

## PD 955 PY SMT-Adhesive

### Thermosetting Polymer-SMT-Adhesive for Printing Application

#### Description

PD 955 PY is a thermosetting single-component, solventfree polymer adhesive, developed especially for the surface mounting of SMT components on to PCBs and for use on bare substrates.

The rheology is especially adapted for printing application with thick stencils.

#### Special advantages

- Ideal, high dot form and excellent consistency of the glue dots.
- Specially developed for printing with thick stencils.
- Very high green strength prevents component movement during placement.
- Form stable glue dots.
- Excellent adhesion with standard and also with difficult-to-glue components.
- Very low humidity absorption. Steep temperature increases and very short curing times are possible without danger of formation of air bubbles or worse adhesion.
- High surface insulation resistance (SIR).

#### Physical characteristics

**Colour:** yellow  
**Density:** 1.2 g/cc  
**Homogeneity:** no particle >50 µm

**Adhesion:** ≥ 25 N/mm<sup>2</sup> at room temperature,  
 after curing in conventional box oven, 5 min /125°C, Cu-nail on SO component, with a low-stress encapsulation compound.

**Viscosity:** Shear rate D Viscosity ascen. curve

	[s <sup>-1</sup> ]	[Pa·s]
PD 955 PY	30	50 - 150

Cone / plate, without border, 2° cone, temperature: 23°C.

#### Processing

The adhesive is suitable for printing with metal and plastic stencils.

Processing temperature: 23-28°C Processing humidity:<70% r.H.

#### Curing

The standard curing conditions are: 125°C / 3'.

Max. curing temperature should not be higher than 200°C.

The minimum\* curing times are shown in the following list.

100 °C	125°C	150°C	180°C
8 '	3 '	1.5 '	1 '

\* Optimal curing conditions depend on the curing oven.

#### Cleaning

Before curing:

In order to avoid an attack of the cleaning medium on the stencil frame adhesive, a use of a specially designed cleaner, e.g. Zestron SD 301 is recommended.

When small dots are printed e.g. ≤ 0.5 mm, or in case of a bad contamination of the stencil with the glue, we recommend the use of Zestron ES 200 for precleaning and afterwards Zestron SD 301 for final cleaning. However the cleaning with Zestron ES 200 must be done very carefully, by hand, to avoid a contact of Zestron ES with the stencil frame adhesive.

After curing:

Because of the known residual thermoplasticity of the cured adhesive, defective components can be easily replaced by heating (with hot air) the cured adhesive joint above 100°C. After removing the component (torsion movement), the hot air should be focused on the remaining adhesive in order to remove it with a sharp tool.

#### Storage

Storage time: 6 months in a refrigerator, at a storage temperature of 5 - 12°C.

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Siemens AG

ZT ME 7 Berlin

#### Test results with the SMT-adhesive PD 955PY according to Siemens Norm SN 59651\*\*

Report date:

July 07, 1997

Person who performed the tests:

Mr. Jörg Trodler

Item:*	Test	Requirements	Results
2.1	Characteristics	good visible colour, filled in syringes bubble-free, particle size < 50 µm	yellow colour bubble-free particles < 20 µm
2.2	Viscosity	acc. to the agreement	passed
3.1	Storage Conditions	acc. to manufacturer's data 6 months	passed
3.2	Open potlife	min. 8 hours	passed
3.3	Dispensability	reproducible - without stringing	N. A.
3.4	Tack time	min. 8 hours	passed
3.5	Components' adhesion before curing of adhesive	position change 0.15 mm	< 0.05 µm
3.6	Cleanability	completely cleanable	Zestron ES
4.1	Curing characteristics	acc. to manufacturer's data	Data sheet enclosure 1
4.2	Electrolytic corrosion effect according to IEC 426	known value should be no worse than A 1.4	A 1.2
4.3.	Surface insulation resistance (comb sample test)	$\geq 1 \cdot 10^{10} \Omega$	1.5.1012 Ω
4.4	Electrolytic corrosion effect (comb sample test)	no blistering, no dendritic growth	passed
4.5	Mass loss at working temperature	mass loss ≤ 1 %	passed
4.6	Adhesive spreading during curing	increase of diameter 10%	5.1%
4.7	Components' adhesion after curing of adhesive	$\geq 5 \text{ N/mm}^2$ per component	0603: 8.22 N/mm <sup>2</sup> ; 0805: 13.24 N/mm <sup>2</sup> 1206: 10.43 N/mm <sup>2</sup> ; 0204: 7.55 N/mm <sup>2</sup> SOT23: 20.07 N/mm <sup>2</sup> ; SO14: 23.04 N/mm <sup>2</sup>
4.8	Components' adhesion after curing of adhesive (measured in soldering bath)	$\geq 1 \text{ N}$ with the component 1206	$X_{n=15} = 1.38 \text{ N}$
4.9	Reparability	SMD replacement without damage	passed

\* According to SN 59651.

\*\* The tests were performed in the Siemens Central Laboratory in Berlin.

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The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

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Adhesion is sufficient at 85 % full cured strength.

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#### Authorized Distributor

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