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Advanced Materials
Electrical Insulation Materials

DATA SHEET

Arathane[®] 5753-A/B (LV)

Urethane Casting Compound

General

Arathane 5753-A/B (LV) is a translucent, amber, two component polyurethane casting compound which, when cured, provides excellent electrical insulation to electrical/electronic parts.

Arathane 5753-A/B (LV) exhibits excellent reversion resistance under heat and high humidity conditions. As a cured system, this material meets NASA outgassing properties critical for applications in outer space and high vacuum environments.

Arathane 5753-A/B (LV) is typically recommended for encapsulating coils, trim pots, potentiometers and modules with complicated circuitry and/or stress sensitive components.

Applications

Stress sensitive components
Outer space encapsulating applications

Benefits

Excellent hydrolytic stability giving improved reliability
100% solids for improved ease of use and handling
Low outgassing, meeting NASA requirements
High thermal shock resistance offering greater component protection and reliability

Typical Properties***Arathane 5753 A**

Viscosity @ 25°C, cPs	25 – 55
Specific gravity, g/cm ³	1.21
Flash point, °C	177
Percent solids	100
As supplied form	Amber Liquid
Shelf life, unopened, months	6

Arathane 5753 B (LV)

Viscosity @ 25°C, cPs	5,000 – 10,000
Density, g/cm ³	1.05
Flash point, open cup, °C	232
Percent solids	100
As supplied form	Translucent Liquid
Shelf life, unopened, months	6

Mixed

Viscosity @ 25°C after 1h, cPs Spindle # 7 @ 10rpm	<= 250,000
Hardness, Shore A	45 – 60

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

Packaging & Storage

Arathane 5753-A/B (LV) is moisture sensitive and should be stored in a dry place and, whenever possible, in the tightly closed original containers at 25°-40°C. Under these conditions, shelf life will be 6 months from the date of shipping. Partial containers should be resealed using dry nitrogen or argon. Contact Customer Service for packaging information.

System Preparation

Exposure of Part A to low temperatures for prolonged periods may cause crystallization. Part A must be reliquified by heating to 70°C (158°F). Heat Part A until clear amber solution is achieved. Remove container from oven. Do not disturb contents. Allow material to cool to 25°-40°C in a controlled environment; do not force cool.

Measure height of the precipitate from outside of bottle. Do not use if level of precipitate is above 3/8 inches (0.6 cm), or if liquid remains cloudy or contains gelled particles. Contact our Customer Service Department with lot number, date received and condition of bottle.

Material is ready for use if level of precipitate is below 3/8 inches. Do not agitate. Slowly decant clear resin out of the bottle without disturbing the precipitate. Enough material has been packaged to allow for any precipitate and to assure sufficient Part A. For best results, filter Part A through nylon tricot, 10-25 micron size.

Use entire bottle so remaining material will not be contaminated with moisture. If this is not possible, any remaining material must be will blanketed with dry nitrogen or argon and the cap tightened securely. Store at 25°-40°C for best long-term stability.

Mixing

Container should be plastic, glass, or metal. Paper and wooden containers or utensils are not recommended because of high moisture content. Weigh Part B into container first. Add Part A to container. (Do not use Part A if precipitate level is greater than 3/8 inches.)

Slow machine mixing or hand stirring will minimize air entrapment. Complete and thorough mixing of Parts A and B is essential for optimum end properties.

Mixture may be vacuumed by drawing 29-29.5 inches of Hg for 2-3 minutes. Material will rise and "break" so allow enough room for expansion inside the container.

Mix ratio

	Parts by weight
Arathane 5753 A	20
Arathane 5753 B (LV)	100

Processing

Initial viscosity, cPs	6000
Pot life @ 25°C (100g), min	30
Recommended cure times*	24 hours at 25°C (or) 8 hours at 95°C

* Cure schedule results in approximately 90% properties, additional room temperature or elevated temperature cure is required for 100% properties

**Physical Properties
(typical values)**

Hardness Shore A,	45
Tensile strength at break, psi (N/mm ²)	350 (2.4)
Elongation, %	250
Tensile modulus, psi	140
Tg, °C	< -69
Thermal conductivity, Cal/sec.cm.°C	3.9 x 10 ⁻⁴
Coefficient of thermal expansion, ppm/°C	
Alpha 1	76
Alpha 2	170
Fungus resistance	Non-nutrient
Maximum continuous use temperature, °C	130
Outgassing at 10⁻⁶ Torr	
Total Mass loss, %	0.41
Collectible volatile condensable materials, %	0.03



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Electrical Properties (typical values)

During testing, avg., Ω	$> 1 \times 10^9$
After testing, avg., Ω	$> 2.5 \times 10^{12}$
Volume resistivity, ohms-cm	
@ 25°C	9.3×10^{15}
@ 95°C	2.0×10^{13}
Dielectric strength, volts/mil	350
Dielectric constant	
@ 25°C, 60 Hz	3.33
@ 25°C, 1 MHz	2.90
Dissipation factor	
@ 25°C, 60 Hz	0.027
@ 25°C, 1 MHz	0.025
Arc resistance, sec.	75



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Handling/Safety Precautions

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

Arathane 5753 A

Warning! Causes severe eye and skin irritation and possible eye burns. Vapor or mist harmful if inhaled. Harmful if swallowed. May cause allergic respiratory and skin reaction.

Arathane 5753 B(LV)

Caution! May cause eye irritation. Prolonged or repeated skin contact may cause irritation and may cause allergic skin reaction. Harmful if inhaled. Harmful if swallowed.

Work in a well-ventilated area and use clean, dry tools for mixing and applying. For two component systems, combine the resin and hardener according to mix ratio. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65°F (18°C) when mixing.

First Aid

In case of contact:

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Discard contaminated shoes.

Eyes: Immediately flush with water for at least 15 minutes. Call a physician.

Ingestion: If conscious, give plenty of water to drink. Do not induce vomiting. Call a physician.

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

Other: Referral to physician is recommended if there is any question about the seriousness of an injury



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Note

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**Huntsman Advanced Materials
Americas Inc.**

Arathane 5753-A/B (LV)
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