



## Best Practices in Wood Waste Recycling

### *Quality Specification for Composting Applications*

#### **Material: Wood Waste**

**Issue:** A clear understanding of the desired specification is necessary for wood waste processors to produce a feedstock suitable for composting, whether that material is to be used by the processor themselves or sold to another company. For composting, the critical characteristics may include:

- acceptable size distribution
- allowable contamination levels

*Failure to comply with specifications for utilization of wood waste in this application will lead to performance problems and dissatisfied customers.*

**Best Practice:** This best practice recommends that suppliers (processors) of wood waste and potential end-users come to a clear understanding of quality requirements for compost feedstocks. Written specifications should be developed and made available to purchasers of the compost feedstocks, or developed cooperatively with potential customers.

The appropriate specification for compost feedstocks will vary significantly depending on the actual application and mix of materials. Research into local needs and applications is absolutely necessary to ensure an acceptable feedstock product. In some cases, trial and error may be necessary to determine optimal chip size and other characteristics. Bearing in mind the need to tailor compost feedstocks for each application, wood waste feedstocks can generally be placed into one of two broad applications: bulking agents and carbon sources.

Provided below are general specifications for the two primary compost feedstock applications. The use of wood waste derived feedstocks for a bulking agent requires a coarser grade of material that will be screened out after composting and reused. In this case, the size and other characteristics of the wood chip must be tailored to the aeration system and other operational parameters. As a carbon source, the primary purpose of the wood waste feedstock is to break down during the composting process, and thus a finer grade of material is required. Hybrid applications, with wood waste feedstock used for both purposes, are also possible.

#### Wood Species

There are typically no limits on the acceptable types of tree species or on the softwood-hardwood mix for this product. However, substantial amounts of certain varieties should be avoided. Species that should be avoided include Black Walnut and some Cedars, as these contain compounds that inhibit plant growth or may not be completely broken down in the composting process. Cedars and certain other species are also more resistant to being composted and so could be less effective as a carbon source, although small amounts of these species have not been shown to be a problem.

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### Size Distribution

|                             | <u>Bulking Agent</u> | <u>Carbon Source</u> |
|-----------------------------|----------------------|----------------------|
| Length:                     | 2 - 8" (50-200 mm)   | max. 1" (25 mm)      |
| Overs:                      | Varies               | (> 1"), max. 15%     |
| Thickness:                  | Not critical         | Not critical         |
| Width:                      | Not critical         | Not critical         |
| Fines under 0.25 in. (6 mm) | Varies*              | Not critical         |

\* more or less fines would be desirable depending on the extent to which the wood waste is also intended to act as a carbon source.

### Acceptable Geometry

A coarse/shredded material is typically acceptable instead of a chipped material.

### Maximum Allowable Contamination Levels \*\*

|                          | <u>Bulking Agent</u> | <u>Carbon Source</u> |
|--------------------------|----------------------|----------------------|
| Rot:                     | 5%                   | Not critical         |
| Bark                     | Not critical         | 10%                  |
| Dirt, rock, sand         | 10%                  | 10%                  |
| Metals                   | 0.25%                | 0.25%                |
| Plywood                  | 5%                   | 0.5%                 |
| Particleboard            | 5%                   | 0.5%                 |
| Wood with laminates      | 2%                   | 0.1%                 |
| Plastics                 | Trace                | Trace                |
| Painted wood             | 0.1%                 | 0.1%                 |
| Treated wood             | 0.1%                 | 0.1%                 |
| Other non-wood materials | Trace                | Trace                |

\*\* Contamination limits are highly variable depending on the compost facility's operating conditions, end-markets for the finished compost, and other factors.

### Color/Brightness

Color and brightness are generally not important.

### Moisture

Moisture requirements will vary depending on the facility, in particular depending on the moisture content of other feedstocks.

**Implementation:** In the course of adapting processing systems to produce a feedstock for composting purposes, wood waste processors should work with each potential buyer to determine optimal specifications for their application. Wood waste processors should then monitor their compliance with the developed specifications through a consistent QA/QC program that controls incoming material before processing, tests the finished compost feedstock that is produced after processing, and also occasionally tests the performance of the feedstock by examining the finished compost.

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**Benefits:** Providing a consistent and high-quality feedstock for composting will improve the marketability of the processor's product or the success of in-house composting operations, potentially increasing both the price and volume of the material sold.

**Application Site:** This Best Practice applies to wood-waste processing facilities.

**Contact:** For more information about this Best Practice, contact CWC, (206) 443-7746, e-mail [info@cw.org](mailto:info@cw.org).

**References:**

1. Hoeck, Jack. Rexius Forest Products, Eugene, OR.
2. Hlavka, Rick. Green Solutions, South Prairie, WA..
3. Sargent, Bob. Rainier Wood Recyclers, Kent, WA.

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