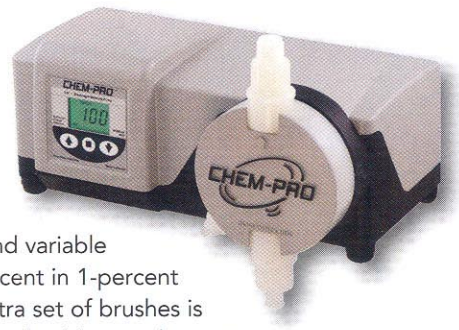
June 2011
GRAND VIEW MEDIA GROUP

Processing

SOLUTIONS FOR THE PROCESS INDUSTRIES

Pumps & Seals

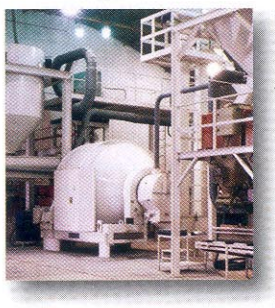
Diaphragm Metering Pump



Chem-Pro® C3 Series Metering Pump has output/feed capability up to 42.5 GPH /160 LPH. The pump's maximum working pressure is 175 psig. Chem-Pro C3 features include a PVDF pump head, PVDF pump head adapters and PVDF ball valves; a priming/degassing valve built into the pump head; digital touchpad control with back-lit LCD display; and variable speed motor that can be adjusted from 1 to 100 percent in 1-percent increments. Brush life is up to 3,400 hours and an extra set of brushes is stored inside the pump housing; the pump housing is durable powder-coated aluminum, rated NEMA 4X/lp 66 for washdown; and DFD's built-in leak detection system senses a chemical leak in the pump head and shuts off the pump. Each Chem-Pro C3 pump ships complete with all necessary adapters, fittings, tubing and mounting brackets for installation. For more information on Pumps & Seals, go to **Page 10**.

Blue-White Industries
714-893-8529, www.blue-white.com
Write In 500

Featured Article



Indalva S.L. is Spain's largest toll manufacturer of incecticides and herbicides, producing up to 7,700 tons per year. The heart of Indalva's operation is a rotary mixer with 180-cubic-foot capacity that processes all of the company's granular insecticides for soil application, mixing liquid chemicals with the microgranules until the granules are evenly impregnated. To read about the heart of Indalva's operation, turn to **page 34**.

Featured Columnist

The truth is that most of the plant maintenance function, even when focused on pumping equipment, has very little to do with process or pump reliability. Most of the focus is on repairing failed pumps with little attention being paid to why the failure occurred in the first place. Unfortunately, the maintenance department rarely has any knowledge of the reasons for the pump failure. Pump reliability expert Ross Mackay discusses how to fix this problem in his exclusive guest column. To read the column, turn to **page 6**.

Web Exclusive

Download this free white paper from Siemens on water and energy conservation in the pharmaceutical industry. Go to **ProcessFlowDirect.com, Search White Papers, Siemens Water Technologies**.

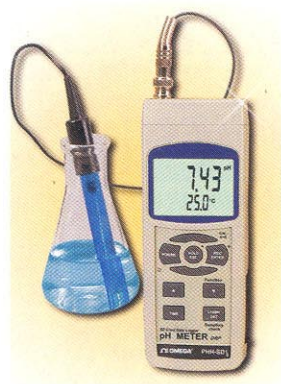
www.ProcessingMagazine.com

Multiparameter Level Transmitter

Levelflex FMP55 multiparameter level transmitter can measure both the overall level of a liquid and the interface between two solids. It is the first transmitter to utilize two level technologies built into one probe, according to the manufacturer. For more information on Level Measurement, go to **page 18**.

Endress+Hauser, Inc.
www.us.endress.com
Write In 501

New pH/ORP Meter with Real-Time Data Logger



New easy-to-operate PHH-SD1 series of pH/ORP meters features an LCD display with green light backlighting, automatic buffer calibration, RS232/USB interface and automatic temperature compensation. For more information on Instruments, go to **page 22**.

Omega Engineering
www.omega.com
Write In 502

New Digital Weight Indicator for High-Pressure Washdowns

New 190 STORM digital weight indicator is built for extreme-use applications in the weighing industry. The IP69K-rated polycarbonate enclosure withstands high temperatures (up to 176 degrees F), and high-pressure washdowns (1,450 PSI). The NTEP legal-for-trade 190 STORM features capacitive touch keys; one-inch-high clearly visible LCD digits; built-in RS232 communications port; and versatile power options: AC, DC and rechargeable battery.

