

# The Write Outsource

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## **THE BIOSEAL® SOLUTION**

BioSeal® is a product with infinite, commanding demand that nobody wants to hear about except people who really need it. And those people rest easier, knowing BioSeal® is available.

They are the people in a global industry that manages death scenarios, from local coroners and funeral directors to disaster response organizations. It is an industry that never sleeps, where the demand for a product like BioSeal® is as constant as the birth rate and inevitable as earthquakes, floods and plane crashes.

BioSeal® is a lightweight, portable, total containment system for human remains. It empowers responders to obtain positive containment of remains at a death scene, particularly scenes of multiple deaths, where minutes count in maintaining the dignity of the dead and protecting the environment of the living. People in the business say BioSeal® is the perfect material for the job.

The BioSeal® patented materials and methodology have made body bags and other containers obsolete. BioSeal® provides certified, absolute, leak-free containment of fluids, odors and unknown or potentially hazardous agents. The system passed its first test, and established its reputation for speed and ease of use, and low cost, on March 26, 1997.

On that date, San Diego County Sheriff's Deputy Robert Brunk responded to a call at 18241 Colina Norte, a residence in the exclusive Rancho Santa Fe community north of San Diego, CA. When he found and opened an unlocked door on the side of the house, the smell knocked him backward.

Inside, authorities faced a bizarre scene: 39 bodies, neatly arrayed on beds and cots, all wearing the same clothes, all the faces covered by purple cloths. They were members of a cult called "Heaven's Gate," who had all committed suicide. The bodies were decomposing, and what substance they had used to kill themselves was unknown.

"The medical examiner needed a containment system that would address vapors and fluids, have portability and reasonable cost," said Edward McWilliams, president of Barrier Products LLC of San Diego and the creator of the BioSeal® system. "Barrier Products responded within 24 hours with a situation-specific solution that served as the launch of the BioSeal® system."

Since then, the BioSeal® system has been employed at airliner crash sites, the Hurricane Floyd and Hurricane Katrina disasters, and in Indonesia after the Phuket Island tsunami in December, 2004.

"After the tsunami," McWilliams said, "we shipped customized BioSeal® Systems for the containment and storage of 15,000 human remains."

BioSeal® also was used by the New York City medical examiner after 9/11 to contain and maintain more than 24,000 body parts retrieved from the World Trade Center wreckage.

"Preservation was vital to identification," McWilliams said. "The New York City medical examiner will work on the victim identification process for the next 20 years, or more."

Such response is enabled by the system's design and extreme portability. The lightweight containment material is packaged in a compact 36-inch-wide roll that

requires only one square foot of storage space for 300 feet of material. The material is accompanied by a hand-held heat sealer, scissors, and other accessories.

The material is simply pulled off the roll and cut at the desired length, placed on a surface and opened to its full 72-inch width. The remains are placed on one side of the material, the other side is pulled over, and the bag is heat-sealed at the edges with the hand-held sealer to create absolute, leak-free containment, during storage or transporting. American Airlines, Delta, Continental, US Air and Northwest Airlines have approved BioSeal® for primary containment of human remains to be transported on their aircraft.

BioSeal® offers packaging systems for the disaster response, law enforcement, coroner, medical examiner, funeral director, and Hazmat industries. The BioSeal® material has been tested and certified by the U.S. Army to contain chemical warfare agents. A BioSeal® client, Banner Mesa Medical Center in Mesa, AZ, did some testing and certifying of its own design.

“We conducted our own field tests using BioSeal®,” said Aaron Seaman, Banner Mesa’s emergency preparedness coordinator. “We sealed raw meat in two separate packages of BioSeal®. The meat was left in the Arizona sun for 30 days. There was no gas or fluid leakage. We know first-hand that BioSeal® works.”

The BioSeal® list of clients is worldwide, and includes the Israeli Defense Ministry, U.S. Army Mortuary Affairs, the FBI, and county sheriffs, coroners, medical examiners and funeral directors nationwide. BioSeal® systems are in place in Australia, Southeast Asia, Japan, Israel, Northern Europe, Canada and the United States.

The material is designed for absolute containment of all known hazardous vapors and fluids associated with the transport, handling and storage of hazardous, bio-hazardous and pathological commodities. Using expertise with retardant materials acquired in his professional auto racing career, McWilliams conceived of a layered approach that would be lightweight and strong, and accept a tight, positive seal.

What emerged was a material with a polymer inner layer, a middle layer of aluminum foil, and a polymer outer layer, which is a common flexible packaging composition.

“The challenge came when clients requested ‘absolute containment’ of infectious and hazardous human remains,” McWilliams said. That meant an uncommon seal. The solution was strict control over the poly-aluminum-poly layering. “It is a laminating process of co-extruded polymer layers,” McWilliams explained. “The plastic layer on the inside is to protect the aluminum layer from whatever it is you are placing inside the pouch. The aluminum layer is what provides the metal barrier. The outer plastic layer provides the tensile strength to lift and transport heavy objects.”

