



## IMPROVING WORKER SAFETY

Adtech Ceramics, Inc., a Chattanooga, TN-based company, designs and manufactures microcircuit "packaging" for telecommunications, military, aerospace and other applications. It makes precision-engineered ceramics and metals that begin as slurries and, when shaped and dried, form tapes and pastes that are, in turn, used to create electronic circuits or screen-printed dielectric layers. The layers are stacked to form three-dimensional ceramic packages onto which Adtech's customers place electronic components for specific uses.

Chemicals needed in Adtech's process include alcohols and solvents, such as Toluene. Due to their flammable nature, the chemicals cannot be used with or near electric motors or electric-powered pumps. As a result, most fluids had been dispensed using a gravity-fed system attached to the chemicals' 55-gal. shipping containers. This involved threading a spigot into the top of the drum, placing the drum on a roll-down fixture, and tipping it into a horizontal position for dispensing.

Difficulties with this type of system, included spigots that clogged and leaked, uneven flow rate, and the fact that it did not allow for complete removal of fluid from the drum. Added effort was required to make drums RCRA (Resource Conservation and Recovery Act)-ready.

To avoid these problems, Adtech recently switched to GoatThroat Pumps, a unique hand-operated transfer pump which requires no power and fits containers from 2 to 55 gal. It also allows access to drums in the upright position. "This reduces drum handling and worker injuries which can result from turning drums on their sides," says David Kuster, Adtech's environmental, health and safety coordinator, "and it means no more leaking fittings."

Additionally, Adtech has created a closed system from the 55 gallon drum to the 5 gallon working container so there is no more splashing of the chemicals onto the workers when transferring to the smaller container.

The pumps also enable Adtech to make its containers RCRA-ready, which means they have no more than 2 in. of product left in them after dispensing operations. "These pumps will literally leave only a few ounces of fluid in the bottom," says Kuster. "We were leaving 5 to 8 gallons in the drums before, which was returned to the company we bought it from. Then we had to pay for that much product again."



**Ensuring worker safety and environmental compliance has never been easier.**

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