Cardinal Scale Manufacturing Co.
800-441-4237, www.CardinalScale.com
Write In 503

Mix and Batch

Insecticide, Herbicide Producer Places Heavy Demands on Rotary Batch Mixer

Indalva S.L. is Spain's largest toll manufacturer of insecticides and herbicides, producing approximately 5,500 to 7,700 tons per year of some 30 different products for about 20 companies, nearly half of which are located in other countries. Established in 1967, the family-run company is also Spain's oldest producer of clay microgranules, which, along with quartz sand, are used as carriers for its insecticides and herbicides. Indalva also sells clay microgranules to other formulators of agricultural and horticultural chemicals.

The heart of Indalva's operation is a rotary mixer featuring 180-cubic-foot capacity that processes all the company's granular insecticides for soil application. Built by Munson Machinery Co., Inc., the Model 700-TSC-180 machine mixes liquid chemicals with the microgranules until the granules are evenly impregnated.

Workers package insecticide after it has been mixed by the rotary mixer (left).

Since the rotary mixer is the only one used for insecticides, its reliable operation is critical to Indalva's business. "If anything goes wrong with the mixing operation it is a big problem for us," says Cayetano Valero, chief executive officer (CEO), "but, fortunately, the mixer has proven reliable."

The mixer has been in service since 1988, operating 10 to 12 hours per day during the sowing season, and has rarely been offline except for its scheduled annual maintenance, when it is shut down for two or three days. Other than that, oil and grease needs are checked every two weeks.

Indalva puts raw clay through a hammer mill to obtain granules of .04 to .08 inches. This is done in a different facility than the formulation plant, to which the granules are transferred in 2,200-pound bags. Chemicals are received as powders or liquids in 55-pound bags or 440-pound drums.

At the beginning of the formulation line, bags of clay or quartz are lifted by a crane and emptied into an 11-ton hopper. The material drops through a port in the hopper into a bucket elevator, which transports it to an 11-ton hopper that is located on a platform above the mixer.

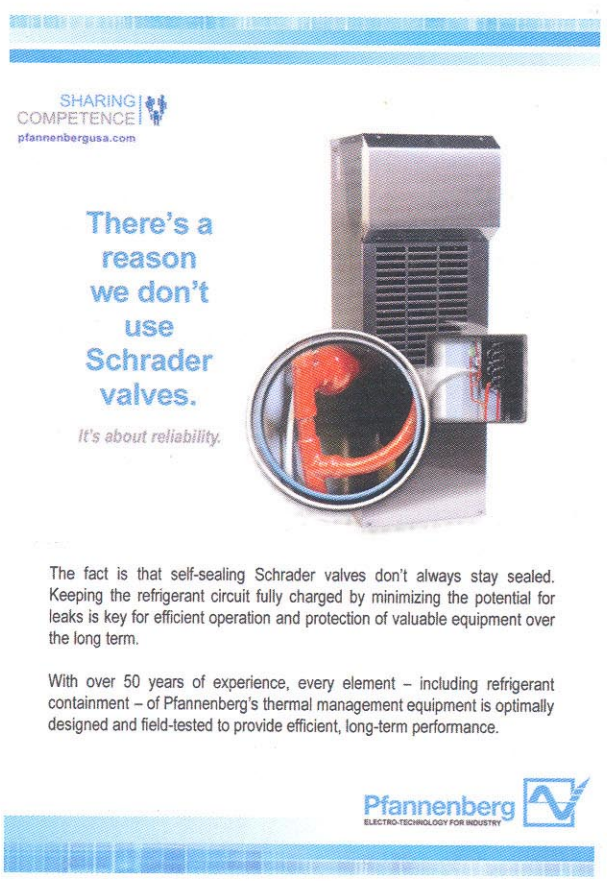
The hopper that feeds the mixer is set on load cells, and when the preset batch weight is reached, the conveyor automatically stops and the batch is discharged into the mixer. Batch sizes range from 3.3 to 5.5 tons.

How the Mixer Works

The mixer is a horizontal drum that rotates on trunnion rings and rollers, located at each end of the vessel, eliminating the need for an internal shaft with bearings exposed to material. The mixer has a stationary inlet at one end and a stationary outlet, with a discharge gate, at the other. Mixing flights, or baffles, tumble the batch in a multi-directional manner, imparting minimal energy and intensity to the product.

