Slurry Additives

TECHNICAL TIP

Understanding what slurry additives do, when to use them and how to use them properly is imperative to appropriately maintain slurry life and performance.

Antifoam

Antifoam is used in colloidal silica based slurries to reduce air entrapment and may need to be added on a regular basis. Slurries with foam can cause weak shells and poor surface finish. Various conditions, such as high binder solids, can degrade the antifoaming characteristics of a binder. Testing for the presence of adequate antifoam should be conducted weekly.

Wetting Agent

Wetting agents are surfactants used in colloidal silica based slurries that allow the slurry to coat the wax or previously applied shell coat. They should only be used to adjust/enhance the wetting capability when needed and do not need to be added to a new slurry. Adding too much wetting agent can reduce slurry life and can cause thin layers leading to poor surface finish.

Bactericide

Bactericide is used to kill bacteria, mold and fungus as the presence of these organisms is detrimental to both the performance and life of a water based slurry. Bactericide should only be utilized if bacteria growth is detected after a bacteria test using culture slides on a sample of binder separated from the slurry. Bacteria consumes organic particles in your slurry (typically the latex) and drops the pH of your slurry. Bactericide was not designed to be added on a regular basis; however, due to the potential for bacteria contamination, a regular program should be set up to test for any bacteria growth in your slurry. It is important to note that if you find bacteria in your slurry, you must also eradicate the contamination at the source.

Drying Indicator

ReDip™ indicator takes the guesswork out of shell drying. For use with water based binders, the color indicator prevents loss due to spalling defects, reduces time spent overdrying shells and allows the caster to produce stronger shells by ensuring that each coat is fully dried before applying an additional coat. It is important to note that drying indicator is not visible when used with alumino silicate based slurries.

pH Adjustor

Colloidal silica binder is alkaline and becomes unstable as pH drops. Too low of a pH will lead to gelation of the binder/slurry. pH adjustor, such as ammonia or Triethanolamine (TEA) should be added to stabilize the pH level of a slurry. The binder pH should be checked at least weekly. pH adjustor should be added when binder pH drops under 9.2, but above 9.0. Once a slurry's pH level falls below 9.0, the damage is irreparable. pH adjustor should only be used sparingly until the slurry can be discarded and a new slurry can be built.

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