acceptable to good practice in the industry. They shall be set to relieve at the designed maximum working pressure of the vessel, except that for tanks built with a safety factor of five, they may be set to relieve at not more than 125% of such pressure. They shall be connected directly to the vapor space, and marked as required by § 3.144 (relating to marking).

(b) Excess or back flow check valves shall be required on all tank openings except for the following:

- (1) Safety relief valve connections.
- (2) Openings which are smaller than No. 54 drill size.
- (3) Service line connections on tanks of 2,000 or less gallon capacity if they are equipped with reducing regulators.

(c) The valves described in subsections (a) and (b) shall close automatically at the rated flow of vapor or liquid as specified by the manufacturer. The connections or lines including valves, fittings, or other attachments being protected by the excess flow valve shall have a greater capacity than the rated flow of the excess flow valves. Means shall be provided to allow equalization of pressures.

(d) Check valves of suitable type shall be installed on the intake connection of every tank.

(e) Excess flow and check valves when required by the provisions of this Subchapter shall be located inside the tank, or at a point outside where the line enters the tank.

(f) All connections to tanks, when it is practicable, shall have shutoff valves of the quick-closing type. They shall be located at the tank except for the following:

- (1) Safety relief valve connections.
- (2) Liquid level gauging devices.
- (3) Plugged openings.
- (4) Pressure gauge openings.

(g) The requirements of subsection (f) of this section do not prohibit installation of a relief valve manifold assembly if the manifold and valves are so arranged that adequate relief valve capacity is always connected to the vapor space of the tank.

(h) Each tank with over 2,000 gallons water capacity shall have a suitable pressure gauge connected directly to the vessel. The dial of such gauge shall be graduated to at least 1 1/2 times the pressures at which the relieving device is set to function.

(i) Every tank, except those filled by weight, shall be equipped with a liquid level gauging device. Such gauging device shall be arranged so that the maximum liquid level is readily determinable. Gauging devices shall be designed to withstand a working pressure of at least 250 pounds per square inch.

(j) An effective relief valve shall be installed on the low pressure side of the regulator, and it may be an integral part of the regulator.

#### Cross References

This section cited in 34 Pa. Code § 3.12 (relating to frequency of inspection); and 34 Pa. Code § 13.4 (relating to scope).

### SPECIAL REQUIREMENTS FOR CYLINDERS

#### § 13.41. Design, construction, test and inspection.

(a) Cylinders shall be designed, constructed, tested, and inspected in accordance with the requirements of nationally accepted standards after approval of such standards by the Board.

(b) To assist in the accomplishment of this requirement all distributors of liquefied petroleum gas shall keep accurate record of all installations at point of distribution, such records to be readily available to inspectors of the Department.

(c) When LP-Gas and one or more other cylinder gases are stored or used side by side, labeling may be necessary to identify cylinder content. Such label-

ing shall be in compliance with American Standard ASA Z48.1-1954, Method of Marking Portable Compressed Gas Containers to Identify the Material Stored.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope).

**§ 13.42. Location.**

(a) Cylinders shall not be installed within a horizontal distance of 5 feet when possible, but in no case less than 3 feet of any building opening located below outlet level.

(b) Cylinders shall not be installed one above the other when placed in service.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope).

**§ 13.43. Safety devices.**

(a) All cylinders of liquefied petroleum gas shall be equipped with effective safety relief valves and other safety devices designed to prevent accidents. Cylinders which are refilled at the installation point shall be provided with check valves. Fusible plugs may be accepted on cylinders constructed prior to the effective date of the provisions of this subchapter, but shall not be acceptable in lieu of safety devices on new construction.

(b) Valve protecting caps or other means of protection against mechanical injury shall be provided, and regulators shall be rigidly supported.

(c) Any present and future installations of shutoff valves on cylinders shall be plainly marked to indicate the opening and closing directions of such valves.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope).

**§ 13.44. Treatment after damage.**

Cylinders which have been exposed to fire or otherwise damaged shall not be used again until they have been returned to a manufacturer for repair and retest.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope).

**§ 13.45. Requalification.**

Cylinders shall be requalified for service at least within ten years of their manufacture and every five years after that. Such requalification shall consist at least of thorough exterior examination of the vessel, fittings and connections. Requalification may be made by the owner or manufacturer and proper records shall be kept of the results of such tests and made available to the Department.

**Cross References**

This section cited in 34 Pa. Code § 13.4 (relating to scope).

**VAPORIZERS****§ 13.51. Direct and indirect fired vaporizers.**

(a) Direct fired vaporizers shall be constructed, marked, installed, and inspected as required by §§ 3.71—3.76, 3.81—3.87 and 3.131—3.136.

(b) Indirect fired vaporizers shall be constructed, marked, installed and inspected according to the requirements of §§ 3.141—3.145 and 3.151—3.156 except vaporizers having an inside diameter of six inches or less. Such vessels shall be designed and constructed as to safely sustain a working pressure of not less than 250 pounds per square inch. These vessels need not be permanently marked except for the name of the manufacturer and the designed pressure.

(c) The application of direct heat to tanks and cylinders containing liquefied petroleum gas is prohibited.

**§ 13.52. Location.**

(a) Vaporizers shall be located with respect to adjacent tanks, cylinders and buildings in accordance with safe practices developed in the industry.

(b) The use of vaporizers in buildings where persons are employed, other than attendants, is prohibited except in buildings used exclusively in gas manufacturing and distribution.

(c) Where vaporizers are installed in buildings, rooms, housings, sheds or lean-tos used exclusively for gas manufacturing or distribution, such structures shall be of noncombustible construction or equivalent and well ventilated near the floor line and roof.

(d) Pressure regulating and pressure reducing equipment, if located close to a direct fired vaporizer, shall be separated from the open flame by a substantially airtight noncombustible partition or partitions.

**§ 13.53. Drain protection.**

Drains to sewers or sump pits from vaporizers shall be adequately protected.

**§ 13.54. Liquid discharge.**

Vaporizers shall be provided with suitable automatic means to prevent liquid passing from the vaporizers to the gas discharge piping.

**§ 13.55. Coils.**

Heating or cooling coils shall not be installed inside any storage tank nor shall heat be directly applied to any tank.

**§ 13.56. Capacities.**

The ratio of rated capacities of direct fired vaporizers shall be in proper relation to the tanks or cylinders in the system.

**§ 13.57. Cast metal.**

Vaporizers of one or more gallons volumetric capacity shall not be constructed of cast metal. Where cast metal is used for vessels under this size, construction shall be according to Chapter 3a (relating to boilers and unfired pressure vessel regulations).

**§ 13.58. Safety equipment.**

(a) Safety relief valves shall be provided on all vaporizers designed for liquefied petroleum gas. They shall be of a design and construction generally acceptable to good practice in the industry and shall be set to relieve at the designed working pressure of the vaporizers. Such valves shall be directly connected to the vaporizers and marked with the name or identifying trademark of the manufacturer, the pipe size valve inlet and the pressure at which the valve is set to blow.

(b) Fusible plugs shall not be installed on vaporizers.

(c) Gas fired heating systems supplying heat for vaporization purposes shall be equipped with automatic safety devices to shut off flow of gas to main burners and pilot in case of failures of the pilot light.

**LOADING, UNLOADING, AND TRANSPORTATION****§ 13.61. Tank cars.**

(a) The track of tank car sidings shall be approximately level and the wheels of cars shall be blocked at both ends while loading or unloading liquefied petroleum gas.

