

Technifax

SILANE TREATMENT

NEW PROCESSING TECHNOLOGY FOR SILANE TREATMENT

Littleford Silane Treatment offers a highly efficient and economical means of treating a variety of products and ingredients.

Silane Treatment on products, such as mineral fibers, gives the product hydrophobic properties which makes them easier to handle and disperse.

Processors have been searching for an economical way to silane treat these products. With the present alternate technologies, in order to guarantee the complete silane treatment of each particle, the processor must dilute the silane with a solvent before spraying it on. After spraying, they must then dry the solvent off from the product. Besides being a costly / timely process requiring multiple steps, the drying process also requires the handling of solvents with all of their EPA and OSHA requirements.

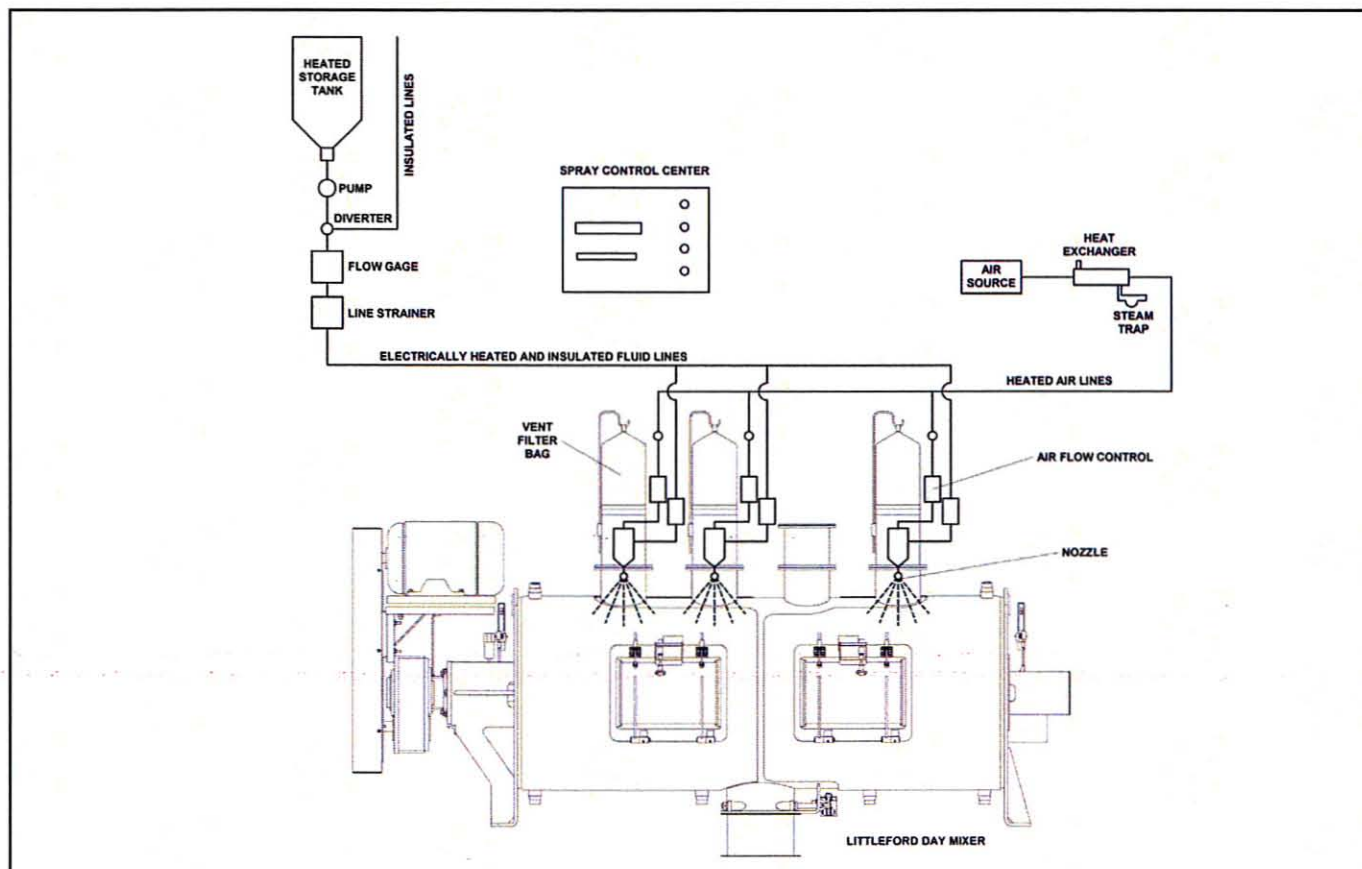
Further, the multiple step processing is quite labor intensive. In addition, this type of processing leads to the real possibility of human error.

