



## Guidance for Operational Records Form:

This form represents a sample format of the records that must be kept according to Section 11521(4)(d)(ii). The form can be changed to meet your individual needs but it must contain all the information contained on this example. This form should NOT be sent to the DEQ as part of your yearly reporting requirements but, if requested, it or a form similar to it, should be made available to staff during a site inspection.

Composting is the aerobic, or oxygen requiring, decomposition of organic materials by microorganisms under controlled conditions. It is the same process that decays leaves and other organic debris in nature. Composting merely controls the conditions so that materials can decompose faster. The composting process produces heat, which drives off moisture destroys pathogens and weed seeds, and generates carbon dioxide. With good management, it produces a minimum of odors. The factors that influence composting include:

**C:N ratio** – Organic materials must be appropriately mixed to provide nutrients needed for microbial activity and growth, including a balanced supply of carbon and nitrogen. The preferred range is between 25:1 to 30:1 but ranges between 20:1 to 40:1 will also work. The C:N ratio of the pile can either be tested at a lab or estimated using various programs on the internet.

**Oxygen** – Sufficient levels of oxygen must be maintained in order to minimize the conditions that facilitate the excess growth of odor causing microbes. It is preferred that the oxygen content be maintained at a level greater than 5 percent. Factors that decrease oxygen concentration include too much moisture, small material size that increases pile density, pile sizes that are too large (especially piles in excess of 12 feet tall), and piles that are turned infrequently.

**Moisture** – Sufficient moisture must be maintained to permit biological activity without hindering aeration. The ideal moisture range is between 50 percent and 60 percent. Moisture between 40 percent and 65 percent work but this may affect the oxygen content or require a longer time for the materials to compost. As a rule of thumb, materials are too wet if water can be squeezed out of a handful of material and too dry if the handful does not feel moist to the touch.

**Temperature** – temperatures must be maintained that encourage vigorous microbial activity. A well run composting process will achieve temperature ranges between 130 and 140 degrees F. Temperature ranges between 110 and 150 degrees F have also shown to be sufficient. Temperature should be taken at the middle depth of the pile, every 10 to 20 feet and the average temperature recorded. The instrument used to measure temperature should be of sufficient length to reach the center of the pile.

The preceding guidance was adapted from the *Michigan Compost Operator Training Certificate Course* and the *On-Farm Composting Handbook*. Additional guidance to assist in composting yard wastes can be found in the Frequently Asked Questions document posted on the composting web site located at [www.Michigan.gov/deq/](http://www.Michigan.gov/deq/) by clicking on, “Waste,” then “Solid Waste,” and then “Composting.”