(b) A sign shall be installed at the active end or ends of the siding while the tank car is connected for loading or unloading. Such sign shall be of such standard size and form as used in the industry.

(c) An authorized attendant shall be present at all times while tank cars and trucks are being loaded or unloaded.

**§ 13.62. Safety equipment.**

(a) The discharge from safety relief valves shall be vented away from the tank upward and unobstructed to the open air to prevent any impingement of escaping gas upon the tank. Size of discharge lines from safety relief valves shall not be smaller than the nominal size of the relief valve outlet connection. Suitable provision shall be made for draining condensate which may accumulate in the discharge pipe.

(b) Any portion of piping between tank and pump inlet or any wet hose which at any time may be closed at each end shall be provided with a relief valve to prevent excessive pressure from developing in the hose.

(c) If tank filling connections are located at a distance of more than 20 feet from a car or truck the pump discharge shall be provided with an excess flow valve.

#### **§ 13.63. Pumps and compressors.**

(a) Pumps and compressors shall be properly protected and mounted. They may be driven directly or by truck motor power take-off. The pumps, except constant speed centrifugal pumps, shall be equipped with suitable pressure actuated bypass valves permitting flow from pump discharge to pump suction or back to tank when the pump discharge pressure rises above a predetermined point.

(b) Pump discharge from positive displacement pumps shall be equipped with a spring loaded safety valve of nonleaking type, set at a pressure not to exceed 35% higher than the predetermined setting of the bypass valve.

#### **§ 13.64. Mounting of tanks on trucks.**

(a) A suitable stop shall be mounted on the truck, semitrailer or trailer or on the tank in such a way that the tank cannot be dislodged from its mounting when the vehicle comes to a sudden stop. Back slippage shall also be prevented by proper methods.

(b) A suitable hold-down device shall be provided which will anchor the tank at one or more places on each side of the tank to the truck, semitrailer or trailer frame to minimize loosening due to vibration.

#### **§ 13.65. Electrical equipment and lighting.**

Tank trucks, trailers, and semitrailers shall not be equipped with an artificial light other than electricity. Lighting circuits shall have suitable overload protection such as fuses or automatic circuit breakers. Wiring shall have sufficient carrying capacity and mechanical strength and be suitably secured, insulated and protected against physical damage.

#### **§ 13.66. Fire protection.**

(a) Each cargo truck or tractor shall be provided with at least one approved portable fire extinguisher having at least a 12-B, C rating, or when more than one is provided, each cargo truck or tractor shall have at least one extinguisher having an 8-B, C rating. Ratings shall be in accordance with the Standard for Installation, Maintenance and Use of Portable Fire Extinguishers (NFPA No. 10).

(b) Truck drivers and their helpers shall not smoke or allow smoking around the truck.

**§ 13.67. Skid tanks.**

Skid tanks shall not be used in place of tank trucks, tank trailers or semitrailers for regular deliveries.

**§ 13.68. Motor fuel.**

(a) Fuel may be used from the cargo tanks of a truck while in transit but not from cargo tanks on trailers or semitrailers.

(b) The use of fuel from the cargo tank to operate stationary engines is permitted if the wheels are securely blocked.

(c) Cylinders from which gas is to be withdrawn only in the gaseous phase shall be installed and equipped with suitable valves and connections to prevent the accidental withdrawal of liquid.

(d) Piping and equipment shall be installed, braced, and supported so as to reduce to a minimum the possibility of strain or wear. Piping shall not be installed in proximity to sources of extreme heat.

(e) No single fuel tank or cylinder used exclusively for supplying fuel to the motor shall exceed 300 gallons water capacity.

**BULK FILLING PLANTS, INDUSTRIAL ESTABLISHMENTS,  
AND UTILITIES****§ 13.71. Location.**

(a) The cylinder filling rooms shall be located far from storage tanks and such distance shall never be less than 10 feet from them.

(b) Tank truck filling station outlets shall be located far from pumps and compressors and in such distance shall not be less than 10 feet from them.

(c) If pumps and compressors are housed in one or more separate buildings they shall also be located far from storage tanks and all sources of ignition. However, in no case shall this distance be less than 10 feet from tanks and 25 feet from sources of ignition.

(d) No boiler or any source of ignition shall be located in a building used for filling purposes except when permitted by the Department.

**§ 13.72. Storage area.**

Tank storage areas shall be fenced with a 6 foot high industrial type fence or equivalent protection where required by the Department. In such cases at least two means of access to the enclosures shall be provided.

**§ 13.73. Lighting.**

Adequate lighting shall be provided for illumination purposes as set forth in Chapter 27 (relating to lighting). Explosion-proof equipment shall be used where indicated.

**§ 13.74. Fire protection.**

(a) Adequate fire protection shall be available at all times and suitable means of access to storage areas shall be provided for firefighting equipment. At bulk filling plants a minimum of a 12 B, C rating portable fire extinguisher shall be provided.

(b) Adequate fire protection shall be available at all times and suitable means of access to storage areas shall be provided for fire fighting equipment.

**STORAGE OF DISCONNECTED RESERVED CYLINDERS****§ 13.81. Premises of users.**

(a) Cylinders on the premises of users which are not connected for use shall be stored according to the following requirements:

(1) When stored in buildings, they shall be enclosed in rooms of fire-resistive construction separated from any other occupancy or storage. Such rooms shall not be artificially heated beyond a temperature of 60° F nor shall they be in locations where they are liable to excessive heat exposure from any source. They shall also be ventilated to the outer air.

(2) When stored in the open air, they shall be protected against the effects of weather and their location shall be a safe distance from any area accessible to the public.

(b) Valves shall be closed on all full or empty cylinders.

**Source**

The provisions of this § 13.81 amended June 10, 1977, 7 Pa.B. 1591. Immediately preceding text appears at serial page (8307).

**§ 13.82. Resale or distribution.**

Cylinders destined for resale or distribution shall be stored on the premises of such owner or distributor in accordance with the following requirements:

(1) When stored in buildings they shall be enclosed in fire-resistive rooms separated from any other occupancy or storage. Such rooms shall not be artificially heated beyond a temperature of 60° F or in locations where they are liable to excessive heat exposure from any source. Such room or compartment shall not be below ground level and shall have no openings communicating with other occupancies. The space below the floor shall be of solid fill or be properly ventilated to the open air. The building or compartment or room shall be vented top and bottom to the outside only and the outlet of such vents shall not be within five feet of any other building opening. Such storage of containers shall not be adjacent to any place of public assembly.

(2) When stored in the open air they shall be protected against the effects of weather and their location shall be a safe distance from any area accessible to the public.

- (3) Valves shall be closed on all empty cylinders.
- (4) Readily combustible material shall not be piled within 10 feet of cylinders in storage. A warning sign to keep open flames and fire away shall be conspicuously posted.

**Source**

The provisions of this § 13.82 amended June 10, 1977, 7 Pa.B. 1591. Immediately preceding text appears at serial page (8307).

**MOBILE LIVING AND OTHER MOBILE UNITS**

**§ 13.91. Location.**

(a) Cylinders, control valves, and regulating equipment enclosed in a housing and comprising a complete system shall be mounted on the chassis of the vehicle as close to the hitch as practicable.

