

# Pneumatically Conveying Multiple Solids Using a Single Transfer System

## Overview

A customer was in need of a solution for transferring two different solids from different source locations into a single destination reactor, mitigating fugitive dust and reducing equipment maintenance and downtime. Following material testing and consultation with the customer's Engineers and Operators, DDPS was able to design and supply a system that met all their requirements.

## About

The customer is a global player in sustainable chemistry, with locations and customers worldwide. They focus on innovation, advanced technology and application expertise that enables them to better satisfy customer needs.

## Challenges

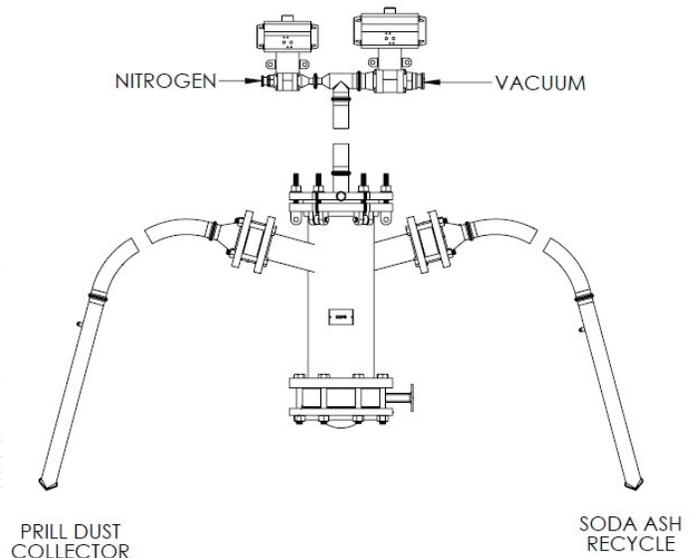
The customer's objectives were to:

- Mitigate fugitive dust from a mechanical screw conveyor being used to charge solids into a reactor
- Transfer different solids with varying particle size distribution, bulk densities and pneumatic conveying characteristics from two locations
- Reduce equipment downtime and maintenance costs

## Solution

The primary challenge was to design a single system that could transfer two very different powders. One powder was relatively homogenous, however the other powder had widely varying sizes and shapes.

The first step was to conduct transfer tests with both powders at our Charlotte, NC facility. Once it was confirmed that we could transfer both materials sufficiently, the conveying parameters of each solid were determined to optimize the transfer rates and distances. The customer



accepted an invitation to witness the tests, and this also helped them better understand the proposed design and operation of the system prior to purchase and installation.

The final design consisted of a single Powder Pump unit with two product inlets, two fluidizing (i.e., solids and gas mixing) control systems, one for each source container and a PLC controller that allowed selection of which material was to be transferred. The PLC program contained different process control sequences and input variables for each material which corresponded with those developed during the transfer tests.

## Results

We were able to provide a single transfer system that was installed on the reactor nozzle which met all the customer requirements of controlling fugitive dust, reducing process down-time, lowering maintenance costs and allowing two different solids to be conveyed from two locations using one Powder Pump System.

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