

This flyer is supposed to inform you about the different kinds of surfaces for your pcb. We hope to provide interesting information. If you encounter any questions or you need more detailed information, feel free to contact us.

Bungard Sur Tin Chemical Tin

The easiest, quickest and cheapest way to protect your pcb is to dip into a Bungard Sur Tin solution. A thin layer of copper will be exchanged with tin.. Adhesion and IMC will take place directly on the copper.

Components can be fixed by soldernig or press-fit-connection.

Surface properties:

Thickness 0,8 – 1,2 μm

Suitable for lead free soldering

Not suitable for multiple soldering

Storage time 12 months, solderability 6 months
can be retinned any time

Perfect planarity for SMT application

Suitable for fine line technology

Suitable for compliant pin (press-fit) connection

Inexpensive application

Delivery:

Sur Tin Part 1, Part 2 und Part 3

Equipment:

airtight container (can also be used to prepare solution)

Tinning bowl Bungard EG01

Shelf life of prepared solution:

By absence of air: several weeks



Bungard Green Coat



GGreen Coat is a new spray coating for all PCBs that are manually soldered.

you prepare your PCB as usual and you remove the etchresist completely.

2. Step

if you like, you may add immersion tinning to the copper surface (not obligatory)

3.Step

you spray coat the PCB with a thin layer of Green coat.

4.Step

you wait for 5 minutes to let the surface dry.

5.Step

do your normal hand soldering through the green coating. You will recognize, that soldering is very easy. GREEN COAT is containing flux and improves solderability!

6.Step

Cure green coat in an oven at 80°C for one hour or for 2 days at normal room temperature.

The coating will now protect your PCB.

Greencoat is available as 150ml spray bottle.

Bungard Sur Tin with Bungard Basematerial

if you use ORIGINAL BUNGARD positive coated PCBs, we have an interesting technical alternative:

Step 1:

Etch your ORIGINAL BUNGARD PCB as usual.

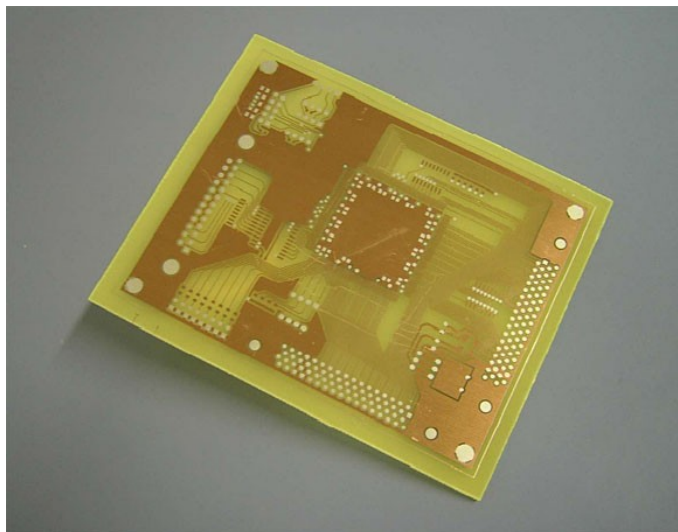
Step 2:

develop the photoresist after etching once again with a negative films with open PADs.

Step 3:

apply our immersion tin SUR-TIN just to the now open PADs the photoresist will stay on the tracks and protect them.

This procedure is not widely known, but gives excellent results. Good solderability on the pads, nice optic and no extra costs!



Bungard Solder Mask

We offer the typical green surface finish for printed circuit boards in industrial quality.

Our laminate solder mask is an aqueous alkaline processed dry film mask.

It is a transparent, green material, which we provide in 75 microns (3 mil) thickness, 305 mm width and roll lengths of 25, 76 or 152 meters. Special thicknesses and lengths are available on request.

As usual in such resists, the photo-polymer is embedded between a thin polyolefin protective film and a strong 25 micron polyester foil.

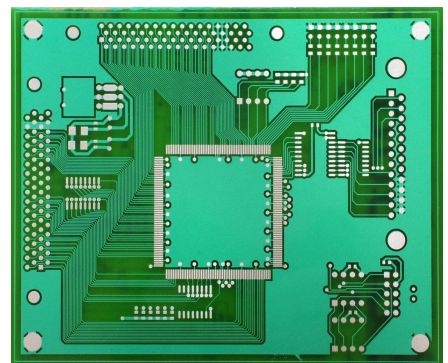
Solderstop laminate is suitable for printed circuits boards, consisting of epoxy or polyamide-based materials and which are coated with copper, solder, tin, nickel or gold. Laminate Solderstop is compatible with most soldering processes such as wave soldering, hot air leveling, vapor-phase soldering, infrared soldering, etc., and resistant to most solvents, flux and defluxmedia. Because of its good qualities, it is ideally suited for high line density and SMD technology. For flexible circuit boards, we can not recommend the product.

The solder mask is pressed by means of pressure and temperature on the board. For this you optimally use our Profilaminator RLM 419P

The processing of laminate Solderstop consists of the following procedural steps:

Pre-cleaning - Laminating - Exposure - Developing
- Hardening (Baking)

Of course, our solder mask is compatible with a previous Bungard Tin Sur step.



Ormecon Chemical Tin

Ormecon immersion tin is a method for chemical tin plating of copper surfaces.

