



# T-Paste 70-2

## Low Density Epoxy Tooling Paste

### Benefits:

- Compatible with 2KM, Dekumed, Tartler & Graco mixing machines
- Easy to apply at thicknesses up to 40mm on a vertical surface
- Low exotherm & shrinkage in thick sections
- Can be rough machined after 1 day @ 21°C
- Excellent machining properties
- Provides a high quality surface finish for mould or part production
- Temperature performance up to 85°C
- 20% lower viscosity for easier pumping, lower back pressure and less drag on application

### Introduction

T-Paste 70-2 has been developed to offer significant application improvements over T-Paste 70-1.

T-Paste 70-2 has been designed for Marine, Wind Energy and Automotive customers looking for a fast and reliable way to manufacture patterns and direct moulds.

T-Paste 70-2 combined with CNC technology allows more design freedom and improves pattern / direct mould accuracy whilst reducing production processes.

# Properties

Component Properties		
	Resin	Hardener
Mix Ratio (by weight)*	100	92
Mix Ratio (by volume)*	100	100
Viscosity at 25°C (P)	260	215
Appearance Colour	Yellow	Purple
Density (g/cm <sup>3</sup> )	0.74	0.68

\*Any deviation from the prescribed ratio will affect the cured properties of the paste.

Working Properties	
	Resin/Hardener mix
Appearance	Grey
Maximum Layer Thickness (mm)**	40
Machinable after (number of days) at 20°C	2

\*\* Ensure substructure is strong, stable, clean and free of loose material. The paste can be applied as a single layer up to 40mm in thickness using suitable mixing / dispensing equipment. Allow to cure for at least 48 hours at room temperature before machining.

Please contact SP-High Modulus for further advice on suitable structures.

Cured System Properties	
	After cure: 3 days @ Room Temperature (48 hours at Room Temperature + 8 hours at 80°C)
Density (g/cm <sup>3</sup> )*	0.71 - 0.75
Hardness (Shore D)	55 (61)
Coefficient of Thermal Expansion (x10 <sup>-6</sup> m/m per °C)	105
Deflection Temperature (°C)	43 (85)
Compressive Strength (MPa)	13 (20)
Flexural Strength (N/mm <sup>2</sup> )	10 (15)
Linear Shrinkage (mm/m)***	1

\*Density depending on mixing machine used to dispense paste.

\*\*\*Test sample 1000 x 60 x 40mm, released. No measurable shrinkage on the test sample. Please note: When coating larger areas it is expected that there will be some degree of shrinkage.

Notes: For an explanation of test methods used see 'SP-High Modulus Formulated Products Technical Characteristics'.

All figures quoted are indicative of the properties of the product concerned. Some batch to batch variation may occur.

## Substrate Selection

Substrate Foam Type	Cost / m <sup>3</sup>	Comments	Supplier(s)	website
<b>Expanded Polystyrene (EPS)</b>	£70.00	Low cost, low CTE, stable up to 75°C, low strength	Eccleston & Hart, Coredek	<a href="http://www.eccleston.co.uk">www.eccleston.co.uk</a>
<b>Styrofoam</b>	£112.00	Higher strength when compared EPS, other properties the same as EPS	Panel Systems Group	<a href="http://www.styrofoam-online.co.uk">www.styrofoam-online.co.uk</a>
<b>Rigid PU Foam</b>	£620.00	Higher temperature performance - 90°C.	Trident Foams	<a href="http://www.tridentfoams.co.uk">www.tridentfoams.co.uk</a>
<b>SAN Foam</b>	£715.00	Temperature performance up to 120°C	SP	<a href="http://www.gurit.com">www.gurit.com</a>
<b>Obomodulan PU Tooling boards</b>	£1200.00	Obomodulan 210 pricing, temperature range from 25°C - 70°C, CTE 50 x 10 <sup>-6</sup> , 25°C - 70°C temperature range.	Obo Werke	<a href="http://www.obo-werke.de">www.obo-werke.de</a>

## Mixing and dispensing of T-Paste 70-2

It is recommended to use a mixing machine to mix and dispense T-Paste 70-2. Mixing by hand will result in air entrapment in the paste, and significant repairs to the pattern / direct mould use table supplied.

