

Cotton Seed Processing Company Saves Over \$60,000 on Anhydrous Hydrochloric Acid Costs

RESULTS

- Reduced Hydrochloric Acid consumption by 45%
- Achieved over \$60,000 in annual plant operational savings
- Increased operational efficiency through process automation



APPLICATION

Anhydrous Hydrochloric Acid (HCl) gas flow measurement

CUSTOMER

Cotton seed processing plant

CHALLENGE

Cotton seed can be a particularly difficult feedstock to work with before a usable end product is produced. For one such facility in the United States, the cotton seed being processed had a particularly high amount of lint that had to be removed. To do this, Hydrochloric Acid (HCl) was used to crystallize the lint on the shells of the seed. The seeds were then sent to a tumbling drum that removes the hardened lint. The smoothed seeds were bagged in 50 lb. (23 kg) sacks and placed on pallets for shipment.

The main concern of the plant manager was finding a way to reduce the operational costs of the lint removal process. Given that Hydrochloric Acid cost \$0.85/lb. (0.45 kg), plant managers were given the challenge of reducing their HCl use from 9 lbs per ton (4.5 kg per metric ton) of seed to 5 lbs per ton of seed (2.5 kg per metric ton).

The processing plant was able to maintain their cotton seed output of 18,000 tons per year while reducing HCl usage by 45%, resulting in over \$60,000 in annual savings.

SOLUTION

Emerson Process Management worked with the plant engineers to assess the application and recommended the Rosemount 3051S MultiVariable™ Mass Flow Transmitter. The Rosemount 3051SMV measures differential pressure, static pressure, temperature, and dynamically calculates mass flow in real-time. This allowed the cotton seed facility to accurately measure HCl usage with a single device.

The Rosemount 3051S MultiVariable Transmitter was able to accurately compensate for pressure and temperature changes of the HCl gas to achieve reliable and repeatable mass flow measurement. As a result, HCl consumption was reduced by 4 lb./ton (2 kg per metric ton), helping the plant managers realize cost-savings goals. With an annual production rate of over 18,000 tons (16,300 metric tons), this amounted to \$61,200 in savings. Because of the significant savings, the cotton seed producer has converted their other three facilities to include the use of the Rosemount 3051SMV to automate and reduce their HCl use.

RESOURCES

Emerson Process Management Chemical Industry

<http://www2.emersonprocess.com/en-US/industries/Chemical/Pages/index.aspx>

3051S MultiVariable Transmitter

<http://www2.emersonprocess.com/en-US/brands/rosemount/Pressure/Pressure-Transmitters/MultiVariable-Transmitters/3051S-MultiVariable/Pages/index.aspx>

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Emerson Process Management

Rosemount Division
8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1-800-999-9307
T (International) (952) 906-8888
F (952) 906-8889
www.rosemount.com

Emerson Process Management

Blegistrasse 23
P.O. Box 1046
CH 6341 Baar
Switzerland
Tel +41 (0) 41 768 6111
Fax +41 (0) 41 768 6300

Emerson FZE

P.O. Box 17033
Jebel Ali Free Zone
Dubai UAE
Tel +971 4 811 8100
Fax +971 4 886 5465

Emerson Process Management

Emerson Process Management Asia Pacific
Private Limited
1 Pandan Crescent
Singapore 128461
T (65) 6777 8211
F (65) 6777 0947
Enquiries@AP.EmersonProcess.com

ROSEMOUNT®

For more information:
www.rosemount.com



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