(b) No cylinders shall be installed, transported or stored, even temporarily, inside of any mobile living unit or other mobile unit used for sales, service or display purposes.

**§ 13.92. Valves.**

Valves in the assembly of a two-cylinder system shall be arranged so that replacement of cylinders can be made without shutting off the flow of gas to the appliances.

**§ 13.93. Systems.**

(a) Systems shall be of a vapor withdrawal type.

(b) Systems supplying fuel to appliances in a liquid or liquid-gaseous phase are prohibited.

**§ 13.94. Piping and equipment.**

(a) Piping and equipment shall be installed, braced and supported so as to reduce to a minimum the possibility of strain or wear. Piping shall not be installed in proximity to sources of extreme heat.

(b) The gas line shall be installed to enter the vehicle through rubber grommets or equivalent in the floor directly beneath the appliance which it serves. When a branch line is required, the tee connection shall be in the main gas line and located under the vehicle.

**§ 13.95. Gas fired heaters.**

Gas fired space heaters and water heaters shall be of the full vented type, vented to the outside of the vehicle. Air for combustion shall come from the out-

side of the trailer. Each such appliance shall be equipped with a device designed to shut off the supply of gas to the main burner and to the pilot in the event the pilot flame is extinguished.

**§ 13.96. Filling of cylinders.**

(a) Cylinders shall be filled according to §§ 13.11—13.29 (relating to general requirements) and at a properly equipped cylinder filling plant or tank truck which complies with all requirements of this subchapter. Such filling plant or tank truck may be located in a trailer camp provided that the entire filling operation, including the cylinder, is located not less than 50 feet from the nearest trailer or building and not less than 25 feet from any public street or highway. Such filling plant shall be enclosed by 6 foot high industrial type fence or otherwise protected from tampering or from physical damage. Access to the enclosed area shall be kept locked when unattended.

(b) The cylinder-filling operation shall only be performed by qualified personnel and only when adequate safe lighting is provided.

## INSTALLATION

**§ 13.101. Fuel engine generators for emergency lighting.**

(a) Cylinders shall be installed above grade with an outlet at least 5 feet away from any building opening which is below the level of such outlet.

(b) A relief valve shall be installed on the low pressure side of the primary regulator adjusted to discharge into the atmosphere at a pressure less than the maximum allowable pressure for the engine regulator. Such discharge outlet shall be located not less than 5 feet horizontally from any opening into the building which is below such discharge.

(c) A solenoid operated valve shall be connected in the fuel line to the engine between the primary regulator and the engine regulator with the operating coil connected so that the valve will open automatically when the engine is in operation and be closed at all other times.

(d) The fuel line shall be of sufficient size to provide adequate fuel at satisfactory pressure to run the engine generator at rated connected load.

(e) An adequate fuel supply to operate the engine generator at rated load for 11/2 hours shall always be maintained. A gauge to indicate fuel level shall be provided.

(f) Cylinders or tanks shall be set on a firm foundation and in the case of school or other installations as deemed necessary by the Department shall be enclosed by a fence with locked gate to prevent unauthorized persons from tampering with the cylinders, tanks, regulators and other similar equipment.

(g) Fuel and fuel cylinder or tank for emergency lighting application shall be used for no other purpose.

**§ 13.102. Compliance.**

All installations shall comply with NFPA # 54 or NFPA # 58.

**Source**

The provisions of this § 13.102 adopted October 27, 1978, 8 Pa.B. 2907.

**HEATERS****§ 13.111. Heaters in drive-in theaters.**

The placing of heaters, fueled by liquefied petroleum gas, on or in cars occupying space in drive-in theaters is prohibited. The owners or operators of such theaters shall be held responsible for compliance with the requirement of this section.

**Subchapter B. LEAD CORRODING AND OXIDIZING****GENERAL PROVISIONS**

Sec.	
13.131.	Purpose.
13.132.	Penalty.

**SPECIFICATIONS**

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13.152.	Nitrate of lead and of soda.
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13.154.	Posting of lead poisoning law.

**Authority**

The provisions of this Subchapter B issued under section 2 of the act of July 26, 1913 (P. L. 1363, No. 851) (43 P. S. § 471), unless otherwise noted.

**Source**

The provisions of this Subchapter B adopted August 1, 1917; amended through July 1, 1968, unless otherwise noted.

**Cross References**

This subchapter cited in 34 Pa. Code § 11.85 (relating to applicable provisions of other regulations).

**GENERAL PROVISIONS****§ 13.131. Purpose.**

This subchapter sets forth rules to safeguard the lives, limbs and health of workers, and places the responsibility of complying with the provisions of this subchapter upon both the employer and employe.

**§ 13.132. Penalty.**

Any person who violates any of the provisions of this subchapter and interferes with the Department or its duly authorized representative in the enforcement of such provisions or regulations shall be penalized under the provisions of section 15 of act of May 18, 1937 (P. L. 654, No. 174), (43 P. S. § 25-15).

**SPECIFICATIONS****§ 13.141. Place.**

(a) Every employer shall, without cost to his employes, provide and maintain for the protection of his employes who are engaged in the work or process of the corrosion of metallic lead into carbonate of lead, by any and all processes, or who are engaged in any work or process in the manufacture of red lead, litharge, basic lead sulphate (sublimed white lead), nitrate of lead and nitrate of soda, work-rooms which shall be as follows:

- (1) Adequately lighted.
  - (2) So ventilated and arranged that there is a continuous and sufficient change of air.
  - (3) Separated by walls and doors composed of fire resisting material from all departments in which the work or process is of a nondusty character.
  - (4) Provided with a smooth floor permitting an easy removal of dust by any of the following methods:
    - (i) Vacuum cleaning.
    - (ii) Flushing the floor with water.
    - (iii) Sweeping after the floor has been thoroughly sprinkled with a sufficient quantity of wet sawdust to lay all dust.
- (b) Dry sweeping of the floors and walls is prohibited.

(c) The walls of all rooms shall be smooth and either painted or whitewashed at frequent intervals. Dust should be prevented from accumulating upon the walls either by vacuum cleaning or by flushing the walls with water.

(d) The daily removal of all dust from floors and walls by vacuum cleaning is recommended as the best and most economical method of cleaning.

#### Cross References

This section cited in 34 Pa. Code § 13.147 (relating to physical examination).

### § 13.142. Physical examination—age.

Persons engaged in occupations involving exposure to lead dusts, lead fumes, or lead solutions in any volume shall be at least 18 years of age and shall be physically examined at the expense of the employer by a licensed physician at least once every 30 days. Records of such examination shall be kept on file and shall be available to inspectors of the Department.

#### Source

The provisions of this § 13.142 amended through June 10, 1977, Pa.B. 1592. Immediately preceding text appears at serial page (13413).

### § 13.143. Age.

No employes less than 18 years of age shall engage in the following work or process:

- (1) Stripping the stacks.
- (2) Making repairs to ventilating systems.
- (3) Working in the dry packing of any of the following:
  - (i) Carbonate of lead.
  - (ii) Litharge.
  - (iii) Red lead.
  - (iv) Basic sulphate of lead.
  - (v) Sublimed white lead.

#### Source

The provisions of this § 13.143 amended June 10, 1977, 7 Pa.B. 1592. Immediately preceding text appears at serial page (13413).

