

19-13-E1. Definitions

Occupational Health - Tetraethyl Lead**19-13-E1. Definitions**

For the purpose of sections 19-13-E2 to 19-13-E4, inclusive, "tetraethyl lead" means the chemical substance $Pb(C_2H_5)_4$ of a commercial grade of purity or higher. Ethyl fluid is the concentrated commercial fluid containing tetraethyl lead and other ingredients, which is to be mixed with gasoline to make ethyl gasoline. The manufacture of ethyl fluid consists in adding these other ingredients to tetraethyl lead and is called blending. The process of adding the ethyl fluid to gasoline to form ethyl gasoline is called mixing. In the term "ethyl gasoline," as herein used, are included all other motor fluids containing tetraethyl lead.

19-13-E2. Manufacture of tetraethyl lead and the blending of the latter to make ethyl fluid

- (a) No person shall be employed without adequate instruction as to the nature of the hazard and the precautions to be taken.
- (b) Each worker shall have a periodical physical examination which shall consist of such physical and other tests as are indicative of the absorption of tetraethyl lead and shall include, as a minimum, the following items:
 - (1) Examination of blood for stippling by carefully trained workers, using positive and negative controls, without knowledge of the source of the slides; this examination shall be once a week for the first three weeks, and bimonthly thereafter;
 - (2) semimonthly contact with the plant physician for an informal statement as to general health;
 - (3) bimonthly weigh stripped;
 - (4) bimonthly systolic and diastolic blood pressure estimation, while sitting;
 - (5) bimonthly hemoglobin estimation by Dare's hemoglobinometer. Exact records these examinations shall be kept, and persons showing gradually increasing amounts of stippling, sudden development of stippling or other marked deviation from normal shall be promptly excluded from tetraethyl lead work, irrespective of whether or not such finding may be indicative of lead poisoning. All parts of the plant where lead in any form is used shall be subject to sanitary measures to prevent collection and dissemination of lead dust.
- (c) Separate ventilation systems shall be provided for the manufacturing apparatus and for the air of the rooms, the outlets of the latter being located near the floor of each room, and all external inlets and outlets being so situated as to avoid dustiness and appreciable contamination of the air around the plant.
- (d) Daily inspection shall cover efficiency of ventilating systems, all joints valves and gaskets of manufacturing apparatus and adequacy of pressure-hose respirators.
- (e) All containers of ethyl fluid or tetraethyl lead shall be labeled as to exact content and danger and shall conform to the regulations of the interstate commerce commission. These containers shall be carefully tested for leaks and shall bear plainly legible label stating that they are to be closed tightly immediately when emptied, without cleansing, and sent back to the plant.
- (f) Kerosene or other material used for cleansing the containers of ethyl fluid or tetraethyl lead shall be placed in the containers by means of a closed system with air vents to outside air and with adequate ventilation.
- (g) The filling shall be performed by means of a closed system with air vent from the container to the outside air and with adequate ventilation.
- (h) A dye shall be added to ethyl fluid in sufficient amount to give staining qualities to the ethyl gasoline to deter individuals from using it for cleansing or other similar purposes.
- (a) Reports shall be made monthly to the state department of health covering the following points:
 - (1) The number of workers employed at the beginning of the month;
 - (2) the number of workers employed at the close of the month;

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- (3) the number of new workers;
- (4) the number of workers separated from tetraethyl lead work on account of the results of examinations,
- (5) the number of definite cases of poisoning;
- (6) the condition of cases of poisoning previously reported so far as known.

19-13-E3. Mixing

- (a) The maximum content of tetraethyl lead in commercial ethyl gasoline shall be in the proportion of 1:1260 by volume for commercial tetraethyl lead, or 1:1300 for Pb (C₂H₅)₄ C. P.
- (b) Mixing ethyl fluid with gasoline, except for certain specific requirements such as research, military and naval use and air mail service, shall be done only at the main distribution centers and in not less than tank car lots. Adequate provision shall be made at each such center for thorough mechanical distribution of the ethyl fluid throughout the gasoline, and the efficiency of such distribution shall be controlled by the analysis of samples.
- (c) The location of these centers and the names of persons engaged in mixing shall be reported to the state department of health.
- (d) As few persons at each center as practicable shall be employed for this work.
- (e) No person shall be engaged for mixing until adequately instructed as to the mechanics of mixing, the dangers and the precautions to be taken.
- (f) The distributor of ethyl fluid shall provide a special corps of adequately trained instructors and service men.
- (g) All mixing shall be done with the maximum ventilation practicable under weather conditions existing at the time.
- (h) Operation of the pumps shall be instantly stopped at the appearance of a leak or other defect and no attempt shall be made to repair or disconnect the system until a qualified man takes personal charge of it.
- (i) Floors of all places where any possibility of spilling is present are to be provided with drains and proper facilities for making possible a complete flushing out of all spilled fluid or, in their absence, provision shall be made for chemically neutralizing such spillage as occurs.
- (j) No bulk mixing station shall be dismantled or disconnected for repairs except by a qualified man.
- (k) Kerosene or other efficient means of preventing skin adsorption of tetraethyl lead and washing facilities shall always be conveniently available.
- (l) The rules and instructions affecting the employees shall be posted in a conspicuous place where the ethyl fluid is being handled.

19-13-E4. Distribution of ethyl gasoline

- (a) Each filling station shall have prominently displayed at the pump, or in another conspicuous place, the following warning or one of similar effectiveness: "Ethyl Gasoline containing tetraethyl lead, to be used as motor fuel only, and not for cleaning or any other purpose."
- (b) Leaflets approved by the state department of health shall be available at all filling stations where ethyl gasoline is sold and shall describe the possible dangers and precautions to be taken in the use of ethyl gasoline.
- (c) Containers of ethyl gasoline sold to the general public shall be labeled: "Ethyl Gasoline containing tetraethyl lead. To be used for motor fuel only, and not for cleaning or any other purpose."