The Carbon Monoxide Cabinet

This booklet explains how to construct and use a simple and inexpensive cabinet for euthanizing dogs and cats with carbon monoxide.

Carbon monoxide is accepted by the American Veterinary Medical Association and *can* meet the requirements of The Humane Society of the United States for humane euthanasia when:

—the carbon monoxide is properly cooled or filtered, or from a cylinder;

—the animal becomes unconscious in 45-60 seconds, and death follows in 2-4 minutes;

—the euthanasia technician receives proper instruction and supervision concerning the use of the cabinet;

—the cabinet is properly designed and maintained.

In addition, the following **restrictions** on the use of carbon monoxide must be observed:

—Puppies and kittens under eight weeks of age cannot be euthanized effectively with carbon monoxide, and thus **there should always be an acceptable backup method of euthanasia available.**

—Sick, old, or injured animals require and deserve special handling *and* individual caging within the cabinet. Because of their condition, these animals may be difficult to move. **Again, for practical and humane reasons, an acceptable backup method of euthanasia should be available.**

Animal Handling

The euthanasia technician should always be concerned with an animal's psychological stress as well as with physical stress.

To minimize the animal's anxiety and fear:

—The animal should be handled gently and quietly at all times.

—The cabinet should be lighted naturally either with use of clear plexiglass walls and/or doors, or be artificially lighted when in use.

—The cabinet should be kept clean at all times.

—The cabinet must be designed in such a way as to reduce stress and allow for species and size separation. Animals *should never be crowded together* or placed with animals already euthanized. Only compatible animals of the same approximate size and of the same species should be placed in the same compartment, and preferably animals should be caged individually.

—Cats should be placed in individual carrying cages. Lightweight, open-wire cages with metal pan bottoms are best for good air circulation.

Euthanasia by Carbon Monoxide

When an adult animal is exposed to an atmosphere with an approximate 5% concentration of carbon monoxide, its breathing brings the gas into contact with the red blood cells. Carbon monoxide is 200 times more soluble than oxygen in the red blood cell. The carbon monoxide easily attaches itself to the hemoglobin molecule in the red blood cell, greatly reducing the cell's capability to carry oxygen.

Due to oxygen deprivation, unconsciousness occurs within 45-60 seconds, and death occurs within 2-4 minutes. Studies show that concentrations of carbon monoxide higher than 5% do not expedite unconsciousness and are not necessary.

The majority of medical experts advise that this is a painless experience. This is based largely on human exposure cases that indicate a lack of awareness of the onset of the effects of the gas. These individuals reach unconsciousness, but upon recovery do not recall suffering any pain or distress prior to losing consciousness.

Because of the psychological impact on personnel, it is important that personnel comprehend fully the process of an animal's physical reaction to exposure to carbon monoxide. It should be noted that carbon monoxide causes *involuntary muscular movements including vocalization* as the animal is passing through what is called Stage II of anesthesia. *At this point the animal is already unconscious.* The first of these stages is analgesia. The majority of medical and veterinary experts feel that any reaction by the animal occurs after this stage and there is a negligible possibility of pain perception. The latter stages of anesthesia and total unconsciousness further substantiate this statement. To date, it has been virtually impossible to pinpoint precisely the exact time of unconsciousness, even with electroencephalogram (EEG) and electrocardiogram (EKG) graphs.

Engine Exhaust

If carbon monoxide generation is by combustion of gasoline in an engine, then:

(a) The engine must be operating efficiently and only at idling speed with a rich fuel-air mixture and should not be in the same room as the cabinet.

(b) The cabinet must be equipped with accurate temperature gauges monitored by attendants to ensure the internal temperature of