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Applications Notes

Moisture in Powder Detergents

Moisture levels need to be accurately maintained in order to optimize production volume, produce consistent uniform product and maximize the efficiency of the Spray Dryer.

Detergent Manufacturing Process

Detergents contain many ingredients; bases; phosphates, carbonates and zeolites, surfactants, builders, bleaches, enzymes, anti-redeposition agents, perfumes and suds control agents. These ingredients are either dry blended, agglomerated or spray dried. In the Spray Dryer process, dry and wet ingredients form slurry within a tank. The slurry is heated and pumped to the top of a tower where it is sprayed through nozzles under pressure thereby forming droplets. The droplets fall down the tower in a hot air environment forming hollow granules as they dry. The heat sensitive components: bleach, enzymes and perfumes, are added to the screened granules.

Measurement Location

Choice of measurement location is dictated by the process and the conveying mechanisms. Ideally, measurement is made by looking through a viewing window into the bottom of the spray dryer or prior to the screener, in order that corrective action can be quickly implemented. Often, the moisture measurement can be used directly in closed loop control.

Measurement Performance

Measurements	Calibration Range	Typical Accuracy
Phosphate base	3-15%	0.3%
Carbonate base	3-15%	0.5%
Zeolite base	3-15%	0.5%
Finished product	3-8%	0.2%
MES	2.5-5.5%	0.2%