PENNSTATE

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Agricultural Analytical Services Laboratory
The Pennsylvania State University
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Analysis Report For:	Copy To:
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LAB ID:	SAMPLE ID:	REPORT DATE:	DATE SAMPLED:	COUNTY:
M02551	Sample C Compost	12/4/2002	10/10/'02	

COMPOST ANALYSIS REPORT

Compost Test 1B

Analyte	Results (As is basis) (Weight basis)	Results (As is basis) (Volume Basis*)	Results (Dry weight basis)
pH	7.9	—	—
Soluble Salts (1:5; w:w)	4.96 mmhos/cm	—	—
Bulk Density[1]	—	1127 lb/yd^3	—
Solids	56.4 %	636 lb/yd^3	—
Moisture	43.6 %	492 lb/yd^3	—
Organic Matter	23.6 %	267 lb/yd^3	41.9 %
Total Nitrogen (N)	1.21 %	13.68 lb/yd^3	2.15 %
Organic Nitrogen[2]	1.20 %	13.52 lb/yd^3	2.13 %
Ammonium N (NH_4-N)	142 mg/kg	0.16 lb/yd^3	252 mg/kg
Carbon (C)	13.6 %	153 lb/yd^3	24.1 %
Carbon:Nitrogen (C:N) Ratio	11.2	—	11.2
Phosphorus (as P_2O_5)[3]	0.40 %	4.53 lb/yd^3	0.71 %
Potassium (as K_2O)[3]	0.73 %	8.28 lb/yd^3	1.30 %

[1] Volume results are calculated on the basis of laboratory-determined compost bulk density

[2] See comments on back of report .

[3] To convert phosphorus as (P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most applications. pH is not a measure of the total acidity or alkalinity and cannnot be used to predict the compost effect on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conducity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmho/cm). Composts typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Mositure

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % mositure). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH4-N), and nitrate N (NO3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_3-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 % per year. However, mineralization of organic N into available inorganic forms depends on the C:N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the sample. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize N if applied to soil, while those with low C:N ratios (< 20) will mineralize organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indicationof the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.