

Sunland Analytical

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What Is Good Compost?

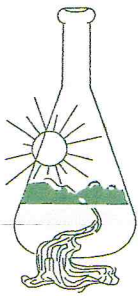
Recently a customer told us about a landscaper that removed 3 feet of dirt from a road median and filled the hole with "compost". Unfortunately, the "compost" material was not really composted, but the conditions were now right and it began to compost. Those micro organisms started chewing up all the organic matter and giving off heat. Soon the fire department is really getting upset, having to go back to this site and put out the fires started by the auto combustion of compost. While this is somewhat humorous, it does point out one problem with using compost that has not been analyzed to define the state of maturity and other components critical to usefulness.

The simple term "compost" does not really describe the characteristics of a specific product. For example, does the compost contain just green waste or does it contain food waste/byproducts, manure and/or biosolids? Is there a significant amount of soil or sand in the product? Further, information needs to be available to the consumer to assure them that the product is safe and appropriate for the intended use.

Recall that the composting process is essentially the extensive breakdown of the starting material by microorganisms with significant changes in pH, concentration of salts, evolution of ammonia and extensive generation of heat. This heat generation results in destruction of most of the microorganisms and very importantly the weed seeds from the starting material. When mature the compost provides a nutrient, and organic matter rich material that, used in moderate quantity, will facilitate plant growth and optimize soil conditions.

Note that "used in moderate quantity" is included, because even good quality compost is not a suitable medium for plant growth because of the compost's high salt content. (See Sunland's Tip on the Effect of Salt on Plant Growth). The high salt content is the result of the concentrating effect of the composting process. Thus, a reasonable and safe rule of thumb for applying quality compost, is to apply about one cubic yard per 1000 square feet of area being amended. Or mix one part compost per 18 parts soil for backfill or other such preparations.

The maturity of compost has been mentioned above and is an important factor to consider because an immature compost will remove nitrogen from the soil. This process effectively robs plant of this essential nutrient. The reason that this happens is that the immature compost is mixed with the soil the breakdown of the immature compost is initiated again. The microorganisms require and utilize the nitrogen in the soil to aid the breakdown process, thus removing the nitrogen for use by the plants.



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The most straight forward evaluation of compost maturity is the carbon to nitrogen a (C:N) ratio. A good rule of thumb is that if the C:N value is greater than 32 the compost will take nitrogen away from soil around it. A reasonably mature compost should have a C:N ratio of 15 to 20.

The quantity of nutrients that compost can provide rapidly along with those released over time provide optimal compost utilization. It is clear that the compost is neither soil nor organic soil amendment and thus requires analysis that will provide the appropriate information. Where the plant nutrient value of the compost is concerned, it needs to be evaluated from both the standpoint of nutrients that are readily available and those that can, and will be released with further degradation of the organic constituents. From the laboratory viewpoint, this means that the compost should be evaluated as extracted for soil analysis, providing the readily available nutrients and secondly analyzed after acid digestion to evaluate the total nutrients present.

It is to the compost users advantage to know that they have a "MATURE" compost. Further, knowing the compost contribution to general soil nutrition also allows proper fertilization planning. Sunland can provide this maturity evaluation as well as nutrient information in our XTP.3 or XTP.4 analysis packages.