

Stencil Cleaning Series: Best Practices Session Questions and Answers

Q: What determines if I must use a water-based or solvent-based cleaning agent in my printer?

A: It is determined by several factors, actually. First is compatibility of the cleaner with your solder. There are solder pastes that are more difficult to remove than others due to their flux formula components. A specialized cleaning agent designed for this application, both water and a solvent based product, should be capable of solubilizing the flux emulsion present in the solder paste. However, there are certain pastes that are not compatible with water-based product, since they contain hygroscopic components that react in presence of water and could create sticky residues. So first, check your solder paste compatibility to see if both water and solvent based cleaning agents can dilute your residues.

Next are environmental regulation factors. There are places, California is a good example, that have very strict environmental regulations and limit the amount of Volatile Organic Compounds or VOC's that can be emitted into the atmosphere. Some solvents have high VOC content. In those cases, companies would look to have products that reduce these emissions, like a water-based product, that emits less or even 0 of these pollutants into the atmosphere.

Third is compatibility and capabilities of your printing equipment. In some cases, very old printers don't have very efficient drying systems or the option for vacuum is not available. In those cases, a water-based product is not recommended since those missing systems help to dry the residues of water-based products completely. If your printer does not have these options, a solvent-based product is better recommended. It will help the drying complete faster and without leaving residues. You should also check with your printer manufacturer if the dosing pumps are compatible with water-based or solvent-based products, that will also be another factor to consider.

Lastly, is Safety. Solvent-based products normally have a degree of flammability, like IPA, which is highly flammable. These products require special handling and storage. Some companies seek to eliminate risks in work areas, and it is better to use products that have low or no flammability levels. In those cases, a water-base product would be a better option.

Q: How can I determine or measure the saturation of my bath in an ultrasonic stencil washing equipment?

A: It depends on the flux formulation compounds and nature, as well as the cleaning agent you are using. As the flux residues dissolve in your wash bath, the combination of both will begin to change, the physical and/or chemical properties of it. Some of the characteristics or properties that could be monitored are changes in pH, changes in conductivity, Non-Volatile Residues (NVR), and content in the solutions. Depending on the solder paste you are removing, we could find a method

that suits its characteristics and monitor these changes in your wash bath. We will be contacting you so we can review your particular process in detail and help you with this requirement.