

USAMMDA INFORMATION PAPER**PRODUCT: CERAMIC OXYGEN GENERATOR**

DESCRIPTION: The Ceramic Oxygen Generator (COG) is a potential solution to the logistical burden imposed by the use of oxygen cylinders that weigh 11 pounds (1bs), and contain only 18 ounces of oxygen. A COG will be capable of supplying oxygen using internal batteries, and have a weight and size similar to a "D" sized oxygen cylinder. The technology being developed uses a metal reinforced composite, thin-film ceramic membrane to generate high purity oxygen using only 30 watts of electrical power for every liter of oxygen produced. Typically, 3 to 5 liters per minute (lpm) of oxygen are given to a patient. The total electrical power required for a patient will be between 100 and 160 watts, in contrast to current oxygen concentrators, which use 800 watts to supply 3 lpm of oxygen.

PROGRAM RELEVANCE to the ARMY: This product supports both the core mission of the Army and the Army Campaign Plan. Of the Army's core competencies, this product supports "Forcible Entry Operations," "Sustained Land Dominance," and, "Support of Civil Authorities." Oxygen is a key element in the resuscitation of combat casualties. The COG will reduce the medical footprint both during initial entry and during re-supply by eliminating the need to supply one 150 lb oxygen cylinder per day for each patient requiring oxygen. A 280-bed hospital will require 5000 lbs of oxygen cylinders per day; this could be accomplished using 500 lbs of oxygen generators that never need to be replaced. This product supports Future Operational Capabilities: MD-02-001 Clearing the Battlefield, MD-02-002 Hospitalization, and MD-02-004 Combat Health Logistics.

ISSUES/ACTIONS:

- Oxygen generator ceramic cells have met performance goals and have been operating in both cyclic and continuous modes in excess of six months. These cells continue to operate.
- The heat exchanger, batteries, and controls are being packaged with the oxygen generation cells. The completed design will be about 8 inches square in cross section and 12 inches long. The oxygen generator is designed to produce 3 lpm of oxygen for three hours or up to 9 lpm for 1 hour.
- The focus is now on mechanical and electrical design issues related to the integration of the subsystems into a useable and producible oxygen generator. Cell development is complete with several producible, stable, and efficient configurations available.

ADDITIONAL INFORMATION:**BPL # 413****DA PROJECT/TASK:** Trauma Management –
PE/PROJ 643807/836JG**MAMP RANK:** 12/36**ARMY ORD:** A draft ORD has been initiated.**SCHEDULE:**

MS A	1QFY05
MS B	4QFY05
MS C	4QFY06

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