Littleford has drawn upon its process technology and advanced Ploughshare® action to develop a vastly superior silane treatment system. The Littleford system operates in a single vessel without the need of drying the product after silane treatment.

Typically, the Littleford Silane Process follows these processing parameters:

1. Product is charged into the Littleford Ploughshare® Mixer. Agitation is initiated (plow), followed by heating media on the unit's jacket.
2. Silane is sprayed through two fluid nozzles located in spray towers on the unit and the high speed shear devices (choppers) are initiated. After a predetermined time, the choppers are discontinued.
3. The product is then mixed (plows only) for additional time to raise the product temperature to cure it. Then the product is discharged.

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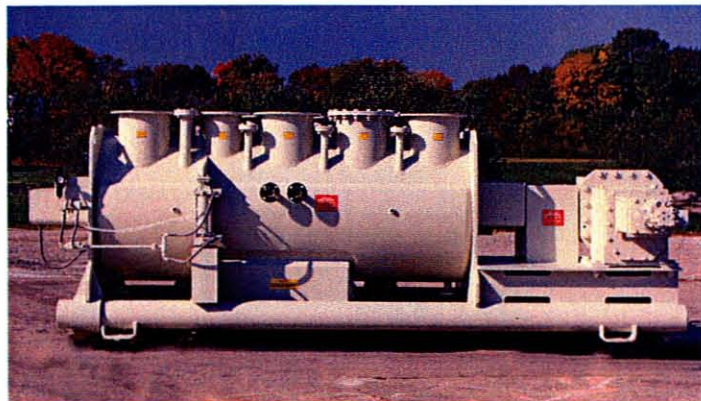
The unique action developed by the Littleford Ploughshare® Mixer assures a rapid and complete silane treatment of the products in minimal cycle times. This action is developed by the turning of plow-shaped mixing tools at a speed sufficient to cause the materials of mix to become a pulsating mechanically fluidized bed. The basic plow mix action is supplemented by high speed, high shear chopping devices that are mounted on the vessel wall between adjacent plows. This aggressive yet gentle mixing combination allows the silane media to be thoroughly dispersed onto the product without the need of excessive liquid or solvent. The chopping devices can be operated independently of the plows; there is little chance of overworking the mix.

Since silane products require heating, the Littleford Ploughshare® Mixer is equipped with a highly efficient ASME Code heat transfer jacket. The Littleford Ploughshare® Mixer, specifically engineered to maximize heat transfer, yields heat transfer coefficients that are many times higher than those of traditional units.

We have found that the advanced Littleford Silane Treatment Process will result in:

1. Improved silane treatment efficiencies
2. Controlled temperatures through effective/optimum heat transfer
3. Improved production rates
4. Efficient single unit processing of the entire process

The production of all Littleford processing equipment for the Chemical Industry begins with the engineering of quality, performance, and reliability into every order specifically for each customer. This is accomplished utilizing the advanced engineering sciences of today including Finite Element Modeling and Analysis (FEA) and state-of-the-art three dimensional Computer Automated Design (CAD), integrated with Computer Aided Manufacturing (CAM) and Computer Aided Engineering



All Chemical equipment is routinely manufactured in accordance with "GMP" and can be specified to meet or exceed all of the different regulations as detailed by the Chemical Industry, making Littleford equipment the best Chemical equipment on the market today.

We ask customers to bring their raw materials to our facility and put our claims to the "test".

Littleford offers an advanced Process Development and Testing Center at its headquarters in Florence, Kentucky. The center is staffed by engineers, chemists and technologists who have the expertise to understand the specific processing requirements for a wide range of industries, and can develop solutions to meet customer needs.

Equipment available at the Test Center includes mixers, dryers, reactors, granulators, intensive mixers/coolers and support equipment such as filtering and vacuum systems.

Littleford recommends a minimum of one full day for the typical test program. The testing program allows the customer to observe the mixing procedure and discuss scale-up issues. A confidential, detailed test report is also provided so customers can analyze the results of their test program.

This proven Littleford technology has been applied to numerous complex and difficult applications in the Chemical and Plastic Industries. The Littleford Ploughshare® Mixer can be purchased in a variety of sizes to meet most production requirements. Littleford can interface its system controls with existing equipment or supply fully automated process control systems.

For a free brochure or a detailed discussion, contact us at:

Littleford Day, Inc.
7451 Empire Drive, P.O. Box 128
Florence KY 41022-0128
Phone (800) 365-8555 or (859) 525-7600
Fax (859) 525-1446

E-mail: sales@littleford.com
Website: www.littleford.com

Littleford Day
Where Processing Ideas Become Reality

Littleford Day, Inc.

7451 Empire Drive (41042-2985), P.O. Box 128, Florence, KY 41022-0128
859-525-7600 • Fax: 859-525-1446 • 1-800-365-8555
Website: www.littleford.com • E-mail: sales@littleford.com

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