### § 13.144. Habits of employes.

Because the use of alcoholic liquors and chewing tobacco undermines the health and predisposes to lead poisoning and industrial accidents, it is recommended that employers exclude such persons who habitually use alcoholic liquors or who chew tobacco from employment in any capacity in the lead corroding and lead oxidizing industries.

**§ 13.145. Safety.**

(a) The following shall conform to the safety standards of the Department:

- (1) Power transmission machinery.
- (2) Railings and toe boards.
- (3) Stationary steam engines.
- (4) Boilers.
- (5) Ladders.
- (6) Fire prevention plans and equipment.
- (7) Elevators.
- (8) Artificial lighting.

(b) When the provisions of this subchapter require it, the employer shall provide and renew when necessary, without cost to the employe, at least one reasonably effective respirator for each and every employe, and it shall be the duty of the employe to keep clean the respirator provided by the employer and to use such respirator at all times while at work.

(c) A respirator shall be considered efficient only when it fits the contour of the face and allows no air to enter the mouth or nose except air which has passed through the respirator. At least three thicknesses of gauze or cheese-cloth shall be considered an efficient respirator if such gauze or cheesecloth is thoroughly washed every day.

**§ 13.146. Sanitation.**

(a) *Purpose.* This section sets out the sanitary requirements for employes who handle dry lead or dry compounds containing lead in excess of 10%.

(b) *Washrooms.* The employer shall provide a washroom, or rooms, which shall be separate and apart from the workrooms, kept clean and equipped with any of the following:

- (1) At least one lavatory basin for every five employes, fitted with waste pipes and two spigots conveying hot and cold water.
- (2) Basins placed in troughs fitted with waste pipes and for each basin two spigots conveying hot and cold water, at least one basin for every five employes.
- (3) Troughs of enamel or similar smooth impervious material, fitted with waste pipes and for every 2 feet of trough length two spigots conveying hot and cold water, and at least 2 feet of trough length for every five employes; or troughs of enamel or similar smooth impervious material, fitted with waste pipes without plugs, and a continuous spray of warm water.

(c) *Nailbrush, soap and towels.* The employer shall also furnish nailbrushes and soap and shall provide at least three clean fabric towels per week for each employe, or a sufficient number of sanitary paper towels.

(d) *Time allowance.* A time allowance of not less than 10 minutes, at the expense of the employer shall be made to each employe for the use of such washroom before the lunch hour and at the close of each work day.

(e) *Shower bath.* The employer shall provide at least one shower bath for every ten employes. The baths shall be as follows:

- (1) Approached by wooden runways.
- (2) Provided with movable wooden floor gratings.
- (3) Supplied with hot and cold water controlled within each individual bath.
- (4) Kept clean.

(f) *Use of bath.* The employer shall provide at least two clean fabric bath towels per week for each employe. An additional time allowance of not less than 10 minutes, at the expense of the employer shall be made to each employe for the use of such baths at least twice a week at the close of each work day. The employer shall keep a record of such time that such baths are used by each employe. Such record shall be open at all reasonable times to inspection by inspectors of the Department.

(g) *Washing facilities.* All employes shall use the washing facilities furnished by the employer.

(h) *Urinals.* Urinals and water closets shall be provided in accordance with the provisions of Chapter 41 (relating to sanitation) and all other rules of the Department.

(i) *Locker room.* The employer shall provide a dressing room or rooms, which shall be as follows:

- (1) Adequately heated when necessary.
- (2) Separate from the workrooms.
- (3) Furnished with a double sanitary locker or two single sanitary lockers for each employe.
- (4) Kept clean and sanitary.

(j) *Wire baskets.* Wire baskets for clothes may be provided in lieu of lockers. If so provided, they shall be attached to a rope passing through a pulley and pulled up to the ceiling when containing clothing.

(k) *Eating rooms.* The employer shall provide eating rooms which shall be as follows:

- (1) Separate from the workrooms.
- (2) Furnished with a sufficient number of tables and seats.
- (3) Kept clean and sanitary.

(l) *Prohibition.* No person shall be permitted to take any food or drink of any kind into any workroom, nor shall any employe remain or be permitted to remain in any workroom during the time allowed for meals.

(m) *Drinking fountains.* The employer shall provide and maintain either a sufficient number of sanitary drinking fountains readily accessible or individual drinking cups for the use of all employes.

(n) *Overalls.* The employer shall provide at least one pair of overalls and one jumper for each employe, and repair and renew such clothing when necessary, and wash the same at least once each week, all without cost to the employe.

(o) *Notice.* The employer shall post in a conspicuous place in every workroom, in all washrooms, dressing rooms and eating rooms the following notice, or similar notices calling attention to the known dangers from such work or process, and simple instructions for avoiding as far as possible such dangers:

#### **DANGERS OF LEAD**

Lead is a poison.

With proper care you can handle it with no danger.

If handled carelessly it will almost without fail cause sickness.

This sickness, commonly called lead poisoning, may be only slight or it may be very severe.

It may show itself as headache; cramps; constipation; loss in weight; paralysis; disease of the heart, blood vessels, or kidneys; insanity; and may cause death.

#### **AVOID LEAD POISONING**

##### **Keep lead dust out of your nose**

Wear a respirator when working in lead dust.

Do no dry sweeping. Clean floors and walls with a vacuum cleaner, wash them with water, or sweep only when dust has been laid with wet sawdust or similar material.

##### **Keep lead dust out of your mouth**

Before eating and before leaving work wash hands, arms, and face with soap and warm water, and rinse mouth thoroughly.

Keep fingernails short and clean, scrub hands with a brush, soap and warm water.

Keep beard and mustache cut short; or better still be clean shaven as it is hard to wash dust from hair.

Bathe often, every day if possible.

Take no food into the workroom; it will gather dust that you will eat later on.

Chew no tobacco while at work; lead is sure to reach your mouth when you handle your tobacco with unwashed hands.

##### **Keep yourself in good health**

Eat a hearty meal before starting work.

Drink plenty of milk.

Use no alcoholic drinks.

Have a good bowel movement every day; take an occasional dose of Epsom or Glauber's salts or other laxative if necessary.

If not feeling well consult your plant doctor or your family physician at once. Every case of lead poisoning can be cured if treated early.

By taking home remedies or by depending on the advice of fellow workers or friends you lose valuable time, causing your sickness to last longer and to be more severe.

Additional copies of this notice, Form I-117, suitable for posting, will be furnished without charge upon written request to the Department of Labor and Industry, Harrisburg, Pennsylvania 17120.

**§ 13.147. Physical examination.**

(a) The employers shall cause every employe who is exposed to lead dusts, lead fumes, or lead solutions, to be physically examined at least once a month by a licensed physician for the purpose of ascertaining if symptoms of lead poisoning appear in any employe. The employe shall submit himself to the monthly examination, and to examination at such other times and places as he may reasonably be requested by the employer, and he shall fully and truly answer all questions in regard to his physical condition asked him by the examining physician. These examinations shall be made by a licensed physician, designated and paid by the employer, and shall be made during the working hours. A time allowance at the expense of the employer shall be made to each employe so examined.

(b) Every physician making an examination pursuant to this section and finding what he believes to be symptoms of lead poisoning, shall enter, in a book kept for that purpose in the office of the employer, a record of such examination, which shall contain all of the following:

- (1) The name and address of the employe so examined.
- (2) The particular work or process in which the employe is engaged.
- (3) The place, date, and finding of such examination.
- (4) Directions given in each case by the physician.

