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## DATA SHEET SunMate® Cushion Material

### 1. PRODUCT IDENTIFICATION

**Trade Name:** SunMate® Cushions

**Manufacturing Site:** Dynamic Systems, Inc.  
104 Morrow Branch Road  
Leicester, North Carolina 28748 USA

**Information Phone:** 828-683-3523 **Toll Free:** 1-855-786-6283

**Chemical Family:** Flexible, Modified Polyurethane, Open-cell Foam

(Designed to provide comfortable orthopedic support, in combination with effective impact energy absorption. This is a family of flexible cushion materials available in a wide range of support pressures, from extremely soft to extremely firm. Typical applications are for wheelchair seat cushions, aircraft ejection seats, and race car impact padding.)

**Other:** Also referred to as Viscoelastic, slow-flow or memory foam

### 2. PHYSICAL DATA

**Density:** Typically 5.0 to 5.5 lb/ft<sup>3</sup>

**Form:** White cellular foam (pigment added for color). Small, open, tightly-controlled cell structure.

**Odor:** negligible.

**Energy Absorption:** Energy absorption can be varied from 1 ft-lb/in<sup>3</sup> To 12 ft-lb/in<sup>3</sup> with a 0.05 To 0.2 rebound coefficient. This cushion material is an efficient absorber of impact, vibration, and sound.

**Other:**

	Soft	Medium	Firm
<b>Tear Strength</b> (See Note 1)	3.51-3.93	3.93-4.36	5.01-5.43
<b>Tensile Strength</b> (See Note 1)	19-21	28-30	35-39
<b>Ultimate Elongation (%)</b> (See Note 1)	137-202	26.56-33.48	37.58-41.36
<b>Young's Modulus (psi)</b> (See Note 1)	17.77-20.13	26.56-33.48	37.58-41.36
<b>25% IFD (lbs)</b> (See Note 2)	29-38	47-56	66-85

#### Notes:

(1) These quantities were measured by ITWC. Tear strength was measured in accordance with ASTM D624 using Die C. The other tests were run in accordance with ASTM D412.

(2) 25% IFD was measured in-house, and represents the force required for a 50 in<sup>2</sup> foot to indent a 16"x18"x1" specimen by the respective percentage. Physical data for polyurethane cushion materials vary for a number of reasons outlined in Section 4.0 of the "Joint Industry Foam Standards and Guidelines" published by the Polyurethane Foam Association in July, 1994. PSI values will likely run higher than lot values. IFD readings will be correspondingly greater, but other cushion properties, such as body, factor more significantly in classifying cushions as Soft, Medium, etc.

### 3. MECHANICAL STABILITY

**Temperature range:** This is a thermoelastic material with elastic properties that can be controlled with temperature. Normal use range: 20°F to 130°F. Extreme use capability: 0°F-200°F, varying with the specific material.

**Durability:** Will not deteriorate under normal storage conditions. Ultraviolet light will degrade surface. Is known to last for years under continuous use as a seating cushion. Will not degrade in boiling water or subzero temperatures. May be washed and dried using normal methods. Outstanding antibacterial properties.

**Moisture:** Will not degrade in boiling water and can be sterilized at temperatures up to 250°F. High humidity or immersion will not degrade foam. A tight, open-cell structure inhibits water penetration. Submerged water absorption rate varies between 1% and 5% in a 24-hour period, and varies with foam density

### 4. FIRE AND EXPLOSION DATA

**Safety Precautions:** Avoid direct contact with flame.

**Fire Hazard:** Passes CAL-117, Section D, Part II, SunMate will not ignite from constant exposure to burning cigarettes. Decomposition outgassing occurs with extended exposure to temperatures in excess of 350°F. Extended exposure to temperatures in excess of 400°F, in certain mixtures of air, may produce combustible gases. Sunmate is a slow-burning, self-crusting, non-drip cushion material that requires fire retardant coatings to meet strict aircraft and government fire retardant codes

**Fire Toxicity:** Fumes emitted by SunMate under fire conditions have low acidity, which allows them to be breathable for an extended period of time. Such fumes are nevertheless hazardous to breathe.

**Special Fire Fighting Instruction:** Materials used for fighting wood fires are suitable; e.g., water, CO<sub>2</sub>, sand, etc. Wear organic vapor mask to prevent inhalation of fumes.

**Note:**

Fire retardant ingredients could be added to SunMate to meet strict fire retardant regulations. However, this would cause the SunMate to become more toxic in a fire. The use of modern, low-toxicity coatings (elastomers and fabrics) is recommended since these methods provide much greater fire resistance and much lower smoke and fire toxicity. Dynamic Systems, Inc. manufactures a separate line of fire retardant cushion materials, SunMate® FRG.

## **5. HEALTH HAZARDS**

These materials are not known to cause skin irritation and are considered non-allergenic, although isolated exceptions may exist. Ingestion is neither known nor suspected to be chemically hazardous. Mechanical blockage (of the throat) could result from trying to swallow a piece of the foam.

## **6. PROTECTION**

No special precautions are required for normal use as a seat cushion, other than might be needed to protect against soiling, fire, water or exposure to ultra violet light.

## **7. DISPOSAL**

The solid foam material is considered nontoxic and non-hazardous and may normally be disposed of as a solid landfill waste. Disposal methods are to comply with federal, state and local laws and regulations.

## **8. SHIPPING**

Neither regulated nor restricted as hazardous material by the U.S. Department of Transportation (DOT).