Stegenthumbach 4 - 6
92 676 Eschenbach
info@kerafol.com
www.kerafol.com
Tel.: (0 96 45) 88-300
Fax: (0 96 45) 88-390

KERAFOL

Hightech aus der Oberpfalz

Keramische Folien GmbH

Keratherm® - Thermal compounds
GF 255, GF 300, GF 1000, GF 5000

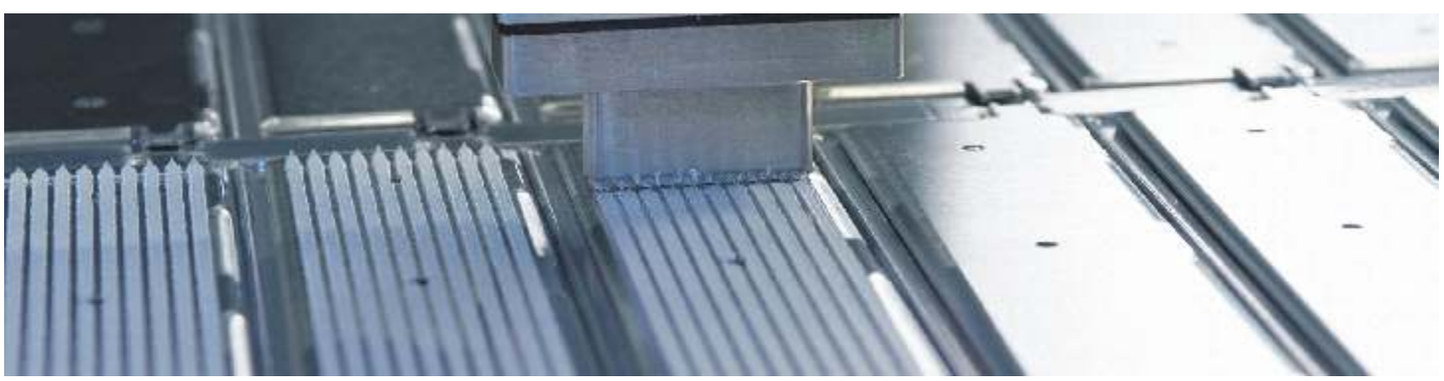
Properties	Unit	GF 255	GF 300	GF 1000	GF 5000
Base material		Silicone	Silicone	Silicone	Silicone
Colour		red	blue	white	black
Mixing ratio		1 : 1	1 : 1	single component	single component
Viscosity	Pas	47.5	80	330	approx. 250
Curing		½ h;120°C		1 h;130°C	1 h;130°C ½h;150°C
Technical properties					
Thermal conductivity λ	W/mK	1.5	3.0	1.1	5.0
Dielectric breakdown $E_{d;\ ac}$	KV/mm	1.5	1.0	5.0	> 1.0
Hardness	Shore 00	10	50	55	65
Density	g/cm³	2.62	2.40	2.45	2.5
Application temperature	°C	-40 to +200			-60 to +200

Applications:

- RD-RAM modules
- Memory chips
- Chipsets
- Micro BGA
- Heat pipe thermal solutions
- high voltage electronics components

Ceramic-filled, two-component silicone elastomers. Because of their various thermal conductivities and differing compressibility behavior, their good dielectric properties and being free of solvents, these materials are ideally suitable for encapsulating or dispensing. The wide range of different material viscosities available makes them of interest for "wet-in-wet" production.

Customer-specific solutions for the compound technology and processing technology are our strength.



Kerafol's® modern dispensing technologies allow the application of heat-conducting material onto the most diverse heat sinks or customized components.

Just contact us and we will help you to find a solution!

Processing of Keratherm GF 255 and GF 300 thermal compounds

General information:

- Silicone thermal compounds are physiologically safe
- Silicone hardeners / curing agents are physiologically safe
- We recommend the use of protective industrial lotion
- Avoid contact with skin
- No irritation to the respiratory system when using thermal compounds

Pre-treatment: The parts to be sealed should be dry, clean and grease-free.

