



Process Instrumentation

From fertilizer to Facebook: belt scale success with organic waste



What do you use Facebook for? Sharing photos, hilarious videos, status updates? How about using social media to share weighing technology success stories from the fertilizer industry?

For Siemens Milltronics, known on Facebook as SiemensSensors, these kinds of “shares” are more than welcome! This one comes from a SiemensSensors fan in Thailand.




A fertilizer plant in Thailand recently launched production of a new type of fertilizer to improve soil conditions and encourage greater plant growth. As many gardeners know, organic waste such as compost material creates excellent growing conditions. This company's products help increase crop yields by replacing soil's depleted nutrients and they also help

reduce farmers' dependency on expensive chemical fertilizers. Organic fertilizer contributes to detoxifying soil, as it uses decomposed organic substances as compost materials rather than chemicals.

Challenge

The fertilizer manufacturing process at this plant involves several stages: decomposition and fermentation, additive blending, granulating, drying, and bagging. The company sources high-quality raw materials including humic acid, which acts as a soil conditioner, organic matter from compost waste, animal manure, and additives. The organic matter and animal manure decomposes and ferments for about one month. Just like your home compost requires time for materials to decompose, so does the organic matter



in the fertilizer production process. After fermentation, a high-speed mill grinds the organic waste, breaking up any large pieces. In the mixing chamber, workers combine these ground materials with additives such as humic acid and bone meal.

The fertilizer then moves to the granulating process where added liquid forms the material into smaller sizes. In the drying chamber, heat decreases the fertilizer's moisture content and then sieves separate appropriately sized granules from larger pieces that need to be returned to the granulating process. Finally, finished organic fertilizer is bagged and shipped to consumers for use in a variety of agricultural settings.

From one process to the next, the company requires belt scales to accurately measure and transport raw materials. It is necessary to the finished product that ingredients are added to the fertilizer in specific quantities, and operators routinely test fertilizer samples to ensure this blending is consistent. In setting up this fertilizer production line, the company was looking for belt scales that provide accurate, repeatable results without a great deal of maintenance.

Solution

For this new production line, the company decided on Siemens weighing technology. Milltronics MSI belt scales offer accuracy of $\pm 0.5\%$. They are ideal for critical process measurement and for use on applications with fast-moving belts, short idler spacing, and light or uneven belt loading. Their stainless steel parallelogram load cells give instant response to vertical loading, eliminating any influences generated by the horizontal movement of the belt.

The company easily installed the belt scale system during setup of the facility. Precise alignment was simplified using Milltronics MSI's independent weighbridge. SITRANS WS300 speed sensor accurately relays belt speed to a Milltronics BW500 integrator, which monitors rate, load, totalized weight, and speed.

These devices are integrated into the company's automation system with SIMATIC PCS 7 via PROFIBUS DP communications protocol. Siemens Totally Integrated Automation (TIA) – prod-

ucts and systems for enterprise management, control, and use in the field – enables uniform, customer-specific automation in this fertilizer plant.

Benefits

Since its launch, the fertilizer company has been running smoothly. Siemens weighing technology, in combination with the rest of the facility's TIA equipment, gives operators the accuracy they need to produce high-quality organic fertilizer.

The company has enjoyed the simplicity and low maintenance requirements of the Milltronics MSI and Milltronics BW500. With regular loads of organic waste and animal manure moving on the belt scales, buildup is not a welcome occurrence! Without any moving or rotating parts and few horizontal surfaces on the Milltronics MSI, workers clean the belt scales quickly so that operations are not interrupted. The Milltronics BW500 features an easy-to-use menu parameter system for programming and is operational within five minutes.

With Siemens weighing technology, this Thai company is helping reduce the environmental impact of waste that would otherwise end up in a landfill. Positive news worth sharing on social media, wouldn't you agree?

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