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BSPA Roundtable Addresses Disposal of Disposables

As the use of disposable bioprocessing equipment has increased, a new question is gaining prominence: What is the best way to dispose of the equipment after use?

This was one of several questions discussed at the First Annual Business Roundtable of the Bio-Process Systems Alliance (BPSA, www.bpsalliance.org), held June 1, 2008, in San Diego.

In approaching the disposal question, John Boehm, bioprocess business unit manager of Colder Products Company, said that most companies first examine their current practices for materials such as laboratory disposables. However, additional methods are available.

Grinding and Autoclaving

Hospitals, for example, generally grind and autoclave disposable medical waste. This method is generally seen as safe and it reduces landfill waste. The biggest disadvantage of this method is the significant cost of setting up such a system if it is not already in place.

Incineration and Cogeneration

Incineration may be a good option, particularly if the heat generated can be captured and used as energy for the plant in a cogeneration setup. "We should look to Europe to study their best practices," said Boehm, noting that incineration is common in Europe and Asia.

Incineration is generally seen as safe, and it reduces the volume and toxicity of waste sent to landfills. Some regions, however, restrict incineration, because they do not see it as environmentally friendly. Such systems also require a large upfront investment; in Europe, the community sometimes participates in this investment.

Recycling Impractical

Recycling, although initially appealing, is impractical for equipment composed of several layers of different polymers, some of which may contain non-recyclable thermoset materials like silicone rubber.

Also, few sites would generate the annual volume (1–3 million pounds of material) needed for a successful recycling program.

Pyrolysis

A newer option is pyrolysis, in which the plastic is broken to extract the oil for other use. "The extracted oil is very pure, and burns cleaner than diesel fuel," said Boehm. Pyrolysis is not very efficient, however, and has a high capital cost, so a high volume would be needed.

Industry Input

In most cases, Boehm said, companies will need to implement more than one approach, depending on the materials used and their biohazard levels. To help companies identify best practices, BPSA plans to develop an in-depth whitepaper analyzing the options. For this purpose, the organization is seeking input from end users, to understand what procedures companies are currently following. End users interested in learning more about this study may contact John Boehm at john.boehm@colder.com

The BPSA roundtable, the first to include participation by end users, also addressed other topics, such as best practices for extractables and leachables testing, and strategies for implementing disposable equipment. BPSA, originally formed in 2005 as an alliance of suppliers of disposable equipment, recently opened up membership to end users.

–Laura Bush