Preparation: The silicone thermal compounds contain filler materials which may show sedimentation, depending on the storage temperature. It is therefore necessary to stir the compound thoroughly before the actual mixing process.

Mixing: Kerafol's silicone thermal compounds and their silicone curing agents (component B) must be mixed in the prescribed proportions. After intensive mixing with a suitable stirrer, the compound is immediately ready for use.

The use of cartridges is not recommended, since mixing of the components by a static mixer can no longer be performed. During the mixing process, ensure that no air is brought into the material. Avoid long standby times. Pay attention to the specified processing times. Silicone thermal compounds are moisture-sensitive. After mixing, sealing compounds should always be evacuated for a period of at least 10 minutes at < 100mbar.

Applications: The processing time ranges from approx. 25 minutes up to 3 hours! The viscosity will increase slightly during this time, so you should only prepare as much material as you can process within this time. If the silicone thermal compound will be processed by means of dosing equipment, then it is possible to adjust the processing time with the aid of accelerators. Processing of the compound beyond this time should be avoided since the processing conditions will continuously change due to the curing process (viscosity increase, viscidity of the sealing compound, etc.).

Curing conditions: For specific curing times please refer to the datasheets. The heating regime from room temperature onwards should not climb faster than 5 K/min. When tempering or post-curing incompletely cured thermal compound, entrapped air can expand and cause smoke formation. It is therefore important to ensure that no bubbles are formed during dispensing. When curing at room temperature, please note that heat treatment can change the hardness slightly . Silicone thermal compounds that have been cured at room temperature should not be fully stressed mechanically and electrically before approx. 4 days waiting time.

Suitability for storage: At least 6 months in original packaging. When opened, the contents should be used as soon as possible since, due to the influence of humidity, the reactivity of the material can diminish.

Processing of Keratherm GF 1000 and GF 5000 thermal compounds

Notes regarding the occupational physiology:
Silicone casting compounds: harmless from a physiological point of view
Silicone hardening agent/binder: harmless from a physiological point of view
- no exposure of the breathable air within the casting compound during application
- avoid skin contact
occupational protection ointments are recommendable

Pre-treatment: The parts to be cast should be dry, clean and free of greses.

Preparation: The silicone casting compounds contain filling agents showing a tendency of setting in certain limits and depending on the storage temperatures. Thus, it is required to stir before the actual mixing procedure. If the product has been filled into cartridges (Euro respectively Semco), this processing step is not applicable.

Mixing: If single-compound casting compounds are not delivered in cartridges, the same have to be mixed thoroughly before using them. During the process of mixing, please pay attention to the fact that the amount of air introduced must be as low as possible.Longer storage times should be avoided. Please observe the specified processing times. Silicone casting compounds are sensitive ar regards to moisture.

All mixtures of casting compounds are to be evacuated afterwards, at which the time should be at least 2-3 minutes at 100mbars.

Applications: The processing time is approx. 30 minutes uo to a maximum of 3 hours! Within this period there will be a slight increase in viscosity, thus the quantity should be selcted in a way that it can be processed within this period of time. If silicone casting compounds are to be processed by means of dosing systems, it is possible to set the processing time with accelerators. Processing the compounds in exeedance the period of time specified above is possible, but should be avoided as the processing conditions are subject to constant changes on the basis of the cross-linked procedure (increase in viscosity, viscosity of the casting compound, etc.).

Curing conditions: All single-component casting compounds have to be cross-linked under the impact of temperature. The heating from room temperature to the curing temperature of 130°C should not be done faster then 2,5 K/min. The curing temperatures are to be kept for 1 hour at 130°C and afterwards 1/2 hour at 150°C. During tempering and post curing of the not completely cured casting compound enclosed air can expand and result in the formation of convexities. Thus, in this case a bubble-free casting procedure is very important.

Suitability for storage: At least 6 months in the original packaging. Packages that have been opened should be used-up as soon as possible and stored in a cool place (refrigerator), as the reactivity may be reduced by the impact of moisture.