

TECHNOLOGY IN OUR LIVES

Breathing Easy On The International Space Station

(NAPSA)—Most people can survive only a couple of minutes without oxygen, and low concentrations of oxygen can cause fatigue and blackouts. As a result, the International Space Station has redundant supplies of oxygen—to ensure the safety of the crew.

“The primary source of oxygen will be water electrolysis, followed by O_2 in a pressurized storage tank,” said Jay Perry, an aerospace engineer at NASA’s Marshall Space Flight Center working on the Environmental Control and Life Support Systems (ECLSS) project.

Electrolysis is a process that uses electricity—in this case, from the Space Station’s solar panels—to split water into hydrogen gas and oxygen gas. A similar process occurs on earth, without electricity. Plants, algae, cyanobacteria and phytoplankton all split water molecules as part of photosynthesis.

However, the chemical-mechanical systems used on the Space Station are much more compact, less labor-intensive and more reliable than a plant-based system, Perry noted. “A plant-based life-support system design is presently at the basic research and demonstration stage of maturity and there are a myriad of challenges that must be overcome to make it viable.”

Life support systems on the Space Station must not only supply oxygen and remove carbon dioxide from the cabin’s atmos-



For the crew’s safety, the International Space Station has multiple oxygen supplies.

phere, but also prevent gases like ammonia and acetone—which people emit in small quantities—from accumulating. Vaporous chemicals from science experiments are a potential hazard, too, if they combine in unforeseen ways with other elements in the air supply.

The Space Station will also have large tanks of compressed oxygen mounted on the outside of the airlock module. These tanks will be the primary supply of oxygen for the U.S. segment of the Station until the main life-support systems arrive with Node 3 in 2005. After that, the tanks will serve as a backup oxygen supply.

To learn more about the International Space Station, visit the Web site at <http://spaceflight.nasa.gov>.