When two edges of the co-extruded layers are heat sealed, it welds the material together. “What we have achieved with BioSeal® is a seal with a 0.000001 parts per million MVTR (moisture/vapor/transmission rate),” McWilliams said. Thus is created a seamless metal container that handles like a paper bag – flexible, safe, and easy to transport and store. Positive protection is assured for responders, handlers, investigators and facilities. The material is easy to use, transport and

store. Contents can be easily x-rayed without re-opening, yet if investigators require re-opening, the bag is easily resealed. The containment prohibits moisture and vapor transmission, and prevents potentially deadly mixing of vapors. The McWilliams BioSeal® seal was the first to receive a patent for the heat sealing of human remains.

Testing and analysis reveals that the BioSeal® material has a shelf life of 49 years with no deterioration in performance or readiness of materials, regardless of storage conditions. In the disaster response sector of the business, that means customers can prepare their programs, wherever they are, for two generations of readiness, at a one-time cost.

BioSeal's® Mass Fatality Response Pak (with Infection Control Kit) is palletized, wrapped, and banded, and is configured for more than 1,500 human remains. It stores in a space of 16 square feet and can be stacked three-high, enough material to contain 5,000 human remains. The response agency is thus equipped for a half-century of immediate response and total containment of bodies, fluids, vapors and chemical and biological agents, including those associated with weapons of mass destruction. That is why people in the disaster response industry rest easier.

A typical BioSeal® customer for this type of planning is the Omaha, Neb., Metropolitan Medical Response System (OMMRS), a multi-disciplinary group of agencies organized to respond to any major incident occurring in the Omaha metropolitan area, which has a population of about 800,000.

“Our group has taken the ‘all hazard’ approach in our planning efforts,” said Phyllis Dutton, the OMMRS chair. “We realize that we could have mass fatalities with

natural occurring events as well as those from weapons of mass destruction. These mass fatalities could be as a result of a chemical, biological, radiological, nuclear, or explosive event. How to handle the transport of a contaminated body and to ensure that we maintain the evidence collected has been a major concern. We also want to protect our employees and the citizens of our community from additional exposure.”

OMMRS purchased the Mass Fatality Response Pak and positioned it at the Omaha coroner’s facility, “to assist the coroner at the incident and morgue site.”

The planning also included the purchase of BioSeal’s® smaller Facility Systems, placing one system in each of the organization’s 15 member hospitals.

“This gives additional support and coverage throughout the city,” Dutton said, “to handle a mass fatality event. If one area is not available due to the location of the incident and unable to provide the BioSeal® system, we will have the product available due to the distribution of placing them in all of our OMMRS hospitals.”

BioSeal® systems are also positioned to meet a constant natural demand. Census Office figures show that more than 2.4 million Americans reach the ends of their lives each year. Each death situation is unique, and presents a unique situation for coroners, mortuaries and funeral directors. BioSeal® is quickly becoming a standard in resolving those situations. Because of BioSeal’s® flexibility of use, some of the solutions are quite inventive.

“BioSeal® has enabled us to maximize our shipping of ‘Kosher’ orthodox bodies,” said Larry Krantz of AM Israel Mortuary in San Diego. “We have increased our level of service to our families by giving them the ability to select their casket at

our mortuary and have the body prepared by the Chevra Kadisha from this community.

“Then, our shipping procedure allows us to wrap the casket in the BioSeal® material,” Krantz said, “thus providing the seamless metal container required by the airline industry and relieving us the burden of purchasing and disposing of the steel Zigler device. When the casket arrives at destination, the local mortuary has only to unwrap the casket and proceed with the ceremony without delay.”

Day-in and day-out users of BioSeal® deeply appreciate its easy disposability. In the case of funeral transport, workers at the destination simply remove the body (or casket) from the BioSeal® pouch, and incinerate the pouch, which leaves less than one percent residue.

“Funeral directors appreciate that they do not have to dispose of those dreaded metal boxes that remains are usually shipped in,” said John Fitzgerald, director of Florida’s Levitt & Weinstein Memorial Chapels and Mortuaries.

“In the past,” said Jordan Benjamin of Benjamin’s Park Memorial Chapel in Ontario, Canada, “we have used a metal Zigler to fulfill the (airline) requirements. We have found that the BioSeal® system is far easier to store and dispose of afterwards. There is also a cost savings to us that we can pass on to our clients. Moreover, the overall weight of the shipping container is reduced, which reduces the family’s airline costs.”

In the case of cremation, the BioSeal® bag may be placed directly into a retort. There will be no measurable residue left after retort incineration of a 10-foot-long pouch.

McWilliams, the creator of BioSeal<sup>®</sup>, has protection and urgency in his background. He is a mechanic, a race car owner and driver, and a veteran of the crews working in the pits at the Indianapolis 500, where forging a winning partnership between danger and safety depended on the sort of knowledge of materials, application and inventiveness that contributed so strongly to McWilliams' success with BioSeal<sup>®</sup>.

In 1993, McWilliams founded Barrier Products LLC in San Diego to research and manufacture the BioSeal<sup>®</sup> product and methodology. BioSeal<sup>®</sup> received a worldwide patent in 1995. McWilliams also owns and operates MediFast San Diego Inc., a medical equipment repair business.