



## Advanced Materials

# ARATHANE® 7760

## ONE-COMPONENT THERMAL TRANSFER ADHESIVE

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### Description

ARATHANE® 7760 polyurethane is a single-component, solvent-free material specifically formulated as a thermal transfer adhesive (TTA). It features excellent thermal shock resistance and is highly thixotropic with non-slump characteristics. This combination of physical properties improves process control capabilities. ARATHANE® 7760 polyurethane is easy to handle and is well suited for automatic dispensing used in high-output applications.

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### Applications

ARATHANE® 7760 can be used for bonding, filleting, and protection of components on printed wiring boards or in other applications where high thermal expansion mismatches are problematic.

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### Advantages

- One-component, 100% solids, solvent-free
- High purity and very low outgassing (meets NASA requirements)
- Easily reworked
- Good hydrolytic stability
- Excellent thermal shock resistance provides improved reliability
- Good thermal conductivity
- Available in various packaging configurations

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**Typical****Properties**

<u>Property</u>	<u>Test Method</u>	<u>Test Values</u>
Viscosity, cP @ 77°F (25°C)	ASTM D-2393	240,000 – 740,000
Percent Solids		100
Specific Gravity	ASTM D-792	2.5
Operating Temperature, °C (°F)	ASTM D-2393	
Continuous		115 (239)
Intermittent		220 (428)
Flash Point, °C (°F)		>93 (200)
As Supplied Form	Visual	Off-white Paste
Shelf Life, months		3
Cure Condition at 93°C-99°C (200°F – 210°F), hours		1
Work Life at 25°C (77°F), hours		>= 2

\* Typical properties are based on Huntsman's test methods. Copies are available upon request.

**Packaging**

ARATHANE® 7760 polyurethane is considered non-hazardous for shipping purposes. However, this product is packaged in special Styrofoam cartons containing enough dry ice for a limited storage life of approximately 96 hours during shipment. Upon receipt, frozen syringes must be transferred to freezer storage below -40°C (-40°F) to ensure product shelf life reliability. Special care should be taken when handling dry ice in order to avoid severe skin damage or potential of asphyxiation in unventilated areas. Contact Customer Service for packaging information.

**Processing**

ARATHANE® 7760 polyurethane is frozen and packed in dry ice at the factory to minimize the possibility of exposure to high temperatures during shipment. Avoid handling dry ice or frozen syringes with bare hands. Temperature is below -75°C (-103°F) and serious skin burns and permanent damage can occur.

Remove syringe(s) from freezer storage and allow to thaw at room temperature (30°C/86°F maximum) only. Do not attempt to quick thaw by heating, as this will greatly reduce working life. Typical thawing time for syringes is 15 minutes at 25°C (77°F).

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**Typical Physical Properties**

<b><u>Properties</u></b>	<b><u>Test Values</u></b>
Hardness, Shore A	65 – 80
Glass Transition Temperature, °C (°F)	-63 (-81)
Coefficient of Thermal Expansion, in./in./°C	
Alpha 1	$29 \times 10^{-6}$
Alpha 2	$88 \times 10^{-6}$
Thermal Conductivity, Cal/sec.cm.°C	$16.5 \times 10^{-4}$
Lap Shear Strength at 25°C (77°F), psi	
Etched Aluminum	200
Etched Aluminum at 93°C (200°F)	130
Ajax Scrubbed Nickel Plate	200
Freon Degreased Nickel Plate	130
Freon Degreased Solder Plate	220
Freon Degreased Polyimide	230
Solvent Resistance, at 25°C (77°F)	
Immersion in IPA	Excellent/No Effect
Freon Vapor Test	Excellent/No Effect
Outgassing at $10^{-6}$ Torr	
Total Mass Loss, %	0.30
Collectible Volatile Condensable Materials, %	0.00

<b><u>Electrical Properties</u></b>	<b><u>Test Values</u></b>
Dielectric Strength, volt/mil	630
Volume Resistivity, ohms-cm	$2.9 \times 10^{14}$
Dielectric Constant, at 1 KHz	
at 1 KHz	5.1
at 10 KHz	5.0
at 100 KHz	4.8
at 1 MHz	4.6
Dissipation Factor	
at 10 KHz	0.0176
at 100 KHz	0.0196
at 1 MHz	0.0202

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**Storage**

ARATHANE<sup>®</sup> 7760 polyurethane should be stored in a dry place, in the sealed original container, at temperatures below <-40°C (below <-40°F). Under these storage conditions, the shelf life is 3 months. The product should not be exposed to direct sunlight.

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**Precautionary Statement**

Huntsman Advanced Materials Americas LLC maintains up-to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

**First Aid!**

Refer to MSDS as mentioned above.

**KEEP OUT OF REACH OF CHILDREN**

**FOR PROFESSIONAL AND INDUSTRIAL USE ONLY**

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