

CR QUARTERLY

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Precision Engineering for the Process Industries

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AT SANDVIK COROMANT, CROLL-REYNOLDS SCRUBBERS HANDLE EMISSIONS EMERGENCIES



Jouko Tahvanainen, Facility Engineering Manager purchased their first Croll-Reynolds high energy fixed Venturi packed tower system in 1998.

Sandvik Corporation employs 40,000 people in thirty-five countries. Sandvik Coromant of Fair Lawn, NJ is their carbide division for tooling.

Coromant specializes in machine tools: modern cutting tools, boring, turning and drill components, with a focus on tungsten-carbide inserts, designed mainly for the mass production of automotive parts.

With six lines in operation, the Fair Lawn facility has the capacity for over 17 million tungsten-carbide inserts a year. Sandvik Coromant supplies nearly 50% of the U.S. automotive need for these components. The company has had ISO certification since 1994.

Sandvik Coromant purchased its first Croll-Reynolds scrubber in 1998. It is a high-energy fixed-venturi packed-tower sys-

tem designed for 1400 cfm, and can pull 57" water column vacuum. This emergency scrubber runs 24/7, normally at half speed, as a backup in case of a serious gas leak or spill.

Whenever a gas detector alarm goes off, or when plant personnel change gas cylinders, the scrubber automatically moves to its high RPM rating. In an emergency situation this keeps the fumes from reaching personnel, the rest of the building or the outside air, while the area is safely evacuated and the problem is resolved.

Sandvik Coromant's latest scrubber is a smaller model designed for a specific purpose: intermittent use to remove the harmless, but noxious fumes from a stack exhaust stream when chemicals such as hydrogen sulfide, hydrochloric acid and titanium tetrachloride are handled.

As part of its standard pollution-control procedure, the plant utilizes water-sealed vacuum pumps to eliminate harmful fumes. The noxious smell of H₂S

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**SEE US AT
ACHEMA
MAY 19-24!**

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For More Details

"The Model 88-46V Jet Venturi Scrubber works extremely well. Thank you for your help in resolving our emission problems."

SCRUBBERS AT SANDVIK

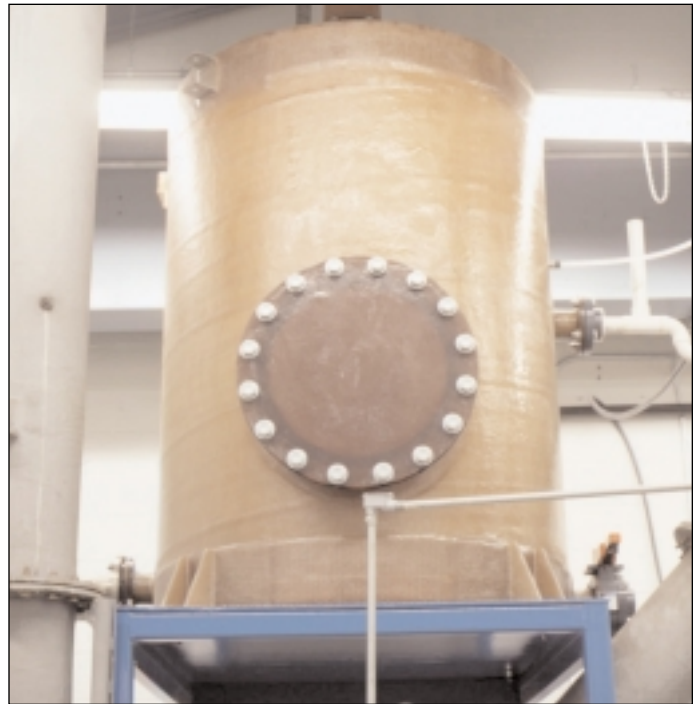
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however remains. It is not unhealthy but it is certainly unpleasant. A number of treatment methods have been tried but the situation has never been resolved.

The new plan, involved rerouting the stack exhaust into a device that could eliminate the smell. Incineration was considered, but the cost of ash disposal became an issue. Croll-Reynolds' application engineers, proposed a scrubber system.

The 700 cfm packed tower single stage system employs an 8"x8" jet venturi mounted on a 48" diameter separator tank, and operates at atmospheric pressure and 70 F, pulling 4-5" vacuum for use in conjunction with the plant's gas separator stacks. It is vertically skid-mounted to save valuable floor space in the plant.

