

Solutions for Your TOUGHEST
MIXING Applications in

CHEMICALS

Introduction

Polymer/Pigment

The Process

Dispersion in Textile

The Problem

Manufacture

The Solution

The Advantages

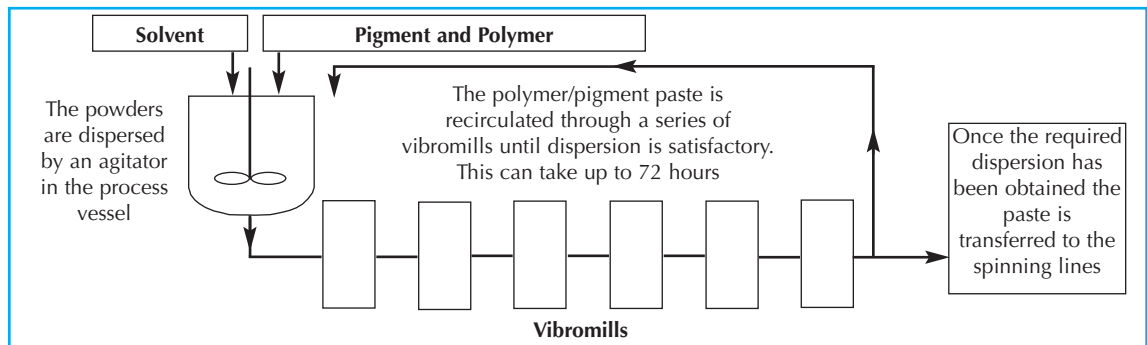


CHEMICALS

Polymer/Pigment Dispersion in Textile Manufacture

A textile manufacturer was faced with a dramatic increase in demand for one of their most popular products which required spinning a second line of fiber. The existing equipment used to produce the pigment and polymer paste was not capable of supporting the two line rate, so the company set up a product development team to investigate methods of increasing capacity without compromising quality.

The Process



The Problem

- Vibromilling is a slow, energy intensive process, with high maintenance costs.
- The throughput from the existing process was too low to meet the production increase.
- To supplement the existing process, a small bead mill was used on a trial basis. During the testing program, the bead mill was installed at various stages - before vibromilling and after - but the product development team rapidly came to the conclusion that a very large and expensive bead mill would be needed to make any significant difference.

The Solution

A Silverson In-Line mixer was provided for on-site trials. Because of the extremely high degree of mechanical energy required to produce the paste, a Multistage In-Line mixer was used. The workhead comprises two concentric sets of blades and teeth running against two separate stators. This produces intense high shear, resulting in substantially faster mixing times. During the testing program a number of options were examined, including installation of the In-Line before and after milling, and in a separate recirculation system. For a two week period the In-Line mixer was used on its own, eliminating the vibromills altogether, with acceptable results. When used in conjunction with the vibromills, the In-Line formed a fine pre-mix which could be passed far more rapidly through the milling system - effectively doubling output and enabling the second production line to be maintained. Subsequently a Multistage unit was purchased and installed in the production plant.

The Advantages

- Dramatically reduced process time
- Easily fitted to the existing process
- Bypassing the intense high shear action of the rotor/stator assembly is impossible
- The In-Line mixer's effort is not expended moving large volumes of liquid, but concentrated on the small volume of material inside the workhead at any given moment; a more energy efficient process



Silverson Machines, Inc.

355 Chestnut Street, East Longmeadow, MA 01028

Ph: (413) 525-4825 • Fax: (413) 525-5804 • www.silverson.com

Issue No. 47CA2

Information contained in this report is believed to be correct and is included as a guide only. No warranty is expressed or implied as to fitness for use or freedom from patents. Silverson Machines reserve the right to change product specification without notice.