

Arathane® 5753A/B(LV-75T64) Flexible Thermally Conductive Urethane Adhesive, & Encapsulant

Arathane® 5753A/B(LV-75T64) is a variant of the popular Arathane® 5753A/B(LV) polyurethane system produced by Huntsman Advanced Materials. The Arathane® 5753A/B(LV-75T64) system is produced from the standard Arathane 5753A/B(LV) by adding an thermally conductivity alumina filler and wetting agents. The cured system has a filler content of approximately 75% by weight which gives the cured polymer a high thermal conductivity, while retaining much of the flexibility and cryogenic performance of the Arathane 5753A/B(LV). The cured polymer easily complies with NASA and ESA outgassing requirements. This system conforms to the Lockheed AD-MC-1133-01 specification.

APPLICATIONS & BENEFITS:

- Potting & Encapsulation of low and medium voltage electronic devices
- Lower Coefficient of thermal Expansion
- Low modulus / low stress on embedded components
- Low outgassing for use in optical, space and other high vacuum environments. (Meets NASA and ESA requirements)
- Highly resistant to reversion even with high heat and humidity exposure

HANDLING PROPERTIES		<u>VALUE</u>	<u>TEST METHOD</u>
Visual Appearance, Part 5753A		Clear, yellow to orange liquid	
Density, Part A		1.20 g/cm ³	ASTM E-201
Viscosity, Part A, at 25°C		50 cps	ASTM D-2196
Visual Appearance, Part 5753B(LV-75T64)		white semi-paste	
Density, Part B		2.30 g/cm ³	ASTM E-201
Viscosity, Part B, at 25°C		150,000 cps	ASTM D-2196
Density Mixed, g/cm ³		2.10 g/cm ³	ASTM E-201
Viscosity Mixed, at 25°C		40,000 – 60,000 cps	ASTM D-2196
Mix Ratios by weight:		4A:100B	
<u>Processing Temp.</u>	<u>Gel time</u>	<u>Tack Free time</u>	<u>Full Cure time</u>
25°C	60 - 90 minutes	16 – 24 hours	3 - 7 days
65°C	15 – 25 minutes	2 – 3 hours	8 - 16 hours
95°C	5 –10 minutes	1 – 2 hours	4 - 8 hours

PHYSICAL PROPERTIES		<u>VALUE</u>	<u>TEST METHOD</u>
Color		White to Off-White	
Shore A Hardness		85A ± 10A	ASTM D-2240
Tensile Strength, psi		>700 psi	ASTM D-638
Tensile Elongation at break		>50%	ASTM D-638
Glass Transition Temp. (Tg)		<-70°C	ASTM D-648
Coefficient of Thermal Expansion (CTE):			ASTM E-831
Below Tg / Above Tg		60 ppm/°C / 110 ppm/°C	

Maximum Suggested Continuous Use Temperature:	130°C	
Fungus Resistance	Non-Nutrient	Mil-I-46058C
Outgassing:		ASTM E-595
Total Mass Loss (TML) %	< 0.40%	
CVCM %	< 0.02%	
WVR %	0.01%	
Dielectric Strength @ 3 mil	>1500 V/mil	Mil-I-46058C
Insulation Resistance, ohms	>1.0 x 10 ¹⁵ ohms	Mil-I-46058C
Thermal Conductivity	~1.3 W/mK	

NOTE : Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

To use, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Mixing containers should preferably be made of polyethylene, glass, or non-corroding metal. (Stainless steel, aluminum, etc.). Always use weighing equipment having accuracy that is $\pm 1\%$ or less of the smallest quantity that you will be weighing. Blend Part A & B thoroughly using a spatula or stirring stick for at least 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Vacuum de-gassing after mixing is helpful to remove air. Vacuum degassed material will produce the strongest possible bonds and provide the highest thermal conductivity.

Apply the mixed material to clean, dry surfaces. Suitable application methods include by brush, by spatula, from a syringe, etc.

STORAGE GUIDELINES:

Store this material in a clean, cool, and dry environment in its tightly closed original container. Protect the Arathane® 5753A from extended exposure to temperature below 20°C (68°F). Crystallization may occur if the 5753A is exposed to cold for extend periods. If this occurs, heat the entire container of 5753A for 4 hours at 70°C to re-liquefy the crystals. Allow to cool to ambient temperature prior to using. Also protect the 5753B(LV-75T64) from exposure to moisture or high humidity. The 5753B(LV-75T64) may settle or separate during storage or shipment and must be thoroughly re-mixed prior to use. Tightly re-seal containers after use and blanket with dry nitrogen or another dry inert gas if available. If the recommended storage conditions are observed the products will have a minimum shelf-life of 6 months from the date of shipment.

HANDLING PRECAUTIONS:

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

PERSONAL HYGIENE:

Arathane® 5753A

WARNING! Contains organic isocyanate. May cause severe eye & skin irritation. Prolonged or repeated skin contact or inhalation of vapors may cause allergic skin or respiratory reactions. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor

or mist. Keep containers closed when not in use. Use only with adequate ventilation. Do not take internally.

Arathane® 5753AB(LV-75T64)

WARNING! May cause eye & skin irritation. Prolonged or repeated skin contact may cause allergic skin reactions. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Use only with adequate ventilation. Do not take internally.

FIRST AID

In case of contact:

Skin – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

Eyes – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

Inhalation - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Ingestion - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

NOTE: Arathane® is a registered trademark of Huntsman Advanced Materials. SP&S is the Authorized Distributor for the Arathane® 5753A/B(LV) and the Authorized Manufacturer of Arathane® 5753A/B(LV-FD). Huntsman Advanced Materials does not in any endorse or certify any of the information presented herein, which is supplied solely by SP&S.

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