

Technical Card

SILICONE FILLING COMPOUND 021

TWO-COMPONENT FOR ELECTRICAL PURPOSES

The product is a liquid filling, two-component material. Hardening occurs at a room temperature. The material provides thermal conductivity and low expansion. Ideal for pouring or filling joints in heat-generating electronic components with metal housings or radiators. It has an excellent fluency at dosing and filling. After hardening, it does not tear or flake as a result of cyclic heating from a surface, to which it is attached. Hardened product is dry to the touch.

Characteristics (before cross-linking)

| Properties | Filling compound |
|--|------------------|
| Consistency | Liquid paste |
| Colour | white |
| Viscosity (cP)* / | ± 1125 |
| pH | >7 |
| Catalyst dose (weight part per 100 weight parts of filling compound) | 10 |

APPLICATION

Encapsulation of electronic/electrical systems. Energy converters. Power semiconductors. Power supplies. Automotive electronics. Motion control. Telecommunication. Computers and peripheral devices.

The application of condensation filling compound in a closed system can cause the occurrence of unharmed white coating, which does not influence on the operation of the system.

Preparation of filling compound

The use of silicone filling compound of 021 type is to prepare the filling composition and the system, and then fill the system and season it for approximately 100 hours at a room temperature.

To do this:

1. Weigh filling compound 021 in a dry and clean vessel having a volume 5 times the volume of weighed silicone. Vessels with special requirements are not required; e.g. plastic vessels can be applied.
We do not recommend weighing large amount of filling compound. It may be the reason for extending the time of each operation, i.e. the time of mixing the components (filling compound with the catalyst), the time of venting of the composition, the filling time with a prepared mass, which in turn may lead to hardening of the composition in a vessel, in which it is prepared.
2. Weigh a recommended dose of the catalyst.
3. Mix the ingredients.

The catalyst must be uniformly distributed throughout the mass, because it influences on the completed protection quality.

It is recommended to place the prepared composition in a vacuum chamber (30-60 mm Hg) to vent it. During this procedure, which should be short (no more than 5 minutes), firstly, the composition foams, and increases its original volume to approx. 5 times, then it returns to the parent volume (output); if this has occurred, turn off vacuum and remove the vessel from the chamber with the composition being ready to use.

It is also possible to make a protection with a composition that has not been subjected to venting in the vacuum chamber. In this case, the end result depends inter alia on the type and diligence of a making person.

Systems protection:

Before filling, clean, degrease and dry the system. Such prepared system should be placed in a housing or a form and filled with the composition, then leave the system open to be cross-linked, and season for approx. 100 hours. Air circulation is very important, because during cross-linking, ethyl alcohol is separated, which must be freed from a hardened mass, otherwise adverse phenomenon of reversion can occur. In the event of e.g. under-filling, one can cut out pieces of rubber (filling compound), and re-fill such places. In addition, in the case of damage of filled electronic components, one can cut out surrounding filling compound, and after replacing, re-fill the composition of the same kind.

Filling compound properties (after cross-linking)

| No. | Parameter | Unit | Silicone filling compound 021 |
|--|---|----------------------|-------------------------------|
| 1. | Density at 25 °C, not less than | [g/cm ³] | 1,2 |
| 2. | Content of volatiles, not more than | [%] | 3 |
| 3. | Thermal conductivity | W/mK | ~1,2 |
| 4. | Usability time from the time of addition of 10 weight parts of the catalyst (per 100 weight parts of filling compound), not less than | [minutes] | 30 |
| 5. | Geling time from the time of addition of 10 weight parts of Catalyst (per 100 weight parts of Filling compound), not more than | [hours] | 60 |
| 6. | PH of aqueous extract | | <7 |
| Test of cross-linking samples, seasoning for at least 100 hours at a room temperature from a hardening time | | | |
| 7. | Cross resistivity at 20 ± 5 °C and air relative humidity of 65±5%, not less than | [ohm.cm] | 1,78 x 10 ¹⁶ |
| 8. | Surface resistivity at 20 ± 5 °C and air relative humidity of 65±5%, not less than | [Ohm] | 2,41x 10 ¹⁵ |
| 9. | Dielectric loss factor (tan δ) at a frequency of 10 ⁶ Hz, not more than | | 0,005 |
| 10. | Dielectric permeability at a frequency of 10 ⁶ Hz, not more than | | 3 |
| 11. | Dielectric durability at 20 ± 5 °C and air relative humidity of 65±5%, not less than | [kV/mm] | >20 |
| 12. | Thermal resistance | [°C] | from -50 to 180 |
| 13. | Resistance to creepage currents in accordance with PN-EN 60112:2003 (CTI) | [V] | 600 |
| 14. | Hardness based on Shore scale: | [A] | 59 |

STORAGE

Store in original packaging in dry warehouses, at a temperature not higher than 30 °C. Guarantee period: 12 months from the production date.

Data contained in this document are consistent with the current state of our knowledge. They describe typical properties and use of the product. However, it is a user's responsibility to test the suitability of this product for specific applications. We are not responsible for the obtained results, due to the fact that the conditions of use are beyond our control.

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