

# TECHNICAL DATA SHEET

## PERMACOL 2035Z-SERIES

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### DESCRIPTION:

The PERMACOL 2035Z-series are smooth, thixotropic, one component adhesives on epoxy base for SMT purposes. Adhesives of the PERMACOL 2035Z-series can be applied, dispensed or screen printed, without stringing and will not sag whilst curing. These thixotropic adhesives hold electronic components in position and prevent movement due to vibration even before curing.

The cured adhesive has excellent electric properties and heat resistance during soldering.

In the PERMACOL 2035Z-series, we supply adhesives in different viscosities, adjusted to the method applied or type of electronic component to bond. These viscosities assigned by the extensions /10, /15, /25, /30 and /35 are:

PERMACOL VISCOSITY TYPE	MAIN APPLICATION
2035Z/15R (red)	Dispensable adhesive for larger components, High dispensing temperatures possible (30-40°C), Stencil printing.
2035Z/25R (red)	SMD-adhesive for stencil printing. High viscosity.
2035Z/30G (yellow)	SMD-adhesive for stencil printing /dispensing, suitable for Thick stencils or flood-printing.
2035Z/35G (yellow)	SMD-adhesive for stencil printing / dispensing.

### SPECIFICATIONS OF UNCURED MATERIAL:

- Viscosity; important parameters of SMD-adhesive are the viscosity and green strength (yield value, wet strength). These figures will determine the application and the workability of the material.

	2035Z/10	2035Z/15	2035Z/25	2035Z/30	2035Z/35
Wet strength	750 Pa.	1.200 Pa.	1.700 Pa.	600 Pa.	1.600 Pa.
Viscosity at D=30/s	40-50 Pa.sec.	60-70 Pa.sec.	70-80 Pa.sec.	110-120 Pa.sec.	200-220 Pa.sec.

- The viscosity and wet strength are measured with a Physica Rheometer equipped with a PM30 plate to plate spindle with a gap of 200 micron. Measuring temperature is 23°C.
- Curing Schedule; to cure these 2035Z adhesives, temperatures over 100°C are at least necessary. If the curing temperature becomes higher, the adhesive strength will be attained in shorter time.

It must be clear that the curing time depends on other parameters too. Oven capacity, board Design, type of components on Printed Circuit Board, and type of Printed Circuit Board (multilayers have higher heat capacity) can influence the cure speed.

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SURFACE TEMPERATURE	MINIMUM HEATING TIME
100°C	6 minutes
125°C	2 minutes
150°C	90 seconds

- Colour; To make the adhesive visible on different types of PCBs, the adhesives of the PERMACOL 2035Z-series are available in two colours. After cure, both colours will turn to dark. For the red coloured adhesive, it will turn to dark brown/black, and the yellow adhesive turns brown.
- Storage stability; PERMACOL adhesives can be stored in its original packaging at temperatures between 0°C and 23°C. The preferred storage is between 0°C – 5°C in refrigerator, these temperatures will extend the shelf life. Refrigerated adhesives must be allowed to return to room temperature before use. For Screen printing adhesives, contamination of the unused material will be avoided if no material is returned to its original packaging.

STORAGE TEMPERATURE	STORAGE STABILITY
0°C – 5°C	6 months
25°C	3 months
40°C	1 month

### SPECIFICATIONS AFTER CURING:

MECHANICAL PROPERTIES OF PERMACOL 2035Z-SERIES	
Glass Transition temperature	110°C
Thermal conductivity	< 0.4 W/m.K
Shear strength (stainless steel/stainless steel)	> 80 kg/cm <sup>2</sup>

ELECTRICAL PROPERTIES OF PERMACOL 2035Z-SERIES	
Volume resistivity, ASTM D-257	> 5 x 10 <sup>12</sup> Ohm.cm
Dielectric constant, ASTM D-150, 1MHz.	3.5
Dissipation factor, ASTM D-150, 1MHz.	0.02
Electrolytic corrosion effect	AN 1.2

The PERMACOL 2035Z-series meets the requirements of Siemens norm SN59651, "Technical delivery specifications for SMD technology", issued by Siemens Central Laboratory, Berlin, Germany.

### CLEANING:

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At room temperature, the remaining uncured adhesive can be removed and cleaned by means of solvents as Ethanol, Acetone, Isopropylalcohol (IPA), N-Methyl-2-Pyrrolidone (PC61), or gamma-Butyrolactone (PC66).

Cured adhesives must be removed mechanically. To avoid damage of components and/or PCB, it is advised to heat up the adhesive or bond over 100°C (over the softening point of the adhesive). At this temperature, the adhesive dot will be soft and the component can easily be removed by means of torsion.

### **PACKAGING:**

The PERMACOL 2035Z-series can be supplied bubble free in all dispenser-specific syringes, tins, pots, and Eurosyringes.

### **HANDLING AND SAFETY PRECAUTIONS:**

The PERMACOL 2035Z-series is for industrial purposes only. Read Material Safety Data Sheets (MSDS) prior to using product. Avoid contact with eyes, skin or clothing because this material may cause eye irritation, skin irritation or allergic skin reaction if prolonged or repeated exposure is present, and is harmful if inhaled or swallowed. Wear eye protection and impervious gloves when handling, keep container closed when not in use.

First aid; **Eyes:** Flush with cold running water for a minimum of 15 minutes. Contact a physician immediately.  
**Skin:** Wash thoroughly with soap and water. Dab/air dry. Remove contaminating clothing prior to reuse.  
**Inhalation:** Remove subject to fresh air  
**Swallowing:** Dilute by drinking water. Never give anything to drink to an unconscious person.