

ΔΡΤΕΚ LABORATORIES, INC.

ISO 9001 / AS9100 Certified

28570 Livingston Avenue, Valencia, CA 91355-4171 • (661) 257-1677 FAX (661) 257-8939 **TECHNICAL DATA & INFORMATION**

DAT-A-THERM[™] 1000

Electrically insulating urethane film

PRODUCT DESCRIPTION

DAT-A-THERM 1000 is a tough, flexible, void free, electrically insulating urethane film designed to fill air gaps and dissipate heat between devices and substrates.

DAT-A-THERM 1000 film is a 100% solids, fully crosslinked (C-staged), thermoset urethane polymer, which will not outgas, while in place and is suitable for high vacuum environments. The film exhibits outstanding reversion resistance and physical stability under long-term aging of high humidity and heat. The ultimate in thermal conductivity and overall performance can be achieved by bonding **DAT-A-THERM 1000** film to device and substrate with DIS-A-PASTE® 2000A/B and 2001 PMF thermally conductive urethane adhesives. Both film and adhesive system are compatible in resin and filler technologies and have been designed to be used together.

KEY FEATURES AND BENEFITS

- Uniform filler distribution for consistent thermal dissipation capability throughout film segment
- · Controlled manufacturing process for a void free film
- Low modulus/high elongation for minimum stress buildup under components
- Low Tg remains flexible to -70°C
- . Exceeds NASA outgassing requirements for high vacuum environments
- Typical film thickness, 0.004 to 0.006". Custom thicknesses available.
- . Available in sheet or die-cut forms

HANDLING INFORMATION

DAT-A-THERM 1000 film is fully cured and no further processing is necessary. The film is packaged between protective layers and it is suggested that film be removed from packaging only at time of use to keep film surfaces free from contamination. For best results, store **DAT-A-THERM 1000** in original containers at 25°C and less than 50% relative humidity. Film may be easily cut with scissors or standard die cutting equipment.

TYPICAL PROPERTIES

(values not to be used for specification purposes)

CHARACTERISTICS	DAT-A-THERM 1000	TEST METHOD
Color	off-white/pale yellow	Visual
Specific gravity	1.96	ASTM D-1475
Standard thickness, mils	4-6	JMTP C-101

- DISCLAIMER NOTICE -

All statements, technical data, and recommendations expressed herein are based on tests believed to be reliable and accurate. However, APTEK LABORATORIES, INC. gives no warranty, expressed or implied, regarding the accuracy of this information. It is intended that the buyer and user of these products shall determine the suitability of the information provided for his specific application, and is responsible for its selection.

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Shelf life @25°C, months

CURED PHYSICAL P	ROPERTIES	DAT-A-THERM 1000	<u>T</u> I	EST METHOD
Tensile strength, .005	", psi	1050	A	STM D-638
Elongation, 0.005", %		75	A	STM D-638
Tensile modulus, 0.005", @25°C, psi		2000	A	STM D-638
Glass Transition Temp	o. °C	-70	A	STM E-831
Thermal coefficient of in/in/°C	expansion alpha 1 alpha 2	1 x 10 ⁻⁶ 147 x 10 ⁻⁶	A	STM E-831
Moisture absorption, %		0.15	A	STM D-570
Thermal conductivity W/mK		0.96	AS	STM E-1225
Outgassing at 10 ⁻⁶ Tol TML, % CVCM, %	rr	0.17 0.01	A	STM E-595
CURED ELECTRICA	L PROPERTIES	DAT-A-THERM 1000	<u>TI</u>	EST METHOD
Volume resistivity, @ 25°C, ohm-cm		7.0 x 10 ¹⁴	A	STM D-257
Dissipation Factor (D)/Dielectric Constant (K) @ 25°C, 1 KHz		0.03/5.8	A	STM D-150
Dielectric strength, 0.005", volts/mil		1000	A	STM D-149

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SAFETY AND FIRST AID

DAT-A-THERM 1000 film is a fully cured polymer and is this very safe to handle with almost no possibility of allergic reactions. However it is suggested that gloves be worn while handling the film to eliminate any chance of skin contact and to prevent contamination of the film surface. Avoid placing film in or near mouth. Do not burn unused film, decomposition products include traces of hydrogen cyanide. Dispose of unwanted waste film in certified landfill area. Material Safety Data Sheet is available upon request.