



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C., 20460

Office of Water

August 16, 2011

Franz Tillman
Schwing Bioset Inc.
98 Mill Plain, Suite 2A
Danbury, CT 06811-6101

Dear Mr. Tillman:

Re: Request for National Equivalency of Schwing Bioset's "Bioset" Process

This is in response to your "Pathogen Reduction Equivalency Application Package for Biosolids Treatment Processes" which was signed on February 22, 2011 and submitted to Mark C. Meckes, Chair of EPA's Pathogen Equivalency Committee (PEC). Supporting documents were submitted on May 13, and July 28, 2011. The PEC has reviewed the application, data, appendices and supporting documentation as well as an operation and maintenance manual which was submitted with an earlier request.

The "Bioset" process is described as follows: Dewatered municipal sludge solids between six to thirty-five percent total solids by weight are mechanically mixed with calcium oxide (quicklime) to achieve a pH of greater than or equal to twelve standard units. Sulphamic acid is added to, and mixed with the sludge/quicklime to promote an exothermic reaction which increases the temperature of the mixture to equal to or greater than 55°C (131°F). The sludge/quicklime/sulphamic acid mixture is then directed to a pressurized plug flow reactor for a minimum solids retention time of forty minutes at a minimum temperature of 55°C (131°F). Based on the information/data provided, the PEC believes that the "Bioset" process is equivalent to a process to further reduce pathogens (PFRP) when operated as described below and in accordance with the "Process Operation and Maintenance Manual."

The "Bioset" process is considered to be a PFRP equivalent process when it is operated under the following conditions:

- The "Bioset" process is to be used to treat municipal wastewater sludge with a total solids concentration between 6 and 35% by weight and with a minimum ammonium concentration in the reactor discharge of 0.5 mg NH₄⁺/g dry weight.
- Dewatered sludge solids must be mechanically mixed with calcium oxide (quicklime) to achieve a pH of equal to or greater than 12 standard units.
- Sulphamic acid must be mixed with the sludge/quicklime mixture to maintain the temperature of the mix at equal to or greater than 55°C (131°F).

- The process must be operated in a plug flow regime with a minimum operating pressure of 27 kPa (4 psi) and a minimum solids retention time of 40 minutes at a minimum temperature of 55°C (131°F).

I concur with the PEC's opinion and statement that Schwing Bioset's "Bioset" process operating under the above conditions is equivalent to a PFRP process in accordance with 40 CFR 503.32(a)(8). As always the final decision on equivalency rests with the relevant permitting authority at the state or EPA-Regional Office.

As with any wastewater treatment plant using a Class A alternative, you still need to monitor the final product to insure that fecal coliform densities are below 1,000 MPN per gram of total solids (dry weight basis), or *Salmonella* sp. bacteria are below detection limits (3 MPN per 4 grams total solids [dry weight basis]) at the time the sewage sludge is used or disposed, at the time the sewage sludge is prepared for sale or given away in a bag or other container for land application, or at the time the sewage sludge or material derived from the sewage sludge is prepared to meet the requirements in 40CFR503.10(b), 503.10(c), 503.10(e), or 503.10(f)." You will of course also need to meet the requirements for vector attraction reduction (VAR). It is our understanding that VAR will be met using option six as specified in 40CFR503.33(b)(6). That is: Addition of sufficient alkali to raise the pH to at least 12 at 25°C (77°F) and maintain a pH ≥ 12 for 2 hours and a pH ≥ 11.5 for 22 more hours.

Best regards and I wish you success with your municipal sludge treatment process. Should you have any questions, please call Mr. Mark C. Meckes at 513-569-7348.

Sincerely,



Rick Stevens, Senior Scientist (4304T)
Biosolids Coordinator
Health and Ecological Criteria Division
Office of Science and Technology

cc: PEC
EPA Regional Biosolids Coordinators
Mark C. Meckes, ORD