(c) The record shall be open to inspection at all reasonable times by inspectors of the Department.

(d) If the examining physician believes that lead poisoning is present, he shall send a report in duplicate within 48 hours to the Department and a report to the Pennsylvania Department of Health.

(e) The examining physician shall within 48 hours report such examination and finding in writing to the employer, and upon receipt of such report the employer shall not continue the employe in any work or process where he may be exposed to lead dust, fumes, or solutions included in § 13.141 (relating to place).

**§ 13.148. Carbonate of lead or white lead; Old Dutch Process.**

(a) *Melting pot.* The melting pot of the buckle casting machine shall be provided with a hood connected with an efficient air exhaust.

(b) *Lead dust.* The work of stripping the stacks shall be so conducted, and such adequate devices provided and maintained by the employer as to protect the employe as much as possible from lead dust.

(c) *Other equipment.* The employer shall equip the crane bucket, box, barrel, car or other receptacle into which the corroded buckles are dumped, with a hood or other tight-fitting cover connected with an efficient air exhaust, which shall be connected with an efficient dust collecting system. Such system shall be regulated by the discharge of air from a fan, pump or other apparatus through an enclosed cloth dust collector, having an area of not less than one square foot of cloth to every cubic foot of air passing through it per minute. If this cloth dust collector is not of the portable type, it shall be placed in a separate room or in a permanent dust house equipped with baffles or such other apparatus to adequately take care of all dust which it may receive. The dust collector shall be provided with adequate means, so that the dust can be removed by an employe or employes who are outside the room or dust house, and no employe shall be required or allowed to enter such room or dust house except for the making of essential repairs, and then only when the dust-collecting machinery is not in operation.

(d) *Gas escape.* The employer shall equip the crane bucket, barrel, box, car or other container in which the corroded buckles are transported from the stack to the place where they are dumped with a cover to prevent the escape of dust.

(e) *Discharge point.* The dump, hopper, chute or other point at which the corroded buckles are discharged from the crane bucket, barrel, box or other receptacle which contains them, shall be equipped with a hood having connection with an efficient air exhaust and dust-collecting system, as provided for in subsection (c).

(f) *Separator screens.* Separator screens and their vents shall be dust tight and shall be connected with an efficient air exhaust and dust-collecting system, as provided for in subsection (c).

(g) *Drag boxes.* All drag boxes shall be so constructed that the dry lead shall enter under the water and not on top of the water.

(h) *Dry pans.* All dry pans shall be enclosed and so equipped with mechanical exhaust ventilation that dust cannot enter the workroom. The efficacy of such mechanical exhaust ventilation shall be approved, in writing, by the Department or its authorized representative. It is recommended that all employes engaged in the work of emptying a dry pan should wear respirators.

(i) *Chasers, pulverizers and mills.* All chasers, pulverizers and mills shall be properly encased with covers, and connected with an efficient air exhaust and dust-collecting system, as provided for in subsection (c).

(j) *Hoppers, chutes and dumps.* All hoppers, chutes and dumps, not otherwise mentioned, shall be connected with an efficient air exhaust and dust-collecting system, as provided for in subsection (c).

(k) *Conveyors, elevators and mills.* All conveyors, elevators, and mills, where lead is handled dry, shall be connected with an efficient air exhaust and dust-collecting system as provided for in subsection (c).

(l) *Packing by machine.* All packing of dry white lead, red lead, litharge, or any other dry substance containing lead in packages over 100 pounds in weight shall be carried on by means of an approved type of enclosed packing machine.

(m) *Packing by hand.* All packages 100 pounds or less in weight may be packed by hand under a hood equipped with an efficient air exhaust and dust-collecting system as provided for in subsection (c).

#### Cross References

This section cited in 34 Pa. Code § 13.149 (relating to Carter process); 34 Pa. Code § 13.151 (relating to manufacturing); and 34 Pa. Code § 13.153 (relating to dry grinding, sieving and packing).

### § 13.149. Carter process.

(a) *Melting pot.* The melting pot shall be provided with a hood connected with the chimney stack or with other efficient air exhaust.

(b) *Blow chamber.* The blow chamber shall be so enclosed as to be dustproof and means shall be provided to empty it mechanically. The blow chamber shall not be entered when blowing is in progress. It may be entered when blowing is not in progress only for the making of repairs or to clean the chamber. The employes so engaged shall wear respirators.

(c) *Conveying equipment.* The employer shall convey the blown lead to the cylinders or reels either by a screw conveyor with dustproof cover, or the crane bucket, barrel, box, car or other conveyor equipped with a dustproof cover.

(d) *Reels.* Care shall be taken in conveying the blue lead into the reels to create as little dust as possible. Employes engaged in this work shall wear respirators.

(e) *Pipes to reels.* The pipes conveying the carbon dioxide to the reels shall be tight and inspected daily for leaks. A record of such inspection shall be kept in a book.

(f) *Emptying reels.* Care shall be taken in emptying the reels to create as little dust as possible. Employes engaged in this work shall wear respirators.

(g) *Dry thrasher.* The dry thrasher shall be enclosed and connected with an efficient air exhaust and dust collector, as provided for in § 13.148(c) (relating to carbonate of lead or white lead; Old Dutch Process).

### § 13.150. Sublimed white lead.

(a) *Furnance.* The furnace shall be tight so that dust or fumes cannot escape into the workrooms.

(b) *Pipes.* All pipes leading from the furnace shall be tight so that dust or fumes cannot escape into the workrooms.

(c) *Bag house.* The bag house shall be in a closed room, separate and apart from the workrooms, and no employe or other person shall be required or permitted to enter such room or bag house unless wearing a hood or such other protective device as shall be authorized by the Department or his authorized representative.

(d) *Protectors.* It shall be the duty of the employer to provide such authorized device for the use of all employes without expense to the employes, and all employes and other persons who enter the bag house shall wear such devices.

### § 13.151. Manufacturing.

(a) *Purpose.* This section sets out the requirements for the manufacture of all of the following:

- (1) Litharge or massicot.
- (2) Flake litharge.
- (3) Red lead.
- (4) Minium.
- (5) Orange mineral.

(b) *Furnace.* The furnace, at the point of discharge, shall be equipped with a hood or such other device as shall efficiently remove all dust and fume that is generated, and all apparatus shall be approved by the Department or its authorized representatives.

(c) *Dust.* Employes shall be instructed to take care in removing the contents of the furnace so as not to create dust. The employer shall equip all trucks, cars, barrels or other containers into which the litharge, flake litharge, red lead or orange mineral is raked or otherwise brought from the furnace, either with a hinged cover so that when one side of this top is being depressed to allow material to enter the container the other side will be closed, or equip the receptacle with a hood or other dust tight cover connected with an efficient air exhaust and dust-collecting system, as provided for in § 13.148(c) (relating to carbonate of lead or white lead; Old Dutch Process). The provisions of this subsection do not apply to that type of mechanical furnace in which the oxidized material is deposited either mechanically or by hand beneath the oxidizing hearth.

(d) *Melting pot.* In the manufacture of flake litharge the melting pot shall be provided with a hood connected with an efficient air exhaust.

(e) *Falling material.* It is prohibited to rake or otherwise cause material containing lead to fall from the furnace to the floor of the workroom.

(f) *Separate room.* In the manufacture of litharge by means of a cupellation furnace it is permitted to dump the litharge in a separate room if all employes entering such rooms wear a hood or such other protective device as shall be authorized by the Department or its authorized representative.