Hydrogen sulfide and HCl can be scrubbed easily in a single stage with sodium hydroxide, a dilute aqueous caustic. Croll-Reynolds' unit removes 60% of hydrogen sulfide and 90% of hydrogen chloride. The scrubber is 10 ft tall with 8" gas connections and an 8" manway. It is made of fiberglass FRP Atlac 382 with a Nexus veil to add stability. The nozzle is a Teflon spinner to add



Sandvik Coromant's new system is a Croll-Reynolds Jet Venturi Scrubber mounted on a separator tank, rated 700 cfm. It's a standby system, used primarily to remove the noxious smell of hydrogen sulfide from plant air.

turbulence to the liquid and improve the flow pattern. The separator tank is Nexus veil, also Atlac with a small polypropylene mesh pad mist eliminator at the discharge.

The unit operates at atmospheric pressure and therefore does not require a metal shell. The fiberglass material is highly corrosion resistant,

light and inexpensive.

Croll-Reynolds was able to delivery the system in less than five weeks. According to Jouko Tahvanainen, ME, who serves as Facility Engineering Manager, "the Model 88-46V Jet Venturi Scrubber works extremely well. Thank you for your help in resolving our emission problems."

Look for Croll-Reynolds at these Upcoming Shows

- International Fuel Ethanol Workshop and Trade Show, Sioux Falls, SD, June 16-18. See us in booth 126.
- **ACHEMA**, the world's largest exhibition congress for chemical engineering, Frankfurt, Germany, May 19-24. Visit Croll-Reynolds in Hall 4.1, Stand E21 - E24.
- American Oil Chemical Society Annual Meeting and Expo, Kansas City, MO, May 4-7. See us in booth 408.

NEW VACUUM SYSTEM SOLVES EMISSION PROBLEMS FOR RHODIA PLANTS NEAR PAULINA, BRAZIL

Paulina, in the interior of Brazil's Sao Paulo State, is the site of a major refinery complex for Petrobras, the Brazilian oil company. The presence of the refinery has driven the establishment of many petrochemical plants, including two of the seven Brazilian factories of Rhodia, which was formerly part of Rhone-Poulenc.

The plants are about thirty-five years old. Their multiple production units involve distillation, heat exchange, condensation and other separation processes. Two lines,

which make products from nylon chain, presented an effluent problem; these systems were recently replaced with Croll-Reynolds vacuum systems under the direction of Paulo Teixeira, who manages Croll-Reynolds' Sao Paulo office.

Liliana Martins, a ChE from the corporate engineering group at Rhodia's Sao Paulo headquarters, oversaw the work. The final concept was a prevacuum header arrangement serving all six distillation columns. Each column is topped

with a Croll-Reynolds ejector that drives the discharge to the prevac. There are also arrangements for interchange of flows from various columns.

Ms Martins reports that the new systems are operating as designed. Effluent balance, which was the principal aim of the project, as well as steam consumption and vacuum, are all according to design. The amount of condensate going to treatment is even less than expected.

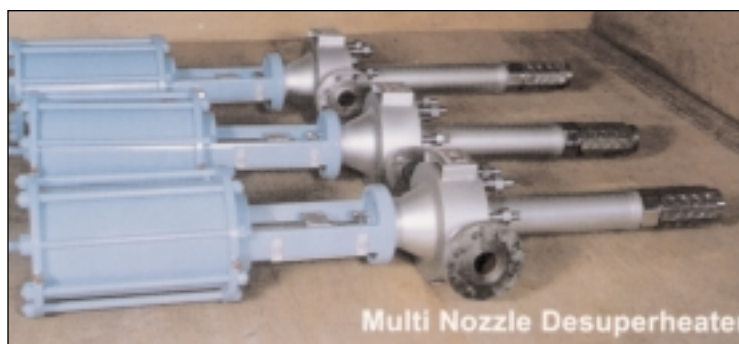
Two lines, which make products from nylon chain, presented an effluent problem. Their old vacuum systems were recently replaced with new Croll Reynolds vacuum systems.

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QUICK DELIVERY OF CROLL REYNOLDS DESUPERHEATER MEETS OUTAGE NEEDS OF FMC PASADENA, TX PLANT

An FMC plant in Pasadena, TX needed a desuperheater for use during an upcoming maintenance outage on its steam generator. When the steam goes down, the plant goes down. But Kevin Hammock, Plant Engineer, knew he could avoid a shutdown by "borrowing" steam at 150 lb pressure from a nearby co-generation plant.

Just one problem: the co-gen steam would



In a Croll Reynolds' warehouse, a variety of multi-nozzle desuperheaters wait for customization and shipment.

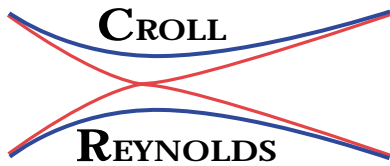
arrive at 475 F, and the FMC application required steam at 400 F. This issue is easily resolved with a desuperheater to turn down the temperature. Then another problem arose: companies were

quoting three and four month delivery times, and the unit was needed sooner than that.

