Metering Chopped Fiberglass

Question

I need to convey about 2 lbs. of chopped fiberglass from a bulk bin about 4 feet into a weigh hopper. The strands are 1/4 and 1/2" long. What is the best way to move this sort of material?

Answer

First of all, it is very important to understand the application better in order to provide a good, working solution.

Since the fiberglass strands are fairly short, a screw feeder would be your best bet for metering the chopped product from the bin to the weigh hopper. The shape of the bulk bin will determine how well the product flows to the screw feeder. Chopped fiberglass will mat together and bridge over small discharge openings causing problems. The bulk bin discharge and screw feeder inlet will need to be designed properly to promote uninterrupted flow. We also need to know the amount of time required to move the product from the bulk bin to the weigh hopper. You may want to move 2 lbs. of chopped fiberglass in 1 minute or even 30 seconds. Screw feeders are sized based on volumetric flow rate in cubic feet per minute. We would just convert the rate in lbs. per minute to cubic feet per minute. Since you are metering chopped fiberglass to a weigh hopper, it is very important to know the accuracy required for the weigh hopper. We want to make sure we do not over feed the weigh hopper by running the screw feeder too fast. The screw feeder must be controlled by a variable frequency drive (VFD). The VFD will allow the screw feeder speed to be reduced greatly so a small amount of product can be metered to the weigh hopper to "top off" the 2 lb. batch of chopped fiberglass. The whole process can be controlled with control logic and feedback from load cells on the weigh hopper to the VFD.

Once all of the critical design parameters have been established, a viable screw feeder system can be proposed to satisfy your application.

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