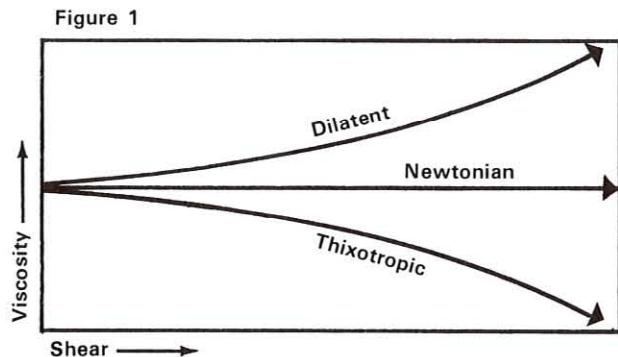


Better Caulking Compounds In Short Mix Cycles

Caulking compounds are dispersions of fillers, stabilizers, pigments, and other modifiers into a plastic base to form flowable pastes which harden after application. The plastic base is usually latex emulsion, asphalt, or mineral base with solvent; the additives modify the base to give the desired final properties to the caulk. The fact that these thick pastes are by nature either highly viscous or thixotropic (see figure 1) allows them to be applied without their flowing or sagging from the point of application. Following application, the solvent evaporates, the resin base cures, and the caulk sets up.



Caulking compounds are widely used as applied coatings on finished goods. Such coatings can either be applied by the manufacturer in the production operation or by the ultimate user of that product in the field. Perhaps the most well known use for caulking compounds is that of waterproofing; other applications include fireproofing, soundproofing, and similar applied barriers.

In order to achieve optimum product performance and batch to batch reproducibility, all of the ingredients must be uniformly mixed, dispersed, then deaerated. In the past, caulking compounds have been mixed in many types of mixers which were poorly suited to this application. Even the previously most popular mixer for caulking compound, the double-arm Sigma mixer, is plagued with problems: excessively long cycles (several hours), high power utilization, awkward, incomplete discharge, difficult clean up — generally inefficient mixing.

Littleford's process technology and mixer design combine to provide a new concept in caulking com-

ound preparation. The unique mix action of the Littleford intermediate intensity mixer insures the absolute dispersion of the fillers, stabilizers, pigments, and other modifiers into the plastic base. The mix action is developed by plow shaped mixing elements which rotate within a horizontal cylinder at a sufficient peripheral speed to force the materials of mix into a three-dimensional motion. Four-bladed, high shear chopping devices can be added to facilitate critical dispersions.

Littleford's unique combination of mix actions permits the mixer to effectively handle a wide range of viscosities, both Newtonian and Thixotropic. Because of Littleford's excellent batch to batch reproducibility, predictable viscosities can be obtained from run to run. In fact, upon addition of increments of diluent solvent to a Newtonian system, Littleford units equipped with a recording wattmeter exhibit a linear, decreasing power curve that corresponds to a linear, decreasing viscosity curve. This linear power curve can be used to accurately gauge the product viscosity so that diluent additions can be made to the batch without stopping or opening the mixer.

Littleford's combined mix action requires only short mix times, approximately 15 minutes, including dynamic deaeration of the batch. Discharge is easily made through a contoured, bottom discharge door or optional ball valve. With such short cycle times, heat-up of the product is seldom a problem; if the material is extremely heat sensitive, a labyrinth flow heat transfer jacket can be provided on the unit. Through utilization of the cooling jacket combined with the excellent heat transfer characteristics of the mixer, there is no tendency to form gels caused by localized hot spots.

Littleford mixers are easily cleaned by filling the unit approximately 1/3 full of the proper solvent and allowing the whirling action of the plows to clean the unit. This cleaning solvent could then be used as the base solvent for the next batch of that same formulation.

Littleford mixers are extremely rugged in their construction, an important consideration in view of the rigorous mixing requirements for caulking compounds. Littleford units are available in a wide range of capacities to meet most production requirements.