(g) *Protectors.* The employer shall provide such authorized devices for the use of all employes without expense to the employes, and all employes shall wear such devices, and no employe or other person shall be permitted to enter the workroom unless wearing such device.

(h) *Storage.* Scrap lead and tailings shall not be stored or otherwise left on the floor of the workroom. All such material shall be either kept in boxes with dustproof covers or kept thoroughly damp at all times while so stored.

**§ 13.152. Nitrate of lead and of soda.**

(a) The lead melting pot shall be provided with a hood connected with a stack or other efficient air exhaust.

(b) All employes handling these materials shall wear suitable gloves which shall be furnished by the employer without expense to the employe.

**§ 13.153. Dry grinding, sieving and packing.**

All crushing mills, grinding mills and sieving machines, operating on material in a dry state, if containing lead in any form shall be connected with an efficient air exhaust and dust-collecting system as provided for in § 13.148(c) (relating to carbonate of lead or white lead; Old Dutch Process).

**§ 13.154. Posting of lead poisoning law.**

(a) The employer shall post an abstract of the lead poisoning law wherever employes are exposed to the following:

- (1) Lead dust.
- (2) Lead fumes.
- (3) Lead solutions in the manufacture of white lead.
- (4) Red lead.
- (5) Litharge.
- (6) Sugar of lead.
- (7) Arsenate of lead.
- (8) Lead chromate.
- (9) Lead sulphate.
- (10) Lead nitrate.
- (11) Fluosilicate of lead.

(b) Such abstracts are printed in several languages and are available upon application to the Department.

**Subchapter C. MANUFACTURE OF NITRO AND  
AMIDO COMPOUNDS****GENERAL PROVISIONS**

- Sec.  
13.161. Purpose.  
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### CHEMICALS

- 13.221. Scope.  
13.222. Heating.

#### Authority

The provisions of this Subchapter C issued under act of June 2, 1913 (P. L. 396, No. 267) (71 P. S. § 1441); and act of May 18, 1937 (P. L. 685, No. 174) (43 P. S. §§ 25-1—25-15), unless otherwise noted.

#### Source

The provisions of this Subchapter C adopted August 1, 1917; amended through July 1, 1968, unless otherwise noted.

### GENERAL PROVISIONS

#### § 13.161. Purpose.

- (a) This subchapter sets forth rules to safeguard the lives, limbs and health of workers in the manufacture of nitro and amido compounds.
- (b) The employer and the employe engaged in the manufacture of nitro and amido compounds shall have the responsibility of complying with the provisions of this Subchapter.

#### § 13.162. Penalty.

Any person who violates any of the provisions of this subchapter and any regulations of the Department or who interferes with the Department or its duly authorized representative in the enforcement of such provisions or regulations shall be penalized under the provisions of section 15 of act of May 18, 1937 (P. L. 396, No. 267) (43 P. S. § 25-15).

### SPECIFICATIONS

#### § 13.171. Buildings.

- (a) The buildings in which nitro and amido compounds are manufactured or are regularly recovered in considerable quantities shall be properly ventilated.
- (b) Buildings in which twice or more nitrated compounds of benzol, toluene or phenol are manufactured shall be of fire-resistive material or separated from other buildings.

#### § 13.172. Platforms.

- (a) *Use.* It is recommended that platforms be so erected in a free space at least equal in surface to a quarter of the floor space of the building. It is recommended to leave between platforms and the outer walls either a free space or a space covered by slats 2 to 3 feet wide, which is calculated by adding the area of this space to the free space.

(b) *Distance.* The distance of the larger platforms from the floor and from each other shall be 10 feet in so far as is possible and practicable. For smaller platforms a shorter distance is permitted, if it does not interfere with the ventilation of the building.

(c) *Kettles.* On top of melting kettles and distilling apparatus, only such platforms shall be built as are absolutely necessary for the proper handling of the apparatus. It is recommended that care be taken in constructing an apparatus so that vapors and gases cannot escape and injure those obliged to be upon the platform.

(d) *Construction.* Platforms on which work is regularly carried on with nitro and amido compounds shall be light and easy to clean, and covered with sheet lead where advisable.

(e) *Railings and toe boards.* Platforms shall be equipped with railings and toe boards in accordance with the provisions of Chapter 47, Subchapter G (relating to railings, toeboards, open-sided floors, platforms and runways).

#### § 13.173. Floors.

The floor of the workroom and the storage room shall be nonabsorbent, smooth, and easy to clean. Where necessary, wood or cement floors are permissible.

#### § 13.174. Walls.

The walls of the workroom shall be kept clean. If painted with calcimine they shall be repainted at least once a year. Windows which may be opened shall be provided on at least two sides.

#### § 13.175. Roof.

If necessary the roof shall have a sufficient number of ventilators or other appliances which allow sufficient ventilation of the workroom and which may be kept open, even when it rains. Windows or skylights shall be constructed to permit operation from the floor or platform. Skylights in the roof shall be constructed of wire glass.

#### § 13.176. Manufacture.

(a) *Pipe lines.* The work in the factories shall be regulated to avoid direct physical contact to the employes of nitro and amido compounds. It is recommended, when practicable, that liquid nitro and amido compounds be transported through closed pipe lines either by pumping, blowing, suction or by gravity.

(b) *Spent air.* Gravity or suction is recommended because in the use of compressed air fine parts of the compounds go off with the air. Spent compressed air shall be vented outside, but if this is obnoxious to persons in the neighborhood, it is recommended that the spent air be purified before it is expelled. This also

applies to the air which is expelled from vacuum pumps of distilling apparatus, as it frequently contains small quantities of anilin, and other similar substances.

(c) *Covered apparatus.* Liquid nitro and amido compounds shall be kept and stored only in covered vessels. Whenever the nitro and amido compounds are handled in such manner that dust, gases, or vapors are generated, especially in powdering, sifting and packing operations, the work shall be carried on when practicable in covered or closed apparatus. The vapors from receivers of distillates shall be excluded from work buildings.

(d) *Chiseling.* Chiseling out of solid nitro and amido compounds that are explosive is strictly forbidden and when such compounds are poisonous chiseling is permitted only if proper precautions are taken.

(e) *Drying.* It is recommended that drying be done in separate buildings used for drying only, or in properly constructed apparatus. Frequently drying may be avoided by melting the nitro and amido compounds and breaking them up when they are cold.

(f) *Safety valves.* When boilers are fed with water containing anilin, the boiler shall be fitted with suitable safety valves and water glasses which prevent the entering of steam or water containing anilin into the workroom.

(g) *Exhaust systems.* When the Department or its authorized representative, deems it necessary, all apparatus and machinery in which nitro and amido compounds are manufactured, transported, treated, distilled, centrifuged, filtered, dried, ground, mixed, packed or filled, shall be fitted with a reliable attachment that removes such dust, gases or vapors which may be generated.

(h) *Disposition of vapors.* When the Department or its authorized representative deems it necessary, special care shall be taken to dispose of all vapors which are generated in the opening, discharging, and filling of dry rooms, melting kettles, autoclaves and other pressure vessels.

#### § 13.177. Cleanliness.

The workroom shall be kept free from nitro and amido compounds. If any compounds are spilled they shall be removed immediately. The floor shall be cleaned at least once every 24 hours.

