



Power Plants
August 2009



Power Plants-FGD Limestone Slurry Process. Compare the VACUCAM® Ejector Mixer Slurry Process using pulverized limestone vs. crushed limestone & the Wet Ball Mill Process

Making Limestone Slurry for FGD

The most efficient FGD processes for making Limestone Slurry can be provided by using pulverized limestone vs. the traditional wet ball mill process utilizing crushed limestone. The wet ball mill process requires a considerable commitment by the power plant to operate a very inefficient process for crushed limestone handling on site and for operating inefficient wet ball mill processes requiring considerable operation cost, maintenance costs and energy costs with less than reliable slurry production.

The VACUCAM® Ejector Mixer system offers several high capacity processes for efficiently making slurries for flu gas scrubbing.

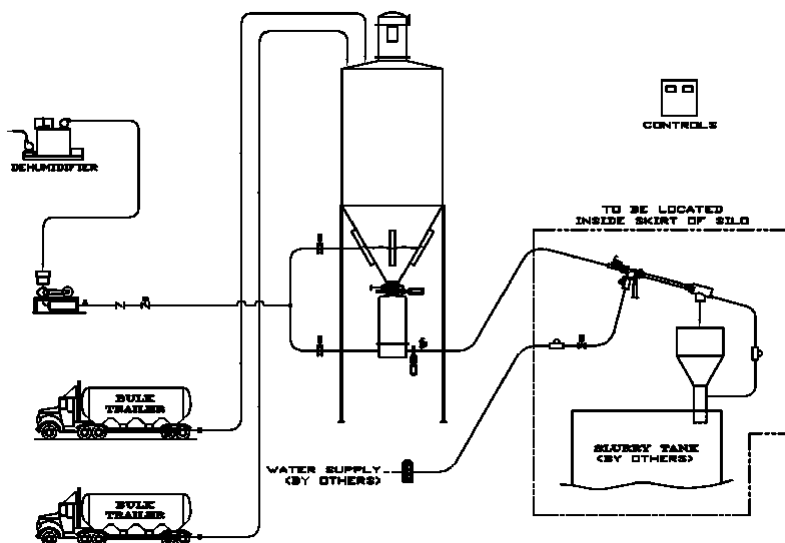
Semi-Bulk Systems offers several high capacity processes for efficiently making slurries for flu gas scrubbing. The Systems are typically designed for single pass processing of 30%+ solids. The VACUCAM® Ejector Mixer units represent the heart of the process, providing major benefits that cannot be achieved with traditional mechanical mixers.

PROCESS OPTIONS

Three process options are available to meet any plant capacity and provide the most efficient use of plant logistics. All processes provide for dry material storage and conditioned feed to the slurry process. With high capacity slurry making, high quality slurry of 30%+ solids can be delivered to one or multiple scrubbers. A single system can produce ample slurry into storage tank(s) and a second unit would be provided for stand-by.

• Single Pass Process Direct Into Slurry Storage Tank(s)

A single or a dual mixer can be mounted directly on the top of a slurry storage tank to provide a Single Pass Slurry Process at 30%+ slurry make-up on demand based on maintaining requirements for slurry storage. The mixers can be operated as a single unit or as a dual unit depending on slurry make-up demand. This process configuration requires the silo to be elevated with the slurry tank below.



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Process XstreamLining!

Lower your total operating cost including manpower, optimize slurry quality and scrubbing efficiency, lower initial capital costs, lower installation costs, reduce power consumption and more through our Process XstreamLining.

Learn more about how the VACUCAM® Ejector Mixer can provide you the flexibility you need for any power plant needs.

Case Studies

How have we helped other industrial plants increase their productivity through our Process XstreamLining? Call us about our Case Studies at 800-732-8769 to learn more. Or by e-mail at info@semi-bulk.com

Compare Process Options To Meet Your Limestone Slurry Requirements

Call Semi-Bulk Systems to review limestone handling and slurry options to provide the most efficient limestone slurry process to meet your FGD capacities. Semi-Bulk Systems will work with your engineering team to provide the most efficient process scope.
Phone: 1-800-732-8769
E-mail: sales@semi-bulk.com

About Semi-Bulk Systems

How can we help you? Call us at 1-800-732-8769 to discuss a custom limestone slurry process for your company.

