Chesapeake Industrial
 Cleaning Products, Inc.

Optimizing the Use of Detergents in Your System

One of the variables that is unique to every manufacturing system is the optimum amount of detergent needed to clean effectively. Because of the various demands on the cleaning operation there is no set answer for the "proper" amount of detergent. Usually, a trail and error history establishes the level needed. This memo is designed to offer some hints on how to minimize the time necessary to find the proper level and how to work to achieve the best performance for the lowest cost.

Lay Out the Expectations

Everyone starts with the criteria that the cleaner has to clean the part. That is sort of a given, but what is clean ? With the exception of some high end applications, clean is usually in the eye of the beholder. If there is a standard definition for when a part is clean that makes things easier. But usually the definition is "I don't fell any oil on it" or " It looks clean to the operator". Even if it is not quantitative, it is important to establish some sort of criteria for cleaning that takes away some of the subjectivity. Is there something that can be evaluated in the next processing step ? Can a simple white cloth wipe test be run ? Water break test ? At least such a quick test will establish a repeatable benchmark.

Of course, the cleaner must perform in other ways to be successful. Rust prevention is always a concern. Free rinsing is also an issue, especially where subsequent operations involve anything adhering to the part. Bath life, or how long the cleaner will last, is a critical component of evaluating cost benefits. Operational issues include foaming in the cleaning machine, sludge buildup in the cleaning tank, waste treatment options, and effect on the equipment. Your supplier can probably provide some guidance on these aspects of cleaning.

The more criteria you can lay out for the product, the better your supplier can guide you in choosing the proper material and the less likely an unexpected event will occur during testing and start-up.

Testing

One of the big issues during any type of testing is determining the concentration of cleaner to run. Often, companies are trying to optimize a couple of variables at once (concentration, temperature) to run for the lowest cost. This is a good idea that is often fraught with peril. We often advise clients to start the first part of testing with all conditions set at their maximum recommended level (high concentration, high temperature) to see how good the product will work and show the operators what the best that can be done is. Sometimes this is overkill but at least everyone sees the best that can be expected. After that, it is usually quickest and easiest to step down in a ladder progression and see where cleaning falls off. In some

operations the heat is a bigger cost than the chemistry so ratcheting down the temperature while maintaining the cleaner concentration may show that acceptable cleaning is achieved in a cooler environment.

Lowering the cleaner concentration allows the manufacturer to then determine what level is necessary to achieve acceptable results. Typically, if we start testing at a 10% concentration and find that below 5% the cleaning becomes unacceptable, we'll recommend the operation run at 6-7% to provide a small margin of error for system upsets. There is no reason to spend money and run at the highest levels to achieve perfect cleaning if it is not really necessary.

Summary

Working with the supplier, any manufacturing operation should be able to optimize the amount of cleaning agent used in their operations. Reviewing this situation periodically can help lead to bottom line savings. Make sure to take into account all the properties and expectations of the product when laying out an evaluation to make sure the material does what is expected, not just cleaning the part. Some simple testing can often result in significant and sustainable savings.

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