

# dynamic systems news

## The News

The Dynamic Systems newsletter is a free, quarterly publication. It gives a firsthand look at new products, makes important announcements and offers a personal look at the people behind the products.

If you or a friend would like to be on our mailing list, just give us a call.

## Christopher Reeve Paralysis Foundation "A Magical Evening"

Christopher Reeve is an extraordinary champion for humanity. Since his paralyzing accident in 1995, he has made vast improvements with determined and superhuman effort. Even more amazing is the effort he has made on behalf of others suffering from spinal cord injuries. In 1999 his organization, the Christopher Reeve Foundation (CRF), merged with the American Paralysis Association (APA) to form the Christopher Reeve Paralysis Foundation (CRPF). Together, they fund research into spinal cord injury and central nervous system disorders. Their goals are to assist the development of effective treatments, to find a cure for paralysis, and to support quality of life issues for the disabled.

According to the CRPF president, Mitchell R. Stoller, the Foundation raised two million dollars at a recent fundraiser

entitled, "A Magical Evening." The black-tie affair took place at the Waldorf Astoria in New York City on November 15th, and was co-hosted by actors Liam Neeson and Natasha Richardson. A highlight of the evening was a live auction which alone raised over five hundred thousand dollars and included a French Riviera getaway and a weekend of skiing with celebrities at the 2001 DLJdirect American Ski Classic in Vail, CO.

Dynamic Systems, Inc. was invited by the Foundation to participate in "A Magical Evening" by placing an advertisement in their Tribute Journal. The company responded with a half-page ad for its Liquid SunMate Foam-In-Place Seating.

## Dynamic Systems, Inc.

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## Ejection Seat Test Results DSI Cushion Wins in USAF Impact Tests

Recent tests by the U.S. Air Force showed that a two-inch SunMate composite cushion performed substantially better than other proposed ejection seat cushions in reducing the force of impact in the catapult stage.

Comfort is an important factor in the design of ejection seats for pilots who must remain seated for missions that sometimes last as long as fifteen hours. However, it has been discovered that some cushions designed for comfort actually amplify the force of impact upon ejection.

In some instances, recoil forces of seat cushions have been responsible for lumbar fractures. It is therefore important to equip high-performance USAF craft with ejection seats that provide comfort and minimize spinal column injury.

In the quest for such a cushion, researchers at Wright-Patterson Air Force Base tested four proposed seat designs, including one from Dynamic Systems, Inc., for impact response. The results were compared to cushions currently used.

In the experiments, a 160-pound manikin in standard flight attire was strapped in an ejection seat which, guided by rails, was allowed to free fall from a set height. The manikin was rigged with sensors for monitoring the accelerations, loads, and torques that could contribute to spinal injury on impact.

"...The [Dynamic Systems cushion] would transmit the least shock to the occupant compared to the other cushion configurations..."

The cushion proposed by Dynamic Systems was comprised of a one inch layer of SunMate Medium on top of a one inch layer of SunMate Firm, and covered with a poly-cotton stretch fabric. The other cushions tested included contoured designs and integrated a variety of energy-absorbent materials.

Recoil was gauged in terms of five parameters, and in all instances, the Dynamic Systems cushion outperformed the other seat designs. The other cushions tested amplified recoil in either four or five of the five test categories.

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### Directory Assistance

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### Product Questions?

If you have an idea for using SunMate products, but are unsure of how to proceed; or if you have begun a project, and have reached a problem area, give the DSI technical staff a call. Our staff will help you determine the best material for your use.

### Product Development

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### Orders & Samples

Vickie King  
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### Liquid SunMate Foam-In-Place Seating

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Continued inside...

**Ejection Seat Testing, continued from front page**

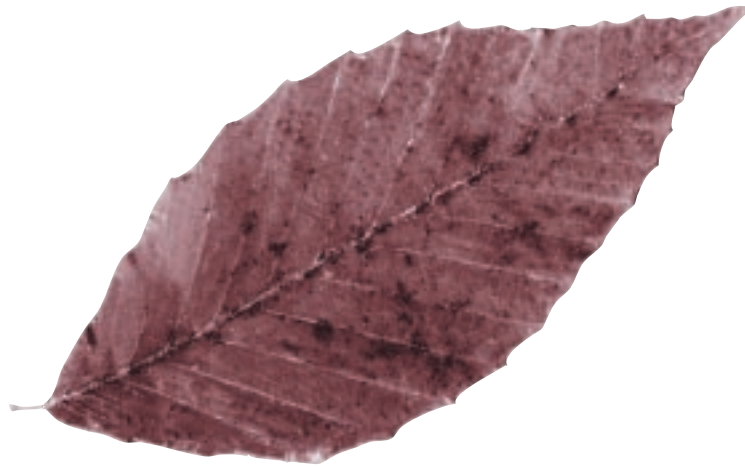
In processing the data, a shock transmissibility factor was calculated. This factor indicated that all cushions actually amplify the onset rate of the energy of impact; however, the DSI cushion did so by only 1.3%, whereas the other cushions demonstrated increases between 8.1 and 16%.

**The Report States That**

"...the [Dynamic Systems cushion] would transmit the least shock to the occupant compared to the other cushion configurations..."

In the interest of safety, testing will continue. Among recommendations for future investigations is a study involving human subjects.

