Solder Mask Retrospect

Solder mask technology has certainly changed over the years. Everything from what our solder mask options are to what we are expecting the solder mask to do for us.

Three decades ago when I first started work in the industry, there was still a decent mix of single, double and multilayer work. The big laminate suppliers included Polyclad and Westinghouse, and dry film almost all came from DuPont and Dynachem.

At the time, the board fabricator I worked for was a mid-sized independent shop and most of the circuit boards were reflowed solder. SMOBC (solder mask over bare Cu) was the new big thing. In fact, we would stamp the work travelers with "SMOBC", so the operators would remember to go to solder strip instead of reflow. I remember an operator on the floor asking me if SMOBC meant Some More Boards Coming – thinking she had to wait for the rest of the order.

Our solder mask options were basically screen print (PC401, PC501 or SR1000) or if you needed a photoimageable option, we had Dry Film Solder Mask (DFSM) which at the time, was developed in solvent. The DFSM was pretty much state of the art back then and like any process, you could get pretty good results if you knew the products capabilities and limitations. Developing a solvent DFSM was fun back then too; nothing mild like an aqueous developer bath of today. For development, you had to use a conveyorized solvent developer - using 111 trichloroethane, and needed a solvent still to reclaim and reuse it in a closed loop system. You also could have any color DFSM you wanted, *as long as it was glossy green!* Re-working panels was also fun if you enjoyed standing over a methylene chloride tank.

Compared to today's LPI solder masks available from Taiyo, the best a DFSM could do was hold an 8 mil solder mask web (remember these were films 3-4 mils thick) and with the screen print solder masks, forget it, products like PC401 would just bleed over to the adjacent pad.

So, the next time you are working on a board design which is pushing the limits of solder mask registration, minimum feature widths or has some unique performance requirement, think about what it took to get to where we are today, and how Taiyo is always working to give you new products to help you move ahead.

In upcoming issues, my column will focus on my perspective of past, present and future trends in processes used in our industry; so stay tuned!