



OS-993* Soldermask Remover

DESCRIPTION

OS-993* Soldermask Remover is an aqueous, alkaline liquid designed to remove fully cured dry film soldermask and photoimageable soldermasks from printed circuit boards. OS-993* is very effective on some of the newer masks that are more difficult to strip. It can also completely remove soldermask without needing to mechanically scrub the boards following immersion in OS-993*. OS-993* removes soldermask with much shorter exposure time than most competitive products. Soldermask is removed without damaging the circuitry or epoxy laminate.

OPERATING PARAMETERS

Concentration	100% Undiluted
Temperature	Ambient (160°F to 220°F)
Time	30 minutes to 3 hours

PHYSICAL PROPERTIES AND OPERATING PROCEDURES

Fill tank with undiluted OS-993* and heat to 160°F to 220°F. For most applications, 200°F is desirable. Higher temperatures require less time. Soak parts to be stripped for 30 to 60 minutes or until the mask is softened and swelled into a jelly-like mass. Gentle agitation of the parts in the OS-993* solution will speed the stripping action and will avoid localized hot or cool spots. Remove parts from the tank allowing excess solution to drain back into the tank. Transfer parts into water rinse and soak for 4 to 6 minutes. Warm water is preferred, but not necessary. Much of the softened mask will be removed from the parts in the soak rinse. Next, spray rinse parts with fresh water. Any residues will be removed by the spray rinse. Dry at once to prevent water spotting. The above procedure should be repeated if not all of the soldermask is removed[†].

[†] - If any mask remains after the operating procedure, the entire procedure must be repeated. However, a second pass increases the chance of laminate attack. Next time similar mask needs to be removed, increase the dwell time and/or temperature in OS-993* so that complete removal is achieved on the first pass. In some cases, it may be necessary to use a shorter dwell time in the OS-993* then, after the water soak, mechanically scrub the panel. Another option is to increase the pressure in the spray rinse.





CONTROL PROCEDURES

Bath Analysis of OS-993*

- 1) Place a 2 ml sample into a 250 ml Erlenmeyer flask.
- 2) Add approximately 50 ml deionized or distilled water and 3 to 5 drops phenolphthalein* indicator solution.
- 3) Titrate with 1N sulfuric or hydrochloric acid until the pink color is discharged.
- 4) Calculation: $\text{ml 1N acid} \times 5.8 = \% \text{ OS-993}^*$.
- 5)

* If mask buildup makes the phenolphthalein endpoint difficult to see, use a pH meter previously standardized to pH 10, and titrate to pH 8.2.

Recommended operating range for OS-993* is 90% to 120% by volume. To lower OS-993* concentration add water to the solution. To raise the OS-993* concentration, allow water to evaporate from the bath and replace volume lost with additions of fresh OS-993*. If an OS-993* bath appears to have solidified, it was most likely allowed to become over-concentrated due to water evaporation. Carefully cover the top of the bath with warm water and turn on heater to “melt” the lower portion of the bath. Blend the heated solution until uniform and take a representative sample for running the above analysis to determine if more water additions are necessary.

OS-993* is not effective on many conventional screen printed thermal or ultraviolet cured solder masks, nor on most solvent processible epoxy based liquid photoimageable solder masks. OS-993* is more effective on aqueous processible dry film solder masks than on solvent processible dry film solder masks. Soak cycles 4 to 5 times as long as those for aqueous dry film solder mask are required for removal of solvent processible products. Some solvent processible products may require brushing with stiff bristle brush to remove the softened film.

OS-993* has no adverse effect on epoxy laminate when used as instructed. Because polyimide laminate is much more chemically sensitive, prolonged exposure to OS-993* may cause measling. If maximum safety for polyimide laminate is required, use OS-965.

SAFETY AND STORAGE

Stainless steel and mild steel are acceptable for containing OS-993* solutions. Glass containers may also be used, but there will be slight etching of the glass surface. Heaters of stainless steel, mild steel, titanium, and Teflon are compatible with OS-993*.

OS-993* contains strong alkali which can burn skin and eyes. Protective clothing such as impervious gloves, apron, boots, and chemical safety goggles should be worn when handling this material. In case of accidental contact, flush immediately with fresh water. Remove contaminated clothing and wash before wearing again.





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Product Data Sheet

For eyes, flush immediately with fresh water for 15 minutes. Seek medical attention at once. OS-993* is harmful if swallowed or inhaled. Avoid breathing vapors or mists.

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