

Compost Report Interpretation Guide

% Solids, % Moisture

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 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 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter (Volatile Solids)

There is no ideal organic matter level for feedstocks (initial ingredients) 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 %. Organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

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.

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. NO₃-N is generally present in only low concentrations in immature composts, although may increase as the compost matures. NH₄-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, NH₄-N and NO₃-N, from total N. However, because NO₃-N levels are generally very low, total nitrogen minus NH₃-N provides a good estimate of organic N in most composts. In stable, finished composts, most of the N should be in the organic form. While NH₄-N and NO₃-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.

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 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.

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 cannot be used to predict the compost effect on soil pH.

Conductivity (Soluble Salts)

Soluble salts are determined by measuring electrical conductivity (EC) in a saturated media paste. EC is related to the total soluble salts dissolved in the slurry and is measured in units 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 less than 4 mmho/cm and testing prior to use is recommended.

Phosphorus, Potassium and other elements

Phosphorus (P) and potassium (K) are plant macronutrients. These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.