### Mixing Machine Suppliers

Machine Manufacturer	Recommended Machines	Website
<b>2KM</b>	Poly Tool 8230	<a href="http://www.2km.co.uk">www.2km.co.uk</a>
<b>Dekumed</b>	UNIDOS 300TX / MP50 or UNIDOS 300TX / MP200	<a href="http://www.dekumed.de">www.dekumed.de</a>
<b>Tartler</b>	Nodopox 50 or Nodopox 200	<a href="http://www.tartler.com">www.tartler.com</a>
<b>Graco</b>	DC12	<a href="http://www.graco.com">www.graco.com</a>

## Application and CNC Machining of T-Paste 70-2

Please contact Gurit Technical Support for information on application and CNC machining of T-Paste 70-2

### Coverage

Based on a recommended application thickness of 20-25mm, 18kg will cover 1m<sup>2</sup>.

## Cure of T-Paste 70-2

### Ambient Cure

When cured at an ambient temperature of 21°C, the T-Paste 70-2 product achieves a temperature performance of 43°C.

### Post cure

When postcured at higher temperatures the T-Paste 70-2 product achieves the maximum temperature performance of 85°C. For postcuring recommendations, please contact Gurit Technical Support.

### Repair of T-Paste 70-2 Patterns & Moulds

To repair application defects it is recommended to use T-Paste 70-2 Repair. Please refer to the T-Paste 70-2 Repair datasheet for further information.

## Recommended Sealers / Release Agents and Coatings

### Patterns (gloss level 50)

For low gloss patterns and moulds it is recommended to use Chemlease RPM712N (Europe) / MP117 (US) Sealer. After sealing the surface a Multi-pull wax system can be applied to the sealed surface to give the required release.

### Moulds Direct (Class A, Gloss 90 finish)

For high gloss patterns or moulds it is recommended to use Duratec ([www.duratec.com](http://www.duratec.com)) or Llewellyn Ryland ([www.llewellyn-ryland.co.uk](http://www.llewellyn-ryland.co.uk)) products.

The sealers / release agents and coatings should be applied according to the manufacturers recommendations.

## Health and Safety

The following points must be considered:

1. Skin contact must be avoided by wearing protective gloves. SP-High Modulus recommends the use of disposable nitrile gloves for most applications. The use of barrier creams is not recommended, but to preserve skin condition a moisturising cream should be used after washing.
2. Overalls or other protective clothing should be worn when mixing, laminating or sanding. Contaminated work clothes should be thoroughly cleaned before re-use.
3. Eye protection should be worn if there is a risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eye with water for 15 minutes, holding the eyelid open, and seek medical attention.
4. Ensure adequate ventilation in work areas. Respiratory protection should be worn if there is insufficient ventilation. Solvent vapours should not be inhaled as they can cause dizziness, headaches, loss of consciousness and can have long term health effects.
5. If the skin becomes contaminated, then the area must be immediately cleansed. The use of resin-removing cleansers is recommended. To finish, wash with soap and warm water. The use of solvents on the skin to remove resins etc must be avoided.

Washing should be part of routine practice:

■ before eating or drinking

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■ before smoking

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■ before using the lavatory

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■ after finishing work

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6. The inhalation of sanding dust should be avoided and if it settles on the skin then it should be washed off. After more extensive sanding operations a shower/bath and hair wash is advised.

Gurit (UK) produces a separate full Material Safety Data Sheet for all hazardous products. Please ensure that you have the correct MSDS to hand for the materials you are using before commencing work. A more detailed guide for the safe use of resin systems is also available from Gurit (UK).

## Applicable Risk and Safety Phrases

### Resin

R 36/38, 43, 51/53

S 23, 24/25, 26, 28, 37/39, 57

60

### Hardener

R 34, 43

S 20, 23, 26, 36/37/39, 45,



## Transport & Storage

T-Paste 70-2 should be kept in securely closed containers during transport and storage. Any accidental spillage should be soaked up with sand, sawdust, cotton waste or any other absorbent material. The area should then be washed clean. (See appropriate Safety Data Sheet).

The shelf life is 12 months from date of manufacture for both Resin and Hardener. Ideally, storage should be in a warm dry place out of direct sunlight. The temperature should be between 18°C and 25°C. Containers should be firmly closed, as the hardener in particular will suffer serious degradation if left exposed to the air.

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