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Investing in the Future

Ransom & Randolph's Bandust dramatically improves health and safety in the casting shop

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Jewelry manufacturers are no strangers to workplace hazards. The process of transforming raw metals into finished pieces of jewelry can involve flames, chemicals, and toxic vapors and dust—all requiring adequate safety gear, ventilation, and careful practices to minimize risk.

But even with safeguards in place, some processes pose inherent risks to the operator due to the materials needed to get the job done. Such is the case when investing flasks for casting. It's almost impossible to prevent some particulates of crystalline silica from investment powder from settling on surfaces, clogging respirators and dust collection filters, and getting into the air. Because crystalline silica is known to cause the respiratory disease silicosis, investing has posed significant risk in workplace health and safety—until now.

Maumee, Ohio-based Ransom & Randolph's new trademarked Bandust technology reduces the amount of respirable dust in the common jewelry investing process by up to 99 percent. Surfaces stay cleaner,



respirators and filters enjoy a better life expectancy, and, most important, workers are exposed to less potentially harmful silica dust in the workplace. “The safety aspect and the decreased litigation risk to suppliers and manufacturers is a commendable and innovative improvement in the jewelry field,” says goldsmith, author, and educator Charles Lewton-Brain of Calgary, Alberta, Canada, a member of MJSA’s Thinking Ahead Advisory Council.

Shop Performance

Bandust is not a new type of investment powder, but rather a substance added to Ransom & Randolph’s gypsum-based investments that binds the small particles to the investment material, thus reducing respirable dust. Developed in the Netherlands for the dental industry by Ransom & Randolph’s parent company Dentsply and used primarily in Europe for about 10 years, Bandust technology was tailored for use with jewelry investments and perfected over the past year. Ransom & Randolph first tested Bandust in-house in its Ultra-Vest investment, experimenting with the material in the company’s facilities in the U.S. and Germany. It then sent

the modified Ultra-Vest out to an independent industrial hygienist for verification. All tests showed that the product significantly lessened respirable dust.

Linus Drogs of Au Enterprises in Berkley, Michigan, a member of MJSA’s Thinking Ahead Advisory Council, has put the new and improved Ultra-Vest investment through the paces to assess if the addition of Bandust would affect the quality of his castings. “We haven’t seen any difference,” he reports. “This has had zero impact on the end result, but it’s significantly reduced the dust produced.”

That said, there are some differences in processing the investment of which users should be aware, says Drogs. The first change is in the vacuuming step. This product foams up more than standard investments, so use a larger bowl. After vacuuming, the investment will debubble and look exactly the same as standard investment.

The second difference is in increased bond strength for mold integrity. “In a side-by-side comparison of fired molds, you see increased strength in the Bandust material, which adds about 30 seconds to a minute to the devesting process,” says Drogs. “For a smaller casting operation,

the added devesting time is not burdensome or costly, but for a larger company it could have an impact on production flow.”

However, since the investment also cools faster than standard investment, Drogs has found that if he decreases the bench set time before quenching by roughly 5 percent, he makes up for the added time. “Then we wind up with essentially the same kind of devesting time, and the material dissolves similarly to standard investment.”

Safety and Cleanliness

While Bandust-containing investments cost about 10 percent more than their predecessors, Drogs believes that the savings in replacing respirators and filters, as well as the reduction in clean up time, more than makes up for the higher price.

“You wouldn’t see the cost savings without an actual physical trial, but it’s a huge improvement in what’s obviously a nasty safety problem,” says Jim Binnion of James Binnion Metal Arts in Bellingham, Washington, a member of MJSA’s Thinking Ahead Advisory Council. “This is a great example of a company looking at a problem no one else found a way around, and solving it in a cost-effective way.”

The significant health, safety, and environmental improvements are well worth the slight price increase, says Andrea Hill of StrategyWerx in Campbellsport, Wisconsin, who is also a member of MJSA’s Thinking Ahead Advisory Council. “Bandust improves the air quality and cleanliness of the work environment, which leads to higher morale and better health, and therefore increased productivity,” she says. “Any product that makes the jewelry manufacturing environment safer and cleaner without compromising quality is a home-run for the jewelry industry—and Bandust does both.” ♦