COMPOSITION AND PROCESS FOR REDUCING ODORS FROM ANIMAL DISCHARGES

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to compositions for reducing odors emanating from animal discharges, such as feces; urine; glandular secretions, e.g., sexual excitants emitted by female animals in estrus; and the like. Further, it relates to processes for manufacturing such compositions, methods for using such compositions, and packages for storing, transporting, and applying such compositions. In particular, it relates to such compositions that may be added to animal food for ingestion by the animal.

2. Description of the Related Art

Many attempts have been made over the years to reduce or eliminate fecal, urine and sexual excrement odors crated by animals, such as household pets. Household pets, e.g., cats, dogs, ferrets, and Vietnamese Pot-Bellied pigs, are very important members of millions of households. Also, millions of cats and dogs are euthenized each year due to the lack of loving homes. Reducing and eliminating pet odors at the source will make pet ownership more desirable. This will reduce euthenizing of many animals.

Animal's digestive processes generate sulphur and nitrogen compounds, which contribute to urine and fecal odors. Attempts have been made to cover or mask such odors by spraying the animal with or inducing the animal to ingest chlorophyll and related compounds. Other proposed solutions have included food additives containing water-soluble copper and iron compounds and a water-soluble phosphate. A portion of the metals present in such additives may be in the form of inedible water soluble ionizable salts including chlorides.

Attempts have also been made to eliminate the odor of sexual excitants from the discharge of female animals in estrus. These attempts have included the topical and suppository application of compounds incorporating stabilized chlorine dioxide. Such compounds included groups formed by the reaction of chlorine dioxide with sodium carbonate peroxide and chlorine dioxide with sodium perborate. Topical application of the compound may be in ointment form to the region of the animal where the excitant is present or by the placement of a suppository containing the compound into the vaginal orifice of the animal. Additionally, the compound can be applied by spraying or swabbing an aqueous solution of it onto the genital region of the animal in heat.

Despite these attempts a safe and effective composition for reducing odor from animal discharges, which may be easily administered and has a suitable shelf-life, has not been discovered.

SUMMARY OF THE INVENTION

Accordingly, a need has arisen for a safe, e.g., non-toxic, and effective composition for reducing odors from animal discharges. An object of the present invention is to provide a composition for reducing odors from animal discharges that may be accurately applied to an animal's daily food ration without upsetting the normal eating habits of the animal. It is a further object that the composition is safe, e.g., non-toxic, and does not detract from the nutritional balance of the food ration. Yet another object of the present invention

is to provide a composition for reducing odors from animal discharges that is easily and inexpensively manufactured and has a suitable shelf-life. Still another object of the present invention is that it is chlorophyll free.

One embodiment of the invention in its broadest form provides a composition for reducing odors emanating from animal discharges comprises water with low mineral content expressed as a calcium carbonate content less than about 1000 ppm; chlorine dioxide in a range of about 0.01% to 0.5% by weight; and a food grade acidulent in sufficient quantity to adjust the pH of the composition to a to greater than about 7.

Another embodiment of the invention provides a process for manufacturing a composition for reducing odors emanating from animal discharges. The process comprising the steps of providing the low mineral content water with a calcium carbonate content less than about 1000 ppm; adding chlorine dioxide to the water in an amount less than about 0.5% by weight; and adding a food grade acidulent to the water in sufficient quantity to adjust the pH of the composition to greater than about 7. The source of chlorine dioxide and the food grade acidulent may be added to the water, such that a dissolved oxygen content of the composition of less than about 5 ppm is achieved, e.g., by low shear mixing.

In yet another embodiment of the invention, there is provided a product for reducing odors emanating from animal discharges. The product comprises a composition including low mineral content water with a calcium carbonate content less than about 1000 ppm; chlorine dioxide less than about 0.5% by weight; and a food grade acidulent in sufficient quantity to adjust the pH of the composition to greater than about 7; disposed in a container for storing the composition that comprises a material that substantially blocks the transmission of ultra-violet radiation.

Other objects, features, and advantages will be apparent from the following description of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The composition of matter of the present invention is useful for reducing odors emanating from animal discharges, such as feces; urine; glandular secretions, e.g., sexual excitants emitted by female animals in estrus; and the like. The composition includes (1) water having a low mineral content, i.e., a calcium carbonate content less than about 1000 ppm and preferably, less than about 500 ppm; (2) chlorine dioxide is present in an amount less than about 0.5%, and preferably, less than about 0.1% by weight; and (3) a food grade acidulent in sufficient quantity to adjust the pH of the composition to a value greater than about 7 and preferably greater than about 9. Most preferably, (1) the water has a calcium carbonate content less than about 300 ppm, such as deionized water filtered by reverse osmosis or distilled water; (2) the chlorine dioxide is present in a range of about 0.01 to 0.1% by weight; and (3) the food grade acidulent in sufficient quantity to adjust the pH of the composition to a range of about 9.2 to 9.4.

The food grade acidulent may be selected from a group consisting of phosphoric acid, citric acid, malic acid, and acetic acid. If acetic acid is chosen as the food grade acidulent, distilled vinegar may be added to the composition. Further, it is preferred that the composition be prepared, such that it has a dissolved oxygen content less than about 5 ppm. Preferably, it has a dissolved oxygen content of less than about 2 ppm, and still more preferably, less than 1 ppm.