

<http://www.epa.gov/pesticides/factsheets/chemicals/chlorinedioxidefactsheet.htm>

Registration of pesticides containing chlorine dioxide

In 1967, under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA first registered the liquid form of chlorine dioxide for use as a disinfectant and sanitizer on a variety of sites such as animal farms, bottling plants, food processing, handling, and storage plants. Other industrial uses of liquid chlorine dioxide include:

- bleaching pulp and paper
- bleaching textiles
- washing fruit and vegetables
- disinfecting flume water
- disinfecting meat and poultry
- disinfecting food processing equipment
- sanitizing water
- controlling odors
- treating medical wastes
- treating municipal water

In 1988, EPA registered chlorine dioxide gas (generated from sodium chlorite, the active ingredient) as a sterilant for use in manufacturing and laboratory equipment, environmental surfaces, tools, and clean rooms.

Pesticide products containing either sodium chlorite or stabilized chlorine dioxide are usually mixed with another "reactive" chemical - usually an acid - to produce chlorine dioxide in a liquid or gaseous state. The resulting mixture is applied within a specific sterilization or disinfection system. The liquid chlorine dioxide is then applied to hard surfaces with a sponge or mop or as a coarse spray. Chlorine dioxide gas is also generated on site and is released into a sealed treatment area where it remains for several hours before being removed. After the treatment is completed, the chlorine dioxide gas is neutralized with sodium bisulfite.

http://www.epa.gov/pesticides/factsheets/chemicals/paraformaldehyde_factsheet.htm

Registration of pesticides containing paraformaldehyde

In 1964, under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), paraformaldehyde was first registered as a sanitizer and fungicide for use on barber and beauty shop equipment. Since then, paraformaldehyde has been registered as a disinfectant, sanitizer, fungicide, and microbiocide. Sites for which this chemical was registered include household and domestic dwellings; ships and ship holds; bedding and clothing; and nonfood/nonfeed-transporting trucks.

Until 1991, paraformaldehyde was also registered for control decontamination of laboratories and experimental animal facilities. However, all registrations for this use and many of the other uses described above were canceled due to nonpayment of registration maintenance fees by the manufacturer.

Subsequently, only two products remain registered. Since the laboratory use of paraformaldehyde has not been registered since 1991 and no alternatives are available, EPA has also issued several quarantine exemptions (and usually renews them every three years) to continue this use for specific federal agencies:

- United States Department of Agriculture (USDA) for use of paraformaldehyde in a poultry health laboratory in Arkansas;
- U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID) for laboratory decontamination; and
- USDA to decontaminate high-containment microbiological laboratories at Plum Island, NY, and Ames, IA.