#### § 13.178. Health precautions.

(a) *Process men.* This term as used in this section shall mean those employes whose work brings them into immediate contact with nitro and amido compounds, either in the manufacture of those compounds or in the repair of apparatus used in their manufacture. The term does not include employes whose duty is in the power plant or other employes whose work does not bring them into such contact.

(b) *Information.* The employer shall inform all employes engaged in the manufacture or other handling of nitro and amido compounds of the poisonous

quality of these products and the necessity for strict compliance with all health precautions enumerated in this section.

(c) *Clothing.* Shirts, overalls, caps, stockings, shoes, gloves and other wearing apparel which have become saturated with poisonous nitro and amido compounds in such manner that the skin comes in immediate contact with them, shall be immediately taken off, the skin washed with vinegar and then with water, and the employe shall then put on clothing which has not been in contact with these substances.

(d) *Liquor and smoking.* Employes shall be warned that the use of alcoholic liquors and chewing tobacco is harmful to their health. Smoking in the workroom is strictly forbidden.

(e) *Dining, washing, and dressing rooms.* Food shall not be kept or eaten in the workroom. A suitable dining room absolutely separate from the workroom shall be provided. Employes shall not be allowed to enter this room until they have washed both face and hands. The washing and dressing rooms, and bathrooms, shall be separate from the workrooms. These rooms shall be suitably fitted, kept clean, and properly heated. No one shall be allowed to keep any wearing apparel in the workroom. All process men shall dress in the dressing room or washroom. Each process man shall have two lockers, one for his working and one for his street clothing, or a properly divided double locker or such method for storing clothing as the Department may approve or its authorized representative. A proper number of washing appliances shall be provided. Soap and towels shall be furnished in suitable numbers and free of charge.

(f) *Bath.* Every workman who comes in contact with the nitro and amido compounds shall take a bath daily before he leaves the factory.

(g) *Disability.* It is recommended that men who suffer from inflammation of the bladder not be employed in factories where nitro and amido compounds are made.

(h) *Alcoholic liquor.* Men who are addicted to the use of alcoholic liquors shall not be employed and no employe upon whom the odor of alcoholic liquor is detected shall be allowed to enter the factory.

(i) *Age.* It is recommended that process men be between the ages of 22 and 50 years. It is also recommended that applicants for employment presenting evidences of anemia or of emaciation not be employed as process men because of their increased susceptibility.

(j) *Women.* Application for permission to employ women in the manufacture of nitro and amido compounds shall be filed with the Department. It may be granted to women over 18 years of age after scientific investigation by the Department has determined conclusively that exposure to the compounds in question does not exist.

(k) *Toilets.* Toilets shall be provided in accordance with the provisions of Chapter 41 (relating to sanitation).

(l) *Drinking fountains.* The employer shall provide and maintain a sufficient number of sanitary drinking fountains readily accessible for the use of all employes.

(m) *Eating.* It is recommended that all process men be alerted to the danger of

(2) The process.

(n) *Excessive perspiration.* It is recommended that those who suffer from excessive perspiration not be employed as process men.

(o) *Bodily cleanliness.* Since bodily cleanliness is essential to good health, it is recommended that those employes who do not take frequent baths not be employed as process men.

### § 13.179. Repairs.

(a) All repairs and changes on the machinery, apparatus, and pipes for nitro and amido compounds shall be made only after they have been thoroughly cleaned.

(b) If it is necessary for an employe to enter any vats, tanks, or other containers in which there have been used, stored or manufactured, gases, fumes or vapors of an asphyxiating or poisonous nature, or materials which give off gases, fumes, or vapors of an asphyxiating or poisonous nature, the following procedure shall be pursued:

(1) The containers shall be emptied. All connections shall be disconnected and blanked-off.

(2) The containers shall be cleaned thoroughly by repeated washings with water, soda water, steam, compressed air or other suitable means.

(3) If the person in charge then considers conditions satisfactory, employes may enter such containers. They shall use an approved type of helmet and have attached to their bodies a life line or rope if the person in charge considers it necessary.

(4) The life line or rope shall be under the control of one or more fellow workmen who shall remain outside of the container in order to render any necessary assistance.

(5) After the work is finished the men shall take, at once, a bath and change their clothing, including shoes, if the foreman or other person in charge shall deem it necessary. Facilities for taking such baths shall be provided.

(c) The superintendent of the plant shall be held responsible for enforcing the requirements of this section.

#### Cross References

This section cited in 34 Pa. Code § 13.180 (relating to safety methods and devices).

**§ 13.180. Safety methods and devices.**

(a) For every 50 or less process men employed and exposed to the work risks of § 13.179 (relating to repairs) there shall be present at all times at least two persons who are trained or competent to apply means of resuscitation by the prone pressure or Schaeffer method or by mechanical devices.

(b) A sufficient number of helmets of an approved type shall be kept at each plant, so that they may be available for use by every employe who may enter places where there may be asphyxiating or poisonous gases, fumes, or vapors.

(c) All employes who are required by the employer to wear helmets in making repairs or in maintenance work shall be thoroughly instructed in the use of such apparatus, and be physically examined by a licensed physician at least once every 90 days, or after absence from work due to either sickness or accident. The physician shall certify to the proper physical condition of the men so employed and no employe shall be permitted to do such repair work unless so examined and certified.

(d) Oxygen inhalation apparatus shall be kept on hand, and the foreman and authorized employes shall be instructed in its use. In all cases in which the apparatus has been used, a physician shall at once be called, or the sick employe removed to a hospital. A supply of oxygen or the means for its production shall be kept on hand.

(e) If oxygen tanks are used, at least two shall be kept on hand at all times, one of which shall be full.

**§ 13.181. Physical examination.**

(a) All applicants for employment as process men shall be physically examined by a licensed physician either before commencing work or before the expiration of 24 hours after their employment.

(b) All process men shall be physically reexamined by a licensed physician at least once every 30 days and before resuming work after an absence due to sickness, accident, or any other cause.

(c) Such examinations shall consist of determining and recording in a book or upon a card all of the following facts:

- (1) Name, age, and address.
- (2) The process.
- (3) The weight and height.
- (4) The pulse.
- (5) The blood pressure.
- (6) The haemoglobin.
- (7) The examination of urine-reaction.
- (8) The specific gravity.
- (9) The albumin.
- (10) The sugar.

(11) The casts.

(d) The records of these examinations shall at all times be open for inspection by the Department or its authorized representative.

(e) The examining physician shall request the factory manager or superintendent to suspend from work any process man who, he believes, is suffering from poisoning and report such case to the Department.

(f) The employer shall provide, without expense to the employe a hospital room or dispensary, separate and apart from the workroom or rooms, and shall be equipped with all of the following:

(1) A couch, bed or surgical table.

(2) Two pairs of woolen blankets.

(3) Two hot water bottles.

(4) Two tanks of oxygen, one of which shall be completely full, and the necessary apparatus for administering them.

(5) An oxygen helmet for rescue work.

(6) All necessary devices for artificial respiration.

(7) A shower bath with hot and cold water.

(8) At least one stretcher.

(9) A toilet which complies with the requirements of Chapter 41 (relating to sanitation).

(g) Employers shall keep in a book or on a card, a record of all employes, showing their exact employment and all changes to other work. This record shall at all times be open for inspection by the Department or its authorized representative.

## TRINITROTOLUOL

### § 13.191. Buildings.

(a) Trinitrotoluol shall be manufactured in a special plant which is at an approved distance from other factories or portions of factories.