The special on Ormecon process is a 0.08 micron thick layer of organic metal, which optimally prepares the surface for subsequent tinning and then prevents the 'diffusion of copper through the tin.

Ormecon ® CSN meets all modern requirements for PCBs:

- completely planar surfaces for SMD technology
- high storage capacity of bare printed circuit board
- Energy and cost savings compared to HASL
- can be used in basket systems without a major investment
- suitable for horizontal production lines
- protects the environment
- simple process control and monitoring
- all common solder and assembly print varnishes are processed



Additionally Ormecon ® CSN offers the following advantages over other chemical-tin methods:

- Deposition of pure tin
- Up to 50% longer service life of the tin bath
- significant reduction of the diffusion layer
- protection against oxidation • multiple, including interim storage, possible
- Rating: 4 hours ageing 155 ° C, 3 x reflow, 1 x Shaft

Equipment:

PROTEC 2030

PROTEC is ideally suited to the Ormecon chemical tinning procedure. The standard machine can process plates up to 200 x 300mm and contains 5 pools for Microetch, combined spray- and static rinse , Organic metal, chemical tinning 7001, hot rinse

Additional options:

Plate size 300 x 400mm

Bath movement

Pools for Cleaning Step

Pool for DI rinse



Chemical Nickel-Gold (Sudgold)

Since early 1990s the alloy surface (nickel / phosphorus & gold) is one of the most versatile surfaces. In this method, a nickel layer forms the diffusion barrier between copper and solder alloy. The gold is dissolved in the solder joint and the liability / IMC formation is done with the nickel layer. Electroless nickel-gold requires an upstream copper activation to start the nickel deposition. The nickel layer increases mechanical vias and increases the abrasion resistance.

Layer properties:

- low / medium / high P systems (<7, 7-10;> 10% P)
- Layerthickness 3 - 6µm NiP and 0.05-0.12µm Au
- Autocatalytic nickel deposition
- Gold protects nickel from oxidation
- Reliable multi-functional surface
- suitable for Al-wire bonding
- Growth of the nickel-phosphorus layer of activated copper

Advantages:

- Suitable for multiple Pb-free soldering
- Planarity for SMT
- Diffusion barrier (nickel), prevents the solution of copper in the solder
- Long storage time (12 months), excellent resistance against ageing
- E-Test Compatible
- Suitable for contact switches
- Good resistance in corrosive environments
- Suitable for AL-wire bonding
- Suitable for high aspect ratio boards

Equipment:

Compacta 30 chem. Nickel-Gold

This machine can perform nickel and gold plating for printed circuit boards up to a size of 200x300mm. 5 PVC tanks, 2 PP tanks all about 10 liters, 3 Teflon radiators all with thermostatic, 5 Digital Timer, bath movement (adjustable), all tanks with ball valve drain. spray rinse with foot switch, flushing pressure adjustable. Stand-alone machine. Connection: 230 V

Options:

Compacta 40 chem. Nickel-gold,

Nickel and gold plating plant for printed circuit boards up to a size of 300 x 400mm.



Galvanic Nickel-Gold

The nickel-gold plating-surface is abrasion-resistant and corrosion free and therefore it is often used for components with increased mechanical stress (male).

The resist coated circuit board is first provided with an electroplated nickel layer $> 3\mu\text{m}$ as a diffusion barrier (preventing that the subsequent gold gradually "disappears" by diffusion). After the nickel plating follows by the actual galvanic golding. Gold layer between $> 0.4\mu\text{m}$ to $2\mu\text{m}$ are deposited. This depends of the purpose. For plugs the number of jacking cycles is applied.

For example:

0.4 μm 20 jacking cycles

0.7 μm , 50 jacking cycles

1.3 μm , 200 jacking cycles

2.0 μm , 500 jacking cycles

With additions such as cobalt etc. (will also "Hard Gold" called) the gold layer can be deposited without a nickel diffusion barrier.

Storage:

- The shelf life is due to nickel diffusion barrier and the "resilience" of gold "almost" unlimited. Provided, however, is a cleanly executed electroplating.

Advantages:

- well suited for higher mechanical stresses.
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Disadvantages:

- BlackPad effect possible
- Cost



Surface comparison					
Surface	Layer / Thickness	Application	Costs	Solderability	Storage
Sur Tin	0,8-1,7 µm SN	soldering	++	++	ca. 6 months
Ormecon chem Tin	0,08µm org. metal 0,8-1,2µm SN	soldering, (Conductive Adhesives), press fit technology	++	++	>12 months
Chem. Nickel Gold	3-6µmNiP / 70-120nm Au	soldering, AL-wire bonds, Conductive Adhesives	-	++	>12 months
Galv. Gold	4-6NiP / 0,4-2µm Au	Plugs Sanders	--	--	unlimited

Comparison Gold Surfaces				
Criteria	chem. (ENIG)	Nickel-Gold	chem. Nickel-Thickgold	Hardgold
Thickness Gold	0,075-0,3µ		0,5-max 1,0µ	1,0-1,2µ
Thickness Nickel	4-6µ		4-6µ	4-6µ
Storage	min. 6 Mon.		min. 12 Mon.	min 12 Mon.
Application	Alu wire-Bonding		Alu wire- or Gold-wire-bonding	plugs
Property	soft		soft	hard (Kobalt-alloy)
costs	medium		medium	high
Layouthints	none		none	Goldflächen müssen elektrisch verbunden sein

