Product Datasheet

Preliminary – some data is based on limited testing or estimated from products with similar chemistry. We are currently working to generate additional data.

Gelatherm™ TZ-75A/B

Soft, Flexible Gel-like Urethane Encapsulant & Sealant with High Thermally Conductivity.

The Gelatherm™ TZ-75A/B system is a soft, elastomeric urethane system. It is highly flexible and provides a firm gel like consistency when fully cured, without significant surface tackiness. The system is highly filled with a thermally conductive filler and provides excellent thermal conductivity and a low CTE. There are no plasticizers, solvent, or other unreacted materials remaining in the polymer curing. Therefore the cured system is able to provide low outgassing results that meets NASA requirements for low outgassing materials.

The system is available as a 2 part kit as Gelatherm™ TZ-75A/B and as a pre-mixed and frozen, one component material as Gelatherm™ TZ-75P. In either case, the mixed system is a smooth paste consistency with good flow and wetting behavior.

The chemistry of the Gelatherm™ TZ-75A/B system is inherently hydrophobic, so the cured system is highly resistant to moisture immersion and moisture pickup under high humidity conditions. The system is silicone-free and contains no materials prohibited by as part of RoHS 3 or current REACH SVHC lists. It also contains no PFAS or PBT (Persistent, Bioaccumulative, and Toxic Chemicals) as identified by the United States EPA.

This product can be supplied in thickened, non-running/non-sagging versions. The standard color is a natural off-white color, but black and other colored versions are available by request. We can also adjust the work-life and cure time, and the cured Shore hardness to meet customer requirements. Please contact us to discuss your application if you think such a variant would be helpful for your application.

APPLICATIONS & BENEFITS:

- Potting & impregnation of stress sensitive devices including inductive components.
- Low modulus and low Tg ensure that embedded components experience low stress even under cryogenic conditions or thermal cycling.
- Low outgassing for use in optical, space and other high vacuum environments.
- Highly resistant to reversion even with high heat and humidity exposure
- RoHS and REACH Compliant

HANDLING PROPERTIES	VALUE	TEST METHOD
Visual Appearance, Part A	Clear, yellow to amber liquid	
Density, Part A	0.925 g/cm³	ASTM E-201
Viscosity, Part A, at 25ºC	130 cps	ASTM D-2393

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Visual Appearance, Part B	White to off-white, filled liquid	
Density, Part B	>2.0 g/cm³	ASTM E-201
Viscosity, Part B, at 25ºC	140,000 cps	ASTM D-2393
Density Mixed, g/cm³	~2.00 g/cm³	ASTM E-201
Viscosity Mixed, at 25ºC	~ 18,000 cps	ASTM D-2393
Mix Ratios:	8A:100B by weight	

Processing Temp.	Gel time (100g)	Tack Free time	Minimum Cure time
25ºC	3 hours	24 hours	2-3 days
65ºC	not determined	2 – 3 hours	4 - 8 hours
95ºC	not determined	1 hour	2 - 4 hours

After curing, final Hardness may take additional time to fully develop. Depending on the initial cure schedule this may be as little as 24 hours additional at room temperature and as long as an additional 7 days at room temperature. For best outgassing results, we recommend a heat cure and at least 2-3 days at room temperature prior to testing.

PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	White to Off-white	Visual
Shore 000 Hardness	75	ASTM D-2240
Shore 00 Hardness	64	
Shore A Hardness	21	
Glass Transition Temp. (Tg)	<-69ºC	ASTM D-648
Maximum Suggested Continuous Use Temperature:	130ºC	
Fungus Resistance	Non-Nutrient	Mil-I-46058C
Outgassing:		ASTM E-595
Total Mass Loss (TML) %	0.74%	
Thermal Conductivity	>1.00W/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 ±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, best insulation values, and highest thermal conductivity values.

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 Gelatherm™ TZ-75A from extended exposure to temperature below 15ºC (59ºF). Crystallization may occur if part A is exposed to cold for extended periods. If this occurs, heat the entire container of part A for 4 hours at 60ºC to re-liquefy the crystals. Allow to cool to ambient temperature prior to using. Also protect the B-sides from exposure to moisture or high humidity. 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.

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 a physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER:

IMPORTANT: The following supersedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential, or indirect damages for alleged negligence, breach of warranty, strict liability, tort, or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

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