Semi-Bulk Systems

159 Cassens Court
Fenton, Missouri 63026-2543 USA
info@semi-bulk.com

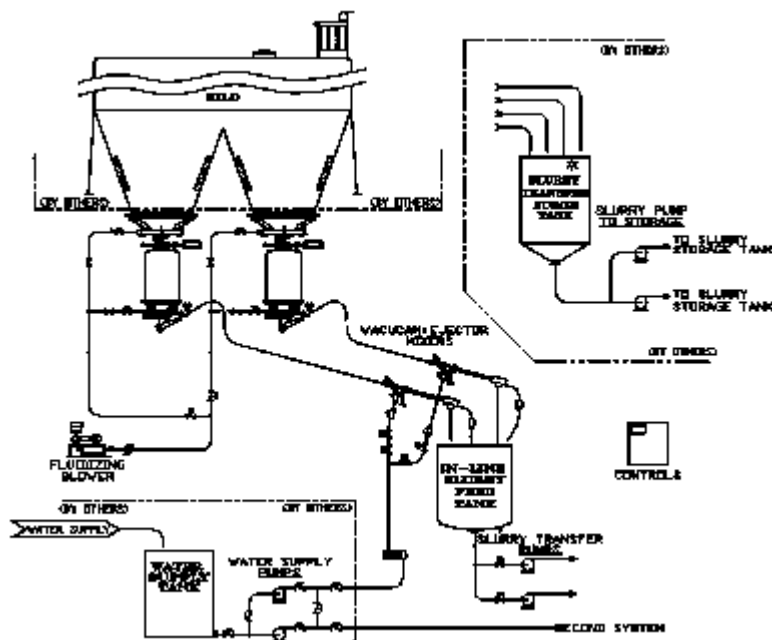
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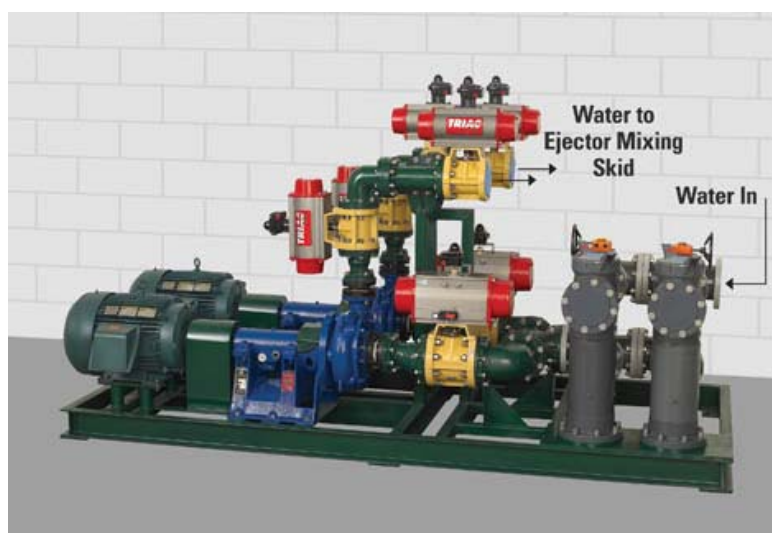
• Single Pass In-Line Process To Remote Slurry Storage

The skidded packaged module is located near the silo discharge which conveys powder at a maximum delivery rate through an Air-Cone® Hopper bottom. The finished slurry is continuously pumped from the in-line slurry tank to one or more slurry storage tanks. A level transmitter on the in-line tank controls the VFD on the transfer pump.

The process can be supplied as a single pass steady state process by measuring the finished slurry density discharging from the mixer. The water delivery rate to the mixer can be adjusted by + or - 15% to maintain targeted solids levels.



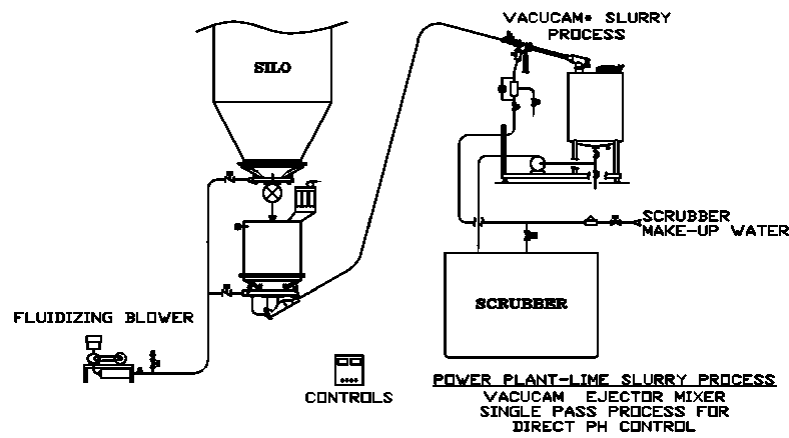
The two single pass processes described above require a water feed at the proper flow rate and pressure to achieve optimum mixer performance. It is therefore desirable to provide water booster pumps to assure proper flow to the mixer systems. The skidded system below is an example of a water booster skid with design redundancy.



• Single Pass Process for Direct PH Control to Scrubber
[no slurry storage tank required]

A similar in-line Single Pass Slurry Process for Direct PH Control can be provided to deliver limestone slurry directly to the FGD Scrubber based on a PH feedback loop. A portion of the Scrubber make-up water is

diverted to the skidded Vacucam® slurry unit which delivers limestone slurry as required to maintain PH set-point. The PH control loop regulates the speed of the rotary valve on the silo to deliver the required amount of powder to the unit to achieve a slurry solids level to achieve and maintain the PH set-point.



Mixer Capacities are available to deliver Limestone Slurries to meet the demand requirements for any size Power Plant. The model 150B/C and the 250C are the preferred choices. The system can be operated with a single mixer or a dual mixer system operating simultaneously. The units are generally selected to operate 12-15 hours/day to meet the 24-hour requirement.

Energy Requirements are typically 10% to 20% of the energy consumed vs. other limestone slurry process options. Depending on the process option, the slurry process consumes approximately 1-2 kwh/dry ton of limestone. This compares to approximately 10-20 kwh/dry ton of limestone for a typical ball mill process.

PROCESS XSTREAMLININGSM

Utilizing the **VACUCAM® Ejector Mixer Slurry Process** for producing limestone slurries offers major benefits for FGD in Power Plants that cannot be achieved with other processes.

- Optimize Slurry Quality & Scrubbing Efficiency
- Lower Initial Capital costs
- Lower Installation costs
- Less Real Estate Required for Installation
- Lower Operating Cost in Terms of Manpower, Maintenance and Overall Operating Costs
- Greatly Reduced Power Consumption Per Ton of Finished Slurry
 - Approximately 1-2 kwh/ton of Dry Limestone
- Reduced Slurry Storage Required
- Much Greater Operation Flexibility
- Instant Start and Stop of Slurry Process
- Immediate Slurry Capacity as Required
- Total System Automation
- Simple Wash Down of Slurry Process
- Total Dust Free Process

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