Croll-Reynolds solved the problem, quoting the

Croll-Reynolds solved the problem, quoting the required desuperheater for delivery from its warehouse in a matter of weeks, and at a price that beat the competition.

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QUICK DELIVERY OF CROLL REYNOLDS DESUPERHEATER

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required desuperheater for delivery from its warehouse in a matter of weeks, and at a price that beat the competition.

Last November, with the desuperheater successfully installed and tested, Mr. Hammock wrote to the Croll-

Reynolds engineering staff. "We are very happy with our new Croll-Reynolds desuperheater. It has performed as expected, desuperheating co-gen steam from 475 to 400 F for use in our plant.

"We're really impressed with how CR beat the

competition in price and, more importantly, in delivery. The price was an added benefit but it was the timely delivery that drove my choice. Dealing with Croll-Reynolds on this desuperheater project was a really positive experience."

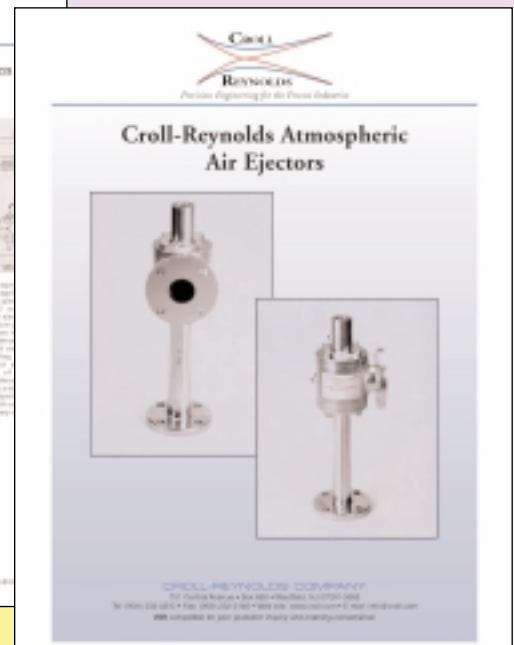
Coming in the Spring 2003 Issue

- Degussa Jamestown, Wisconsin discusses the successful application of Croll-Reynolds ethylene oxide scrubbers.
- UOP's Modular Technology Center applies Croll-Reynolds process equipment to advantage.
- Weyerhaeuser's Oglethorpe, GA Facility replaces four Chill Vector boosters, achieves spectacular savings.

NEW PRODUCT LITERATURE FOR YOUR FILES

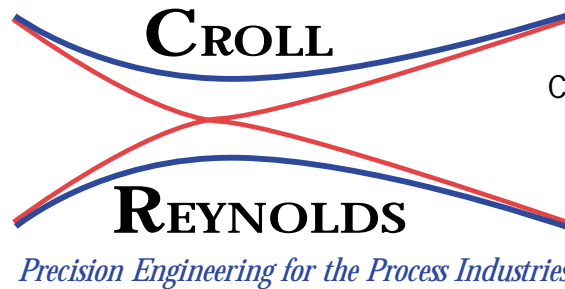


Croll-Reynolds ethylene-glycol-driven vacuum system technology reduces waste, conserves energy



Croll-Reynolds atmospheric air ejectors for use with vacuum pumps

STEAM EJECTORS
COOLING SYSTEMS
VACUUM SYSTEMS



COMBINATION SYSTEMS
THERMOCOMPRESSORS
CONDENSERS

ACHEMA 2003 FRANKFURT AM MAIN

Visit Croll Reynolds' stand E21-E24 in Hall 4.1, Thermal Processes

Process Vacuum

- Are you designing a new facility?
- Is energy-savings a critical factor in your design?
- Are you upgrading your plant?
- Are you looking for optimum efficiency?
- Do you have a specific question about your vacuum system?

Croll-Reynolds, the leading source for Innovative, High-Performance Process Vacuum Systems, will feature its designs at the upcoming AICHEMA 2003 Exhibition-Congress at Frankfurt am Main from May 19 through May 24.

For nearly a century, Croll-Reynolds' vacuum equipment has been at the heart of process installations throughout the world. Our range of experience covers crystallization, deaeration, the drying and cooling of liquids and solids, high vacuum distillation, metallurgy, edible oil refining and the processing of essential oils, petrochemical processing, chemical processing, the production of fertilizer, fiber, pulp and paper, food processing and the production of flavors and fragrances.

- Visit Croll Reynolds' stand E21-E24 in Hall 4.1, Thermal Processes, during AICHEMA 2003 to speak with one of our engineers.
- Leave with an answer to your questions, a proposal for your plant, or simply another resource for you process vacuum needs..
- *Call fax or email Croll Reynolds for a free Day Pass to Achema 2003*

We look forward to seeing you there.

Sincerely,

Samuel W. Croll, III
President