Adapted from the report, "Evaluation of Proposed Seat Cushions to Vertical Impact," by Mr. Chris E. Perry, Mr. Thao Nguyen of the Biodynamics and Acceleration Branch, Air Force Research Laboratory, Wright-Patterson AFB, OH and Mr. Steve Pint of Veridian Engineering in Dayton, OH. Received by DSI October 17, 2000.



**Has Your FIPS Expired?  
FIPS Shelf-Life Stickers**

In October, DSI began using new shelf-life caution stickers on all shipping boxes for the Liquid SunMate Foam-In-Place Bowl Pack and Bag Pack units. Previously, customers had to check the lot number on their orders to calculate the expiration date. The typical shelf-life of a FIPS unit is 9 months. The new caution sticker should make it easier for customers to determine when the product expires, help them remember to use FIPS in a timely manner, and reduce waste by resulting in fewer returns of expired units.

**FIPS Winter Climate Caution  
Crystallized Chemicals**

As autumn progresses and the winter months approach, the temperature steadily drops. Cold temperatures can affect the chemicals in the FIPS packs, so check them thoroughly before use. If the containers are cold, or the chemicals look thick, cloudy or crystallized, use the following heating instructions to bring the chemicals back to their original state. This insures easier mixing, and the best cushion quality.

**Crystallized Iso**

As Iso gets colder, it tends to form tiny crystals which make it react poorly. The Iso is not damaged by the cold, and should not be discarded. Crystallization can be easily reversed by following these steps:

**For Crystallized Bowl Pack Iso**

- 1 **Loosen the lid** and place the bottle of Iso in a pot of water that has been heated to 120-150°F. Heating at this temperature dissolves the crystals, removing the cloudiness.
- 2 Leave the bottle in the water for 10-20 minutes, until the Iso clears.
- 3 Take the Iso bottle out of the hot water bath. It must be allowed to **return to room temperature before using.**

**For Crystallized Bag Pack Iso**

Due to the foil packaging, it is difficult to tell if the Iso in the Bag Pack has crystallized. To insure consistency of the chemical during the winter season, it is always a good idea to soak the Iso section of the Bag Pack in a hot water bath before use.

To heat, simply follow the same procedure as for the Bowl Pack, submerging the Iso section of the bag in the hot water bath.

**Cold, Thick Polyol**

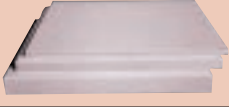

The Polyol may also become cold and thick during shipping. By placing the Polyol container in a hot water bath, you can bring it back to a consistency which is easy to mix and will result in the best cushion quality. Just follow the same heating procedure you would for the Iso.

**WARNINGS:**

**Never heat Iso, or any of the FIPS chemicals, in a microwave, over direct heat or over an open flame.**

**Always allow chemicals to return to room temperature before using.**

## Impact Energy Absorbing & Orthopedic Cushion Materials

<p><b>SunMate Cushions</b></p> <ul style="list-style-type: none"> <li>▪ slow-flow with memory</li> <li>▪ viscoelastic, open-cell structure</li> <li>▪ standard or custom sizes</li> <li>▪ 7 levels of pressure support</li> <li>▪ impact absorbing</li> <li>▪ may be waterproofed</li> </ul>	<p><b>Pudgee Pads</b></p> <ul style="list-style-type: none"> <li>▪ incredibly soft</li> <li>▪ resembles a solid gel cushion</li> <li>▪ contours to the body</li> <li>▪ relieves skin breakdown</li> <li>▪ improves blood circulation</li> <li>▪ non-shearing properties</li> </ul>	<p><b>Foam-In-Place Seating</b></p> <ul style="list-style-type: none"> <li>▪ custom-molded seating</li> <li>▪ advanced posture control</li> <li>▪ mix and pour technique</li> <li>▪ total, seat or back inserts</li> <li>▪ versatile, safe, inexpensive</li> <li>▪ guaranteed satisfaction</li> </ul>
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Ad placed in the Thomas Register of American Manufacturers

**Web Presence  
Thomas Register**

Dynamic Systems, Inc. recently updated its listing with the Thomas Register of American Manufacturers, and can now be found on the internet site ([www.thomasregister.com](http://www.thomasregister.com)), and in the newest edition of the Thomas Register catalogs on cd-rom. DSI hopes to increase its market presence with two new ads in the 2001 printed edition, including one under its own custom heading "Cushions: Foam-in-Place Seating."

Engineers, industrial buyers, suppliers and distributors use the Thomas Register as a daily reference. It is "the most comprehensive and heavily used buying guide in the world" and houses nearly 2 million sources of supply for a variety of products and services. Users of the Thomas Register can easily access information on over 156,000 companies. It includes company profiles, product descriptions, trademarks and contact information.



**Announcement  
Price Increase**

On November 15, 2000, a price increase of 5% went into effect. The increase affected all products sold by Dynamic Systems including SunMate cushions, sheet foam and buns, Pudgee pads, Laminars and accessories for Foam-In-Place Seating. The pricing of FIPS units increased as well, and is now structured to reflect a better apportioned cost per quantity purchased. New price sheets are available at your request, and may also be downloaded from the company's website, [www.cheta.net/dsi/](http://www.cheta.net/dsi/).