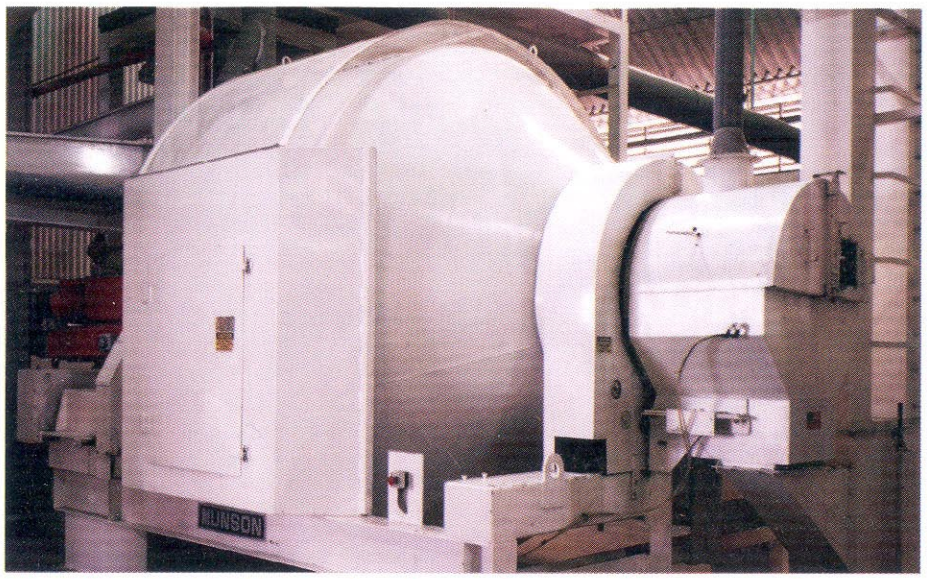
A product may consist of one or several chemicals, which are weighed, dissolved in water and added to the batch as it rotates. The premixed

Write In 240



Write In 241

solution is pumped from a storage tank through a tube that runs along the center, or axis, of the mixer, from which it is sprayed into the carrier material through nozzles. Indalva uses several different sizes of nozzles,



The 180 cubic-foot capacity rotary mixer evenly impregnates microgranules with liquid chemicals to produce insecticides.

for different liquids, says Valero, and they can be set for the appropriate spray pattern. Valero notes that clay microgranules absorb the chemicals, but in the case of quartz an adhesive is included in the aqueous mixture for coating the granule.

Although the mixer can achieve batch uniformity in approximately three minutes, the company runs it from one to two hours to condition the material. At the end of the cycle the discharge gate is opened and the product goes to the packaging line, where it is loaded into 1.1 ton bulk bags or small bags of 2.2 to 44 pounds.

Over the years the mixer has consistently produced a homogeneous, high-quality product, says Valero. He adds that the machine discharges each batch thoroughly, leaving no residual material that needs to be removed.

Preventing Cross-Contamination

Due to the toxic nature of Indalva's products, cleaning the machine between batches of different insecticides takes anywhere from four hours to an entire day. "These are dangerous products and we have to clean the machine thoroughly to prevent cross-contamination," says Valero.

Since the avoidance of contamination is critical, Indalva uses no chemicals for cleaning. Also, employees cannot enter the machine because of the toxic atmosphere. Instead, the company uses an inert material—usually quartz—for cleaning. The quartz is loaded into the mixer and scrapes all internal surfaces clean while the machine rotates.

Maintenance Has Been Routine

As for maintenance, most of this work has been done during the annual shutdown, says Valero. "We have rarely had to do repairs between scheduled shutdowns," he says.

Indalva's phytosanitary business has grown rapidly over the years, but it peaked at 11,000 tons per year about five years ago, when the EU promulgated new environmental regulations that restricted or banned the use of some traditional chemicals. In response, the company reformulated its products and sales have been growing again for the past two years.

Anticipating continued growth, Indalva is now considering an additional Munson rotary batch mixer. "We have been happy with this machine," says Valero, "but we need one that has more capacity."

Munson Machinery Co., Inc.
315-797-0090,
www.munsonmachinery.com
Write In 526

Write In 243

Write In 244