

**WAC 16-24-020 Chemical—Carbon dioxide.** The slaughtering of calves, sheep, and swine with the use of carbon dioxide gas and the handling in connection therewith, in compliance with the provisions contained in this section, are hereby designated and approved as humane methods of slaughtering and handling of such animals under the law.

(1) Administration of gas, required effect; handling.

(a) The carbon dioxide gas shall be administered in a chamber in accordance with this section so as to produce surgical anesthesia in the animals before they are shackled, hoisted, thrown, cast, or cut. The animals shall be exposed to the carbon dioxide gas in a way that will accomplish the anesthesia quickly and calmly, with a minimum of excitement and discomfort to the animals.

(b) The driving or conveying of the animals to the carbon dioxide chamber shall be done with a minimum of excitement and discomfort to the animals. Delivery of calm animals to the anesthesia chamber is essential since the induction or early phase of anesthesia is less violent with docile animals. Among other things this requires that, in driving animals to the anesthesia chamber, electrical equipment be used as little as possible and with the lowest effective voltage.

(c) On emergence from the carbon dioxide chamber the animals shall be in a state of surgical anesthesia and shall remain in this condition throughout shackling, sticking and bleeding. Asphyxia or death from any cause shall not be produced in the animals before bleeding.

(2) Facilities and procedures.

(a) General requirements for gas chamber and auxiliary equipment; operator.

(i) The carbon dioxide gas shall be administered in a chamber which accomplishes effective exposure of the animal. Two types of chambers involving the same principle are in common use for carbon dioxide anesthesia. They are the "U" type chamber and the "straight line" type chamber. Both are based upon the principle that carbon dioxide gas has a higher specific gravity than air. The chambers open at both ends for entry and exit of animals and have a depressed central section. Anesthetizing carbon dioxide concentrations are maintained in the depressed central section of the chamber. Effective anesthetization is produced in this section. Animals are driven from holding pens through a pathway constructed of pipe or other smooth metal onto a continuous conveyor device which moves the animals through the chamber. The animals are compartmentalized on the conveyor by impellers synchronized with the conveyor or are otherwise prevented from crowding. Where impellers are used to compartmentalize the animal, a mechanically or manually operated gate will be used to move the animal onto the conveyor. Surgically anesthetized animals are moved from the chamber by the same continuous conveyor that carried them into and through the carbon dioxide gas.

(ii) Flow of animals into and through the carbon dioxide chamber is dependent on one operator. The operation or stoppage of the conveyor is entirely dependent upon this operator. It is necessary that he be skilled, attentive, and aware of his responsibility. Overdosages and death of animals can be brought about by carelessness of this individual.

(b) Special requirements for gas chamber and auxiliary equipment. The ability of anesthetizing equipment to perform with maximum efficiency is dependent on its proper design and efficient mechanical op-

eration. Pathways, compartments, gas chambers, and all other equipment used must be designed to accommodate properly the species of animals being anesthetized. They shall be free from pain producing restraining devices. Injury of animals must be prevented by the elimination of sharp projections or exposed wheels or gears. There shall be no unnecessary holes, spaces, or openings where feet or legs of animals may be injured. Impellers or other devices designed to mechanically move or drive animals or otherwise keep them in motion or compartmentalized shall be constructed of flexible or well padded rigid material. Power activated gates designed for constant flow of animals to anesthetizing equipment shall be so fabricated that they will not cause injury. All equipment involved in anesthetizing animals shall be maintained in good repair.

(c) Gas. Maintenance of a uniform carbon dioxide concentration and distribution in the anesthesia chamber is a vital aspect of producing surgical anesthesia. This may be assured by reasonable accurate instruments which sample and analyze carbon dioxide gas concentration within the chamber throughout anesthetizing operations. Gas concentration shall be maintained uniform so that the degree of anesthesia in exposed animals will be constant. Carbon dioxide gas supplied to anesthesia chambers may be from controlled reduction of solid carbon dioxide or from a controlled liquid source. In either case, the carbon dioxide shall be supplied at a rate sufficient to anesthetize adequately and uniformly the number of animals passing through the chamber. Sampling of gas for analysis shall be made from a representative place or places within the chamber and on a continuing basis. Gas concentrations and exposure time shall be graphically recorded throughout each day's operation. Neither carbon dioxide nor atmospheric air used in the anesthesia chambers shall contain noxious or irritating gases. Each day before equipment is used for anesthetizing animals, proper care shall be taken to mix adequately the gas and air within the chamber. All gas producing and control equipment shall be maintained in good repair and all indicators, instruments, and measuring devices must be available for inspection by department inspectors during anesthetizing operations and at other times. A suitable exhaust system must be provided to eliminate possible overdosages due to mechanical or other failure of equipment.

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