

NanoSlic[®] NS 100 SMT Stencil Coating

INTRODUCTION

NanoSlic NS 100 is a hydrophobic and oleophobic coating applied to solder paste stencils, providing unprecedented improvements in transfer efficiency and print quality. In addition, NS 100 improves under-stencil cleaning and reduces solder paste bridging. NS 100 is part of the NanoSlic Stencil Coating System, a turn-key process including specially designed equipment and ancillary chemistry.

ATTRIBUTES

- Significantly reduces the need for underside cleaning and reduces solder bridging
- Superior print definition even at low ARs < 0.60
- Increases transfer efficiency up to 25% depending upon aperture AR.

APPLICATION

NanoSlic NS 100 coated stencils are the most advanced solder paste stencils available today. Advanced chemistry has been developed to impart a highly Hydrophobic and Oleophobic surface to the apertures and contact side of the stencil. This non-stick surface resists solder paste build-up, significantly reducing the frequency of cleaning. The coating bonds to the aperture walls regardless of size or geometry. NS 100 improves paste release, enabling high yield printing with all area ratios.

Material	Minimum Area Ratio (AR)	
	No Stencil Coating	NanoSlic NS 100
Slic™ Metal (2-5 micron grain size)	0.55	0.45
UltraSlic™ Metal (1-2 micron grain size)	0.50	0.40

*Lower area ratios can be achieved depending upon the application.

NS 100 has a robust, abrasion resistant surface that stands up to repeated cleaning. Under normal printing conditions, the coating will provide long lasting benefits. There are no issues with contamination or long-term reliability of the printed circuit board. NS 100 coating is non-ionic, not conductive, and chemically inert. Please refer to the section for details.

AVAILABILITY

NS 100 is available through NanoSlic Stencil Coating System licensees. Contact NanoSlic for more information.

TEST RESULTS

Properties	Values
Appearance	Yellow, Gloss
Thickness of coating	3-4 microns
Specific Gravity @ 25°C	1.02 g/cm ³
Static contact angle, water	105 ^o
Static contact angle, n-hexadecane	64 ^o
Abrasion resistance, ASTM D2486, Isopropyl Alcohol	>2000 cycles
Abrasion resistance, ASTM D2486, IPA Based Flux	>2000 cycles
Pencil hardness	> 9H
Resistivity	> 10x10 ¹² ohm-M
Ionic residues (ROSE)	0 µg of NaCl / liter
Ionic species on board (as received)	None detected
Ionic species on board (after reflow)	None detected
ECHA, REACH, RoHS, RoHS 2	Compliant

CLEANER COMPATABILITY

NS 100 is robust and chemically resistant. It will not be affected by the large majority of commercial stencil cleaners. We have tested the cleaners below and found them to be compatible.

KYZEN: Aquanox A8820, Aquanox A8830, Aquanox A8831, Cybersolv C3400, Cybersolv C8622, Cybersolv C8882, KYZEN E5611, KYZEN L5314, KYZEN E5615

Petroferm: Axarel 2200, Bioact SC-10, Bioact SC-22, Hydrex A-Plus, Hydrex SP-50

Simple Green: Stencil Cleaner

Smart Sonic: 440-R SMTDetergent

Zestron: Vigon SC200, Vigon SC202, Vigon SC210, Vigon UC160, SD100, SD301, SW.

The following cleaners are not recommended for use with NanoSlic NS 100: Zestron Atron SP200,

