

Portable Gas Sterilization System Using Disposable Gas Generation Compounds

Background: Medical infections remain a major cause of morbidity and mortality in the United States with an estimated healthcare cost of over \$60 billion annually. Bacteria and viruses present a huge problem in places such as hospitals and assisted living facilities. Thus, infection control remains a significant problem in both the in-patient and out-patient population. Traditional sterilization methods of medical instruments include: steam (e.g. steam sterilization cannot be used on many plastics), radiation and a variety of chemical sterilizing agents including ethylene oxide, peroxide and ozone. The disadvantages of using these methods are: limitations on materials that can be sterilized, prohibitive costs, the presence of post-sterilization chemical residues, and the inflexibilities associated with the portability of the technologies.

Applications:

- *Sterilization of medical instruments to enable safe, repeated use of these instruments by medical professionals*
- *Portable gas sterilization (PGS) unit may be transported by vehicle to provide sterilization services in a moving vehicle*
- *PGS unit may be made of components that can be easily assembled for use under severe conditions*

Advantages:

- *Potentially overcomes the limitations of current sterilization technology (portability of the device, materials that can be sterilized, etc)*

- *Possibly help reduce the number of infection cases due to hospital infections caused by contaminated medical instruments*

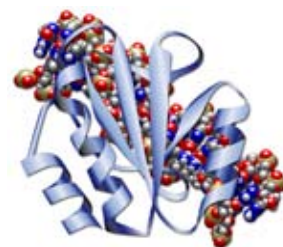
The Technology: The portable gas sterilization (PGS) unit is still in development, but the idea relies on the generation of chlorine dioxide gas through a light-activated chlorine dioxide synthesis system. The PGS unit is to be constructed either of a solid or non-solid rigid material that contains a chamber which can be tightly sealed. The medical instruments to be sterilized are placed in the chamber and chlorine dioxide gas is applied to sterilize the instruments.

Lead Investigator: Stuart K. Williams, PhD

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Contact Suzanne Dubuque
sdubuque@ott.arizona.edu



Office of Technology Transfer
888 N. Euclid Ave., Rm 204
PO BOX 210158
Tucson, AZ 85721-0158
520.621.5000
licenses@ott.arizona.edu