

Parts Washing & Chemistry – Too Much, Too Little? Session Questions and Answers

Q: Are you able to remove water-soluble oils such as coolants from the wash solution?

A: Not easily in the system where we are relying on a separation or natural decanting gravity separation if you will in a coalescer. You can remove emulsified oils sometimes by membrane separation in a microfiltration or ultrafiltration but we need to do the testing and partner up with a company who produces these filtration devices. The downside is sometimes they remove the cleaning chemistry and you're trying to return that clean oil-free phase back to the wash stage. So you can do it, but it takes some testing.

Q: Are certain metals more prone to flash rust than others?

A: Absolutely. Metals we have the most trouble with are cast steel and cast iron. We need to add corrosion inhibitors to the wash stage and the rinse stage or we'll have flash corrosion with those materials. Mild-steels, corrode steels are usually not that big of a problem but we really need to be careful with cast steel, stainless steel, and aluminum.

Q: Which concentration measurement method is best?

A: We probably use conductivity 80-90% of the time. I like it because it is not affected much by the addition of oils and coolants. It can be affected if you're removing a dissolve metal salts like road salt in a remanufacturing operation. Titration works also very well. Sometimes refractive index does not work if we're removing a water-soluble coolant.

Q: Which cleaning chemistries cleans better- emulsifiers or splitters?

A: The first ten minutes of cleaning they clean about the same. The problem is the splitters allow the oil to be removed from the wash solution so they keep the average oil concentration or contamination at a much lower level and you end up cleaning longer. It can produce cleaner parts. Now with splitters we get two to four weeks bath life usually with the emulsifiers you're often changing those products every day or two days because the oil that goes into the bath stays there.

Q: Is there any loss in using the KYZEN automated system than the conductivity system?

A: Generally, I prefer the conductivity system to titration or refractive index. Sometimes we can't use other automated systems because we are removing salts which dissolve in water and raise the conductivity. Conductivity is generally not affected or affected very little by the addition of coolants, water soluble oils, and to the oils in the process. Usually we are able to use conductivity effectively.

Q: Can we leave parts that have corrosion protection in the warehouse or does it need special storage care? How do we effectively remove this CP if we have to and how do we know it's fully removed?

A: Normally we are putting water-based corrosion inhibitors on parts so the parts can be protected in a warehouse. Water-based corrosion inhibitors aren't very effective if you put them on metal surfaces and then you have outside storage where it's raining on the parts. Normally what we try to do is provide customers 90 days of protection in their warehouse where the warehouse is not air conditioned. That test is different in USA than it is in Penang or Malaysia because the humidity and temperate are very different. The best way to remove corrosion inhibitors I think is to use another water-based process. We do this for our customer who have incoming parts that have corrosion inhibitor on them. If it's an oil-based type corrosion inhibitor, you can do a wettability test by using dyne solutions to see if you've removed the contaminant. You can do extraction on parts as well. We do this sometimes where we will test and weight the parts before and after cleaning to ensure we've removed the inhibitor that's on the parts.