(b) Buildings in which twice or more nitrated compounds of benzol or twice or more nitrated compounds of toluol are manufactured shall be of fire-resistive material or separated from other buildings.

(c) Trinitrotoluol factories which are not on the land of an explosives factory shall be surrounded by a fence which prevents the entering of outsiders. At the gates proper signs shall be posted prohibiting the entrance of unauthorized outsiders. Smoking upon the premises is prohibited.

### § 13.192. Nitration.

Nitration shall be performed in high airy rooms, allowing easy escape of vapors, and in which no nitrated product is stored or handled in a dry condition. There shall be an approved number of easily accessible exits.

**§ 13.193. Storage of acids.**

It is recommended that the storage of spent acids be done in tanks, standing in the open air and only roofed over.

**§ 13.194. Washing and centrifuging.**

All washing and centrifuging operations shall be performed in a building in which no nitrated product is stored. There shall be ample ventilation.

**§ 13.195. Recrystallization.**

The recrystallizing of the crude trinitrotoluol with easily inflammable solvents such as alcohol, benzol or toluol shall take place in a building standing alone. All solution tubs, crystallizing vessels, centrifuges and conveying apparatus shall be closed in such manner that vapors in dangerous quantities do not escape into the workroom. Proper ventilation of the workroom shall be provided. All platforms in this building shall have an exit into the open air.

**§ 13.196. Drying.**

The drying of the trinitrotoluol shall be carried on in a building standing alone. The separation of the pure trinitrotoluol from the solvent may be done in the building for the recrystallizing if the apparatus used avoids accumulation.

**§ 13.197. Packing.**

All packing shall be done in separate packing houses.

**§ 13.198. Storage.**

Trinitrotoluol shall be stored in separate stock rooms and protected by an approved type of barricade. The location of the stock rooms from the nearest manufacturing building shall be at an approved distance.

**Cross References**

This section cited in 34 Pa. Code § 13.200 (relating to ammunition).

**§ 13.199. Inflammable solvents.**

(a) The storage tanks of inflammable solvents or toluol shall be constructed in such manner that the contents of the tanks, in case of leakage cannot run over the surroundings. It is recommended that storage vessels be below ground. If such solvents are stored above ground, they shall be stored in an approved manner. Storage in open air in iron drums in a suitable place is permissible.

(b) Earth embankments of sufficient height to hold the contents of tanks in case of leakage shall be placed around all tanks of inflammable materials when such tanks are located above ground.

**§ 13.200. Ammunition.**

The manufacture of ammunition from trinitrotoluol shall be conducted in a separate building or plant. Ammunition shall be stored according to the requirements of § 13.198 (relating to storage).

**§ 13.201. Doors.**

All doors which lead into the open air shall open outward.

**§ 13.202. Nitrating apparatus.**

All nitrating vessels shall have reliable appliances for stirring and for the regulation of the temperature, as well as ventilating apparatus for the removal of the vapor.

**§ 13.203. Drying apparatus.**

(a) If the drying is done on small drying hand trays the heating elements shall be so arranged that the material to be dried or the dust cannot come in direct contact with them. The temperature in the drying chambers shall not exceed 60 C. All drying apparatus shall be so constructed that the gases escape easily without dangerous pressure if the trinitrotoluol should ignite.

(b) If the drying is done in large drying pans, hot water or low pressure steam at not over 20 pounds pressure per square inch shall be employed for heating. The contents shall be kept in constant motion and the apparatus constructed to prevent the escape of vapors into the workroom.

**§ 13.204. Dust.**

The drying and sifting apparatus shall be so constructed as to prevent as far as practicable the escape of dust. All walls, floors, radiators, electric bulbs and other similar equipment shall be kept free from the accumulation of trinitrotoluol dust. All employes shall be provided without cost with respirators, for their protection against dust.

**§ 13.205. Fire prevention.**

(a) In rooms which have easily inflammable solvents or dried TNT (trinitrotoluol), the following shall not be employed:

- (1) Electric motors.
- (2) Electric bells.
- (3) Any other sparking apparatus.

(b) Centrifuges shall not have a brake nor shall it be allowed to brake them in any manner. Oily waste shall be kept outside the workroom in safety cans which shall be cleaned frequently. In all drying, breaking and sifting operations the friction of iron against iron is not permissible.

**§ 13.206. Refuse.**

Impure trinitrotoluol shall be refined and purified before it is used. All refuse from the nitration or recrystallizing rooms which is still useful shall be removed from such rooms and kept in a special room until it is refined. It is not permissible to bury any refuse which contains trinitrotoluol. Such refuse shall be placed in containers and destroyed from time to time under the supervision of an experienced foreman.

**§ 13.207. Repairs.**

Repairs on apparatus and other tools which have been in contact with trinitrotoluol are permissible only after they have been thoroughly cleaned. The remelting of old vessels, lead pipe, and other equipment is permissible only after they have been burned off in an open fire. All other vessels, lead pipe and other equipment which have become useless shall be treated in the same manner or destroyed by explosion.

**§ 13.208. Nitric acid.**

Because of the danger to the employe from inhalation of nitrous fumes in case of fire or of the breakage of carboys, carboys containing nitric acid shall be stored in detached sheds with sandstone, brick or other suitable flooring, and in quantities not to exceed 100 carboys placed in not more than four rows. Nitric acid in carboys may be stored in the open in unlimited quantities.

**§ 13.209. Notice.**

(a) The Department, on application, shall supply the following notice which shall be posted at all places in plants where there is danger of poisoning by acid fumes:

**ACID FUMES****WARNING**

The Inhalation of Dense Acid Fumes May Cause Death.

Employes are strictly prohibited from entering buildings where dense acid fumes exist, or tanks, or confined spaces which are not entirely clear of acid fumes, unless they wear helmets.

Employes working in such places shall, in addition to the helmets, wear life lines which are at all times in the hands of assistants stationed outside of the tank.

Employes who have been exposed to acid fumes and who feel weak, sick, short of breath, or who are attacked with cramps or coughing, shall report this condition to the foreman, or to the works dispensary

or hospital at once so that proper treatment may be given. They should not wait to get home. Delay may be fatal.

Responsibility for complying with these rules shall rest with the foreman or other person designated for that purpose by the management of the plant.

Failure to comply with these rules may subject the offender to a penalty of a fine or imprisonment.

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(b) Water shall be always available for use in case of evolution of nitrous fumes caused by breakage or other accident to carboys, and all employes handling such acid shall be warned against sprinkling sand, sawdust, earth, or anything other than water or alkalis upon any spilled nitric acid.

(c) There shall be a shower bath at all places, where there is danger that an employe may be burned by contact with acid.

**§ 13.210. Accumulations.**

No more trinitrotoluol may be kept in the workroom than is necessary for concurrent use.

**CHEMICALS**

**§ 13.221. Scope.**

The handling and storage of acids and other chemicals necessary for the operation of plants not covered by the provisions of this subchapter shall be in accordance with safe methods and practices.

**§ 13.222. Heating.**

The workroom when desirable shall be heated by a system of steam, indirect hot air radiation or hot water. The temperature of the steam may not exceed 120°C. The radiators shall be at least 1 inch distant from all wood walls or other inflammable material and shall be attached in such manner as to be easily cleaned and inspected.

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(220156) No. 264 Nov. 96

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