

**Overview:** Air Dynamics Industrial Corp. manufactures an Industrial Dust Collector for fertilizer company- Andgrow Fertilizer. The dust collector was designed for collection of dry chemical dust at the East Berlin, PA facility. The industrial dust collector was installed to reduce chemical exposure to employees, while fertilizers were mixed by production equipment.



### Andgrow Fertilizer - Industrial Dust Collector

Page 1 of 3

#### The Application

Air Dynamics Industrial Systems Corporation was approached by a local fertilizer company who was looking to purchase a dust collector to provide industrial ventilation of chemical dusts at their factory. The client was a local private farm supply company located in East Berlin, Pennsylvania. Andgrow Fertilizers along with two other companies were purchased making Agway, Inc., which was later purchased by Growmark, Inc. Andgrow was a local company with plans for growth, however, the plant needed to be brought up to current indoor air quality standards.

*Right: Self-Supporting Long Span Piping Designed & Fabricated Per SMACNA*



#### The Challenge

When presented with this challenge, Air Dynamics' engineers wanted to utilize a specific dust collector system designed to suit Andgrow's needs. The dust collector design, manufacture, and turn-key installation at the plant were accomplished by piping the industrial duct throughout the production facility while the collector and air mover was installed outdoors. Dust collectors are especially useful for protecting employees from exposure to chemicals and dusts in the work environment where the product is being produced. The dust collector was required to collect fugitive fertilizer dust that escapes during ingredient loading, blending, screening, and bagging of fertilizers.

*Below: Example of Duct Piping for Dust Collector*



The fertilizer making process starts with loading raw ingredients into a weigh hopper. The ingredients are moved by conveyor belt to a rotary mixer then transported to an overhead screener via a bucket elevator. From the screener, the material is discharged to a batch storage hopper which discharges into bagging stations. Dust collection was designed into each part of the process per the A.C.G.I.H Industrial Ventilation Manual of Recommended Practice.

### **Providing the Best Solution, By Designing the Best Product**

Air Dynamics Industrial Systems provided the dust collector and services for design, installation, and maintenance of the HVLP or high volume low pressure industrial ventilation system. The bag filter or fabric filter dust collector was designed to eliminate dust using source capture in industrial ventilation, resulting in a cleaner facility. The collector was rated for 13,000 CFM with a pyramid hopper discharging via a slide gate to a 55-gallon drum.

The system was designed with 80 filter bags which were 4.5" diameter by 96" long. The dust collection system was supplied with a fabricated inlet box for the fan. The energy efficient fan was driven by a 30 HP High Efficiency Motor, TEFC totally enclosed fan cooled, complete with flanged connections, inspection door, shaft guard, motor rails, and outlet damper. The complete electrical hookup was provided including the circuit breaker along with the motor starter and disconnect.

The industrial duct was made to Sheet Metal and Air Conditioning Contractors' National Association's standards (see <http://www.smacna.org/> for more information), the source capture hoods and fabricated enclosures were constructed of carbon steel with Galvanized Process Coat Exterior and Interior.

*Below: Andgrow Loader Hopper*



Air Dynamics provided offloading and complete assembly of the dust collector, fan, including rigging and crane erection of system, electrical system, compressed air system, and mechanical and electrical labor. Air Dynamics also to applied for and obtained air quality permits and approvals by the local and state governments- Assistance with Environmental Permit Application to Pennsylvania Department of Environmental Protection, air quality division.

## Conclusion

Ultimately, Air Dynamics was successful with the installation of the dust collector for Andgrow including approval for the air quality operating permits. Air Dynamics fully completed the project while meeting the needs of the Andgrow facility by source capturing fugitive dry chemical dusts during fertilizer production. Along with making the customer happy with their new dust collector, there are specific regulations in place by the state and federal governments to ensure

air quality for the environment using the best available control technology. The permits required that Air Dynamics send a plan approval application, general information form, and compliance history form to the Pennsylvania Department of Environmental Protection. All actions were successful and operating permits issued.

Founded in 1991, Air Dynamics Industrial Systems Corporation designs and manufactures Turn-key industrial air cleaning systems. See what we're capable of online, or give us a call to discuss your specific air and material moving challenge.

### AIR DYNAMICS INDUSTRIAL SYSTEMS CORPORATION

180 Roosevelt Ave. York, PA. 17401 U.S.A

**P • 717-854-4050**

[sales@airdynamics.net](mailto:sales@airdynamics.net)

[www.airdynamics.net](http://www.airdynamics.net)



- Industrial Dust Collectors
- Portable and Central Vacuum Systems
- Pneumatic Conveying Systems
- Environmental Test Chambers

DESIGNED &  
 MANUFACTURED  
 IN THE U.S.A