

Is My Printed Circuit Board Wash Concentration in Check?

Session Questions and Answers

Q: Kevin, in your presentation you mention FRESH samples multiple times what exactly do you mean?

A: Well, we are talking about pumps and spray. A sample should be taken directly from the pump as its running so we can determine what the concentration of wash chemistry is actually coming into contact with your boards. The sample should be taken from a sampling port installed at the manufacturer or after market by your maintenance crew.

Q: I have a batch machine, should I be using Hydrophobic or Hydrophilic chemistry?

A: It doesn't matter which you use, what matters is that the chemistry is matched with the soil or flux that you are trying to remove. We kind of hedge our bet here by testing hundreds of different fluxes to see which is the best suited match for your soil. Remember like always dissolves like.

Q: We are looking to get into the chemistry cleaning market as we are a CM and now we have been told we have to clean. For budget cost calculations, what concentration would you start us at?

A: Well, that's a tough one because I, and this sounds callous of me, don't care about cost, I care about clean. So my focus would be to start at 15% concentration and evaluate process from there. Do we need more time in the wash? Less time in the wash? More heat? Less heat? Raise or lower the concentration? There are multiple things we can help with to define a process, but for a budget number I would feel comfortable using 15%.

Q: What if your concentration has a higher brix reading than the chart? Can we extrapolate the values?

A: We can but if you've got a higher brix reading than the chart, I think you've got a bigger problem because you're running a very high concentration. My suggestion is to add some water to lower that concentration back down because you're probably running over a 25-30% concentration. So first of all, lets get that under control and add some water and get it down to a reasonable cleaning concentration number. Depending on what chemistry using and what soil you're looking to remove, you want to be max 15-18% concentration.

Q: I'm running MICRONOX at 100% concentration in a microcell, is there a way to detect if my solution has been contaminated with water? Also, what is the best way to detect chemistry contaminant load? pH?

A: If you do have water contamination inside that solvent, you're going to see your cleaning efficacy effected really quickly. We can offer that service through our lab in Nashville, TN where we can go ahead and run a test against that material. We can send you the sample bottle and we can run a test against that sample to see exactly if you do have water contamination. Secondly, check where you're getting the water contamination from. Is it going backwards into the process? If so, that's not a good situation to be in. pH is a very simple test to do but I would lean back more onto the NVR style test (Nonvolatile Residue Test). We can do that in the lab in Nashville where we can actually take a look at the sample itself and flash off the solvents and then tell you exactly what the residues leftover in that material set are.

Q: I am using KYZEN IONOX I3302 and getting a lot of foaming. How can I control this? Who do I contact for testing service?

A: Reach out to Kevin Bucker at kevin_bucker@kyzen.com for more information. We need to know more about process before making recommendations.

Q: We have a new customer that started buying KYZEN E5325 for frame cleaning and they want to set up concentration with titration alkaline kit, but this kit works on only pure chemistry, not on sample from the bath. First, we think the problem is the temperature of the bath, so we cooled down the sample to the room temperature, but we still cannot measure the concentration. Do you know what could be the reason?

A: I would go back to the lab and get them involved in this process. We can do a much better job of checking concentration and checking NVR that are left over in that material set to see if its reached its loading point. A lot of our chemistries get loading point at 5% which is high, but we want to make sure we stay below that limit. So, again, reach out to your manager and get a soil testing kit sent and sample of the bath. Get the lab techs involved and break down what is going on in bath.

Q: With a new machine, should you do a purge just in case there are contaminants in the system?

A: 100% yes. There's different chemistries and those different chemistries react differently with each other. So, if you've run trials with one chemistry and moving to another chemistry, absolutely. Even with the manufacturing process, they try to clean their machines out make sure there's no plastic or metal chips inside the chambers. However, I would recommend to run a purge before you start running any process. It's going to save you so much time and effort and headaches on the backside if you take care of it on the front side.

Q: I am still confused on the pH neutral part. Could you explain it again?

A: If we start at using a neutral chemistry and you start a simple 15% concentration, the idea behind the chemistry and what they do is solubilize the acidic fluxes that are in flux, so that drops down into the chemistry itself. That's going to lower the pH inside that chemistry. If you keep lowering that pH inside that chemistry, you're going to lose the ability to clean. It's going to disappear. What's going to happen is

you're going to start cleaning those boards and you're going to get really clean boards after it's gone through its process for one or two days. The soil loading is going to start effecting the cleanliness of the boards. The chemistry won't be able to clean as well as it did. We typically see these types of things occur when you do a trial run or test of a chemistry where you only run 10 or 15 boards and look at cleanliness of those. Then you go into production and run 1500 boards. That's where we see more of that problem. Once cleaning efficacy drops and gets to soil loading limit, you can add chemistry to boost that back up and you can go to that 15% mark again, but don't be surprised in two days if it starts dropping again. So what you try to do at that point is realize that 15% although it might be a good starting point is not good continuation point so they have to add more material set and end up going all the way up to that 25% realm just so they can buy themselves an extra week or week and a half of cleaning power out of that same wash chemistry they started with.

Q: Does KYZEN install a sampling port on certain machines?

A: Yes, we do! We do have as staff that does all that. We even have a part number and a kit that comes together. The kit is universal and will go onto any style machine. The reason why is because typically you'll have a pressure gauge on the front of a machine. That pressure gauge has a tube that will go to something. What we do is remove that put a tee in place and carry that back up to the gauge and we would tee that off and place it where its convenient for an operator or someone who is doing the testing protocol to go ahead and take the samples they need.