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No Silver Bullets for Treating Emerging Water Pollutants

Despite a wave of new technologies, no single solution can address every possible pollutant, leading Lux Research to advise a portfolio approach to clean water technologies

Boston, MA – May 27, 2009 – A rising tide of stark headlines threatening untold health risks from emerging water pollutants has helped buoy interest in a host of new water treatment technologies. The latest report from Lux Research, however, reviews the candidates and concludes a portfolio approach is wiser than trying to pick a single breakthrough winner.

The report, titled “Emerging Pollutants: Myth and Reality,” notes that even if government regulations imposed new water treatment methods tomorrow, no currently available or emerging technology provides blanket protection against the multitude of suspected pollutants.

“Despite interest surrounding the new crop of water treatment technologies, none of them offer a panacea with regard to the growing list of candidate pollutants,” said Heather Landis, a Lux Research analyst and the lead author of the report. “Smart investors will therefore take a portfolio approach rather than trying to pick which technology will win out in the end.”

Emerging pollutants could number in the hundreds. But they fall into two categories – chemical and microbial – and most of them cannot be removed by conventional treatment technologies like chemical coagulation or sedimentation. This has fueled interest in a host of alternative technologies like ozone, advanced oxidation processes, membranes, activated carbon, biological filtration and ion exchange.

In preparing its report, Lux studied government lists of candidate pollutants in the U.S., European Union, Australia and Japan, and identified 32 substances that are most likely to face regulation within the next five years. To determine which treatment technologies make the best candidates for its recommended portfolio approach, the report drew on research studies, expert interviews and peer-reviewed articles about 18 different technologies to identify how effective each performed at removing pollutants. It also measured each technology’s capital cost, operating cost, energy requirements, and process understanding. Among its key findings:

- **Three technologies provide a relatively broad spectrum of treatment.** Ozone, biological activated carbon filters and reverse osmosis provide the broadest spectrum of treatment, removing at least ten of the 32 pollutants studied.
- **Don’t rule out technologies that provide a narrower spectrum of treatment.** Ion and magnetic ion exchange, granular activated carbon, UV, ultrafiltration and membrane bioreactors are effective for at least one emerging pollutant. However, their effectiveness in select applications positions them as high-growth options in a portfolio approach.

- **Most water treatment start-ups focused on treating emerging pollutants will fail.**
Pollution mitigation technologies able to treat a broader range of pollutants, or that offer an alternative use in the water treatment space offer a more sustainable business model, and are more likely to survive.

“Emerging Pollutants: Myth and Reality” is part of Lux Research’s Water Intelligence service. Clients subscribing to this service receive continuous research on water industry market trends and forecasts, ongoing technology scouting reports and proprietary data points in the weekly Lux Research Water Journal and on-demand inquiry with Lux Research analysts.

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