



John F. Kennedy Space Center's Hydrogen Peroxide Concentrator



BENEFITS

- Provides concentrated hydrogen peroxide at the point of use
- 70 percent hydrogen peroxide can be enriched to 85 percent
- Concentrated hydrogen peroxide not exposed to reactive surfaces
- Easily sized to improve storage

opportunity

The National Aeronautics and Space Administration (NASA) seeks partners interested in the commercial application of the hydrogen peroxide concentrator. Increasing the concentration of commercial grades of hydrogen peroxide can be expensive, and storing and handling the materials can be hazardous. Scientists at John F. Kennedy Space Center (KSC), Florida, developed a point-of-use method to produce propellant-grade hydrogen peroxide that avoids the safety and cost considerations associated with the current technology. Laboratory data confirms that 70 percent hydrogen peroxide can be enriched to 85 percent at ambient pressures and temperatures below 55 °C. This system increases the concentration of hydrogen peroxide without exposing it to reactive surfaces that could initiate decomposition.

APPLICATIONS

- Military propulsion applications
- Aerospace
- Paper and pulp industry
- Water treatment
- Chemical industry

TECHNOLOGY STATUS

- Patent pending
- U.S. Patent No. 7,122,166
- Copyrighted
- Available to license
- Available for no-cost transfer
- Seeking industry partner for further codevelopment

Technology Details

The hydrogen peroxide concentrator uses membranes that permeate water preferentially over hydrogen peroxide. The membrane system is designed so that the hydrogen peroxide solution is on one side of the membrane and dry sweep air is on the other side. The water capacity of the sweep air is increased by increasing the temperature, but the temperature is kept below the spontaneous decomposition temperature of hydrogen peroxide. This innovative method of concentrating hydrogen peroxide avoids the problems associated with current methods, has no moving parts, provides concentrated hydrogen peroxide at the point of use, and is easily sized to improve storage.

Partnership Opportunities

NASA has been issued a U.S. patent on the Hydrogen Peroxide Concentrator and is seeking licensees of the patent. NASA has the authority to grant licenses on its domestic and foreign patents and patent applications pursuant to 35 U.S.C. 207-209. NASA has implemented this authority by means of the NASA Patent Licensing Regulations, 37 CFR § 404. All NASA licenses are individually negotiated with the prospective licensee, and each license contains terms concerning commercialization (practical application), license duration, royalties, and periodic reporting. NASA patent licenses may be exclusive, partially exclusive, or nonexclusive. If your company is interested in the new Hydrogen Peroxide Concentrator, or if you desire additional information, please reference Case Number KSC-12666 and contact:

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