Chesapeake Industrial
Cleaning Products, Inc.

Preventing Foam in the Wash Bath

Excessive foam in the wash bath is one of the most common issues that arise during cleaning operations. Foam can cause many problems from simple issues like overflowing a tank to more complex and costly problems such as creating pump cavitation. The reasons for excessive foam can be numerous but keeping foam suppressed is an important step in the cleaning process.

What Causes Foam

While most cleaners have foam suppression agents built into the product, foam can still arise in the cleaning operation. There are generally two major reasons that excessive foam forms. First, high levels of agitation can entrain a significant amount of air in the cleaning liquid and cause foam to form. Agitation may be caused by high spray pressure, high pump-around rates, moving parts in the cleaning bath, or an air sparge or similar device. These mechanical issues are usually fixed with the equipment that was purchased and cannot easily be altered or changed. The second cause of foam is reaction of the cleaning chemistry with the soils being removed. Animal fat can cause problems with alkaline based chemistries as a saponifcation reaction occurs that forms soap that then foams. Other materials can also add to the foam by interacting with specific detergents.

"My Tank's Filled with Foam – What Do I Do ?"

The first thing to do is get the foam under control so the plant can keep operating. This is usually accomplished by use of a defoaming agent (generally sold by the cleaner manufacturer). It is best to think of a defoamer as a band aid to use until the underlying problem is solved. If it is determined that the foam is caused by mechanical action, a different detergent may be needed with a better foam profile and defoamer system. Raising the temperature of the wash tank can also be beneficial as most products defoam better at higher temperatures.

If there is a reaction with the soil being cleaned, it is probably necessary to look at alternate cleaners that would not react with those soils or have the capability to suppress foam even if it starts to form. Asking your supplier for references of similar operations is generally your best guide to getting the products you need. Checking with industry trade groups or other associations in your industry may yield some clues about the types of materials found most successful in your operation. Finally, asking the companies that make the product you are trying to remove can often shed light on the proper choices for detergents.

How Could I Have Prevented This In The First Place ?

Foam testing is quick ,easy, and inexpensive and should be provided by the cleaner manufacturer as part of the service. The last thing anyone wants is to choose a product or change to an alternative and have major problems immediately occur. A basic foam test involves putting a known concentration of cleaner in a test tube, heating it to the desired temperature, shaking it for a given amount of time (usually 30 seconds) and then recording the foam height over time and seeing how quickly it breaks. Doing such testing on several products will show which have the lowest foam profiles and may work in your operation. Comparing products to an existing product that you know works can give a high level of confidence that foam will be a known quantity when you change.

"Defoamers – What Are They And Can I Use Them ?"

There are several types of defoaming agents on the market and most are fairly effective. Adding just a small amount to a wash tank is usually enough to break the foam and get it under control. Steady additions may be necessary in continuous operations to keep the amount of defoamer at an effective level.

Most defoamers work by "oiling out" and forming a layer on the surface of the liquid. This prevents foam formation. It is also why some companies have foaming problems initially but as oil in the tank builds the foam goes away. Oil is a great foam inhibitor. There are some operations where foam formation is so great as to necessitate use of defoamer as part of the ongoing operation. However, in most cases it is desirable to get away from using defoamers if possible. They can be expensive and it's one more processing step in the operation. It's also another product in the company's inventory system. We have worked in several areas where changing to a better cleaning agent has eliminated the use of a defoamer and saved some money but, more importantly, headaches. ***As any operations manager knows, the fewer products needed to keep the operation running, the greater the potential for high uptime numbers.***

Conclusion

Foam can be a real headache to deal with and a potentially costly problem if not properly addressed. Its usually not in the area of expertise of the people running the operation and thus some outside help is usually needed. The good news is that solutions are available and usually do not add too much to the cost of the operation. However, it may take a little time for an expert to understand the exact issues involved and recommend solutions. Foaming can be a complex issue and all the potential situations cannot be addressed in this paper, but your cleaning agent supplier should be able to guide you to a successful solution.

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