

JOHN'S CORNER

Biosolids or Sewage Sludge

By John Ferguson

Over the last few weeks we have had several customers asking about Bio-Solid compost or stating that they were using sewage sludge products (Milorganite, HouActinite, etc.) in their gardens. This has worried me so I thought it was time I wrote about this type of soil amendment.

Bio-solids is the politically correct name for sewage sludge developed by Public Relations firms (Biosolids = sewage sludge). As one moves up the food chain the manures produced become more complex and richer. Hence, humans at the top of the food chain have one of the richest manures that should be great to make compost or fertilizer for our gardens. Right?

The problem occurs when all kinds of industrial waste, cleaning products, pharmaceuticals, hazardous materials, pathogens, etc. are dumped into our sewage lines. This material goes to a sewer plant for treatment where it is digested or processed in some form or fashion and then de-watered. The left over material is called sewage sludge.

There are two basic types of sewage sludge, Type-A and type-B.

Type-A: It goes through some degree of, digestion, composting, heat treatment, chemical treatment, etc. that reduces the level of pathogens. These products can be pelletized, used as fertilizer, applied to fields or gardens, bagged and sold to the public without any restrictions or labeling of the source of the material.



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Type-B: It goes through far less stringent treatment but is similar to the material described above but still contains bacteria, toxic chemicals, etc. This end product can still be applied to a field or used as a fertilizer but with some restrictions.

As a society we produce millions of tons of sewage sludge each year, and it has to be disposed of. For many years it was dumped into the oceans until that was proven to be very bad for the environment. When this approach was made illegal, the treatment plants had to find other ways to dispose of the sludge. It was often taken to landfills and buried (expensive), but it was found to cause problems there also. As a result many landfills no longer accept sewage sludge.

Sewage sludge has been found to contain medicines from anti-depressants to steroids, flame retardants, detergents, fragrances, disinfectants like triclosan, antibiotics, hormones like estrogen, PCB's (poly chlorinated biphenyls), asbestos (2/3 of the sludge tested), pesticides, heavy metals (arsenic, mercury, lead, nickel, cadmium), dioxins, naphthalene, and other POP (persistent organic pollutants). Note: Each industry is allowed to dump 33 pounds of hazardous waste per month into the sewer without having to report it. The amount and type of toxics in sludge depends on the source and the treatment it has received.

So what are we going to do with this waste product?

Can sewage sludge (bio-solids) be composted?

Yes. Composting of sewage sludge can be done but the factors involved are much more complex, both from a scientific and regulatory point of view. The potential for foul odors is higher, and the cost is higher than regular compost made from non-toxic feedstock's (due to extra government regulation). Additionally, the chance of pollutants contaminating the sludge is higher, but it is less costly than land applying it or land filling (especially if you can trick some consumer into buying it). With proper planning and site preparation some of the extra problems can be overcome.

Several studies have shown that compost made with sewage sludge can be of good quality and beneficial in special cases (IF properly produced). The risk in using sewage sludge is that viruses and other microbes can survive the high temperatures for some time, and complex chemicals such as polybrominated biphenyl's (PBB's), and heavy metals (lead, cadmium, arsenic, etc.) cannot be removed



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from the compost. If the material entering the sewage system is regulated at the source, preventing contamination from occurring, then composting can be a very good solution, and long time frame composting ensures that some of these chemicals are broken down.

Most modern water treatment facilities, in compliance with current regulations, produce a sewage sludge that can be used for composting. In a community without industry dumping toxic chemicals into the sewer it will be of a better quality with lower risk factors. Hence the toxicity of sewage sludge compost varies greatly.

Many communities have found that co-composting of sludge with ground brush or leaves is a preferred solution when compared to land application or land filling. This approach can transform a nasty waste disposal problem into a product that may have some benefits. It all depends on HOW it is composted. If long times frames and big piles are used, then some of the toxic material in the sludge can be biodegraded. Unfortunately, most sludge composting operations use the fast windrow methods that does not allow this to occur.

Biosolids compost is a commercial grade product that can have some beneficial uses when used appropriately. It is appropriate for re-vegetation projects, erosion control, highway right of ways, mine waste site reclamation, bioremediation of waste dumps, forest re-vegetation projects and many other industrial and commercial projects where only one application is required. The high organic matter content will tend to lock up the heavy metals and prevent them from leaching into the environment IF it is only used one time. It should never be used for any application where food crops are grown or on pasture where livestock will eat the grass.

The current EPA regulations are outdated and no longer protect the public. Many of the diseases and illnesses reported in the media over the last few years have come from conventional crops fertilized with sewage sludge. This is another reason to buy organic produce as sewage sludge is not allowed to be used.

Warning signs of sewage sludge compost are the following Buzz words as the producers rarely tell you:

Natural organic nitrogen

Naturally grown plants

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Recycling symbol on the bags

Pictures of a mother and child or beautiful flowers

A big seal from some certifying agency

Meets strict EPA standards

EPA's exceptional quality compost (means it is sewage sludge)

Note: Often good products use the same buzz words listed above. Ask questions and research the product before you buy it.

PROS:

- good source of organic matter
- contains essential plant micro and macro nutrients
- improves soil physical properties
- increases a soils water holding capacity
- improves a soils aggregation porosity and tilth
- relatively inexpensive

CONS:

- quality and risk varies greatly
- bacterial pathogens may reactivate when applied
- many endocrine disrupting chemicals often survive the composting process
- genetically modified organisms and other mutant strains of bacteria
- viruses often survive the treatment process

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- many disease causing microbes
- over 500 synthetic chemicals
- heavy metals
- nano-particles
- toxic materials build up over time
- toxic materials are absorbed by plants and enter the food chain (either by humans eating the plants or eating animals that ate the plants)

The book "Toxic Sludge Is Good For You", by John Stauber and Sheldon Rampton, 1995, Common Courage Press, ISBN: 1-56751-060-4 is about the public relations industry and how they try to green wash the risk factors of sewage sludge compost.