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CASE STUDY

Compact Cyclone Key Component in Tablet Dust Reclamation? GPC Helps Keep Pharmaceutical Process in Check with FDA

Aerodyne Environmental, the industry's leading manufacturer of industrial cyclonic dust collectors and dust collection valves, recently assisted in a pharmaceutical application. A prominent US pharmaceutical company was creating a dust collection system for the facility where a variety of drugs are manufactured. The company plans on using a cartridge collector as part of the tablet manufacturing process. Because this company is regulated by the FDA, every gram of product must be accounted for, even the dust. The active pharmaceutical ingredients (APIs) that are created are extremely fine and flow like water. The cartridge collector would be able to collect the particulate in the process, but much of it would get stuck in the filters and would be hard to account for. The facility uses a bag-in/bag-out process with its cartridge collectors. This means that when they change out the cartridges or collection tanks that are filled with dust, they use bags so that no dust is released. Again, because every gram of dust produced during operation must be accounted for, using the bag-in/bag-out method will help ensure that none of the particulate gets lost.

The company was still looking for a way to collect all of the particulate before going through the cartridge collectors and reached out to Aerodyne for assistance. After going over the proposed dust collection set up the facility had in place, Aerodyne suggested the company use the GPC dust collector (Ground Plate Collector) as a pre-filter before the cartridge collector. The GPC dust collector is a compact high efficiency cyclone dust collector. It has several distinct advantages over common high-efficiency cyclone dust collectors. The spiral inlet of the GPC directs the dirty gas stream toward the ground plate and hopper of the collector. Coupled with the compact size of the collectors, this gives the GPC the ability to be installed horizontally with virtually no effect on the collection efficiency.

The company purchased 15 vertical Class1, Carbon steel GPC-20s for its plant. The GPCs are in rows of 5 and each row is located in its own "clean room". Each clean room serves a different purpose, such as pill coating, encapsulation, etc. The GPCs are fitted with a special bag for the bag-in/bag-out process to further prevent dust loss. The rows of cyclones then feed a cartridge collector for final dust collection. After roughly 16 hours of operation, almost zero dust reached the cartridge collector.

Placing the GPCs in front of the cartridge collectors has provided numerous benefits to this process. Because the dust passes through the GPCs before the cartridge collectors, the filter life gets extended. Filters needed to be replaced frequently because they fill up with product in a short amount of time. However, by placing a cyclone before the cartridge collector in the process, less product reaches the filter which means they don't have to be replaced as often. This also helps with overall recovery of the product, which is crucial in an application such as this where there are FDA regulations and all of the dust must be accounted for. Additionally, the GPC is more low maintenance than cartridge collectors. By sending the bulk of the application into the dust collector before the cartridge filter helps maintenance time and costs are drastically reduced.

To learn more about the top benefits of utilizing a dust collector before a baghouse or cartridge filter in a manufacturing process, click here to download our free white paper. To request a brochure of the Aerodyne GPC Dust Collector, please visit www.DustCollectorHQ.com. For more information regarding the full line of Aerodyne industrial dust collection products and material airlock valves, call (440) 543-7400, or e-mail dc@dustcollectorhq.com.

About Aerodyne — Aerodyne (http://www.dustcollectorhq.com/) has been specializing in solving dry material handling problems for more than 60 years through such products as high-efficiency cyclone dust collectors and low-cost, low-maintenance, material-handling valves. Aerodyne operates under the corporate motto "*Clean Our World*®", addressing material handling challenges through innovation, customer commitment, and environmental stewardship.