



## Best Practices in Wood Waste Recycling

### ***Techniques to Minimize Wear in Size-Reduction Equipment***

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

**Issue:** *All wood acts abrasively on processing equipment. Recovered wood waste is especially abrasive because of the presence of non-wood contaminants within it. The abrasive characteristics of wood waste cause short- and long-term equipment maintenance problems. These maintenance problems include excessive wear on size-reduction equipment and material-handling equipment. Overall, the abrasiveness of the wood itself leads to long-term equipment wear problems, although normal wear on sensitive pieces like chipper blades requires regular sharpening. The non-wood contaminants, however, will sometimes lead to short-term, or even catastrophic, equipment wear problems.*

**Best Practice:** This Best Practice recommends implementing several techniques at wood-waste processing facilities that minimize wear in size-reduction equipment and material-handling equipment.

#### ***Wear-Minimizing Methods***

**Fines Removal.** Fine sawdust, dirt, and grit are especially abrasive materials common at wood-waste processing facilities. These small particles can find their way into every mechanical system and cause extensive equipment wear problems. Every effort should be made to screen these *fines* and all small wood from the large pieces of wood waste early in the process. The screened fines can be designated for low-value hogged fuel or mulch products.

**Strategic Reinforcement.** Heavy-wear areas in the size-reduction equipment can be reinforced with a hard steel alloy such as T-1 or AR plate. Lining strategic areas of the machinery with these hard steel alloys reduces the rate of wear.

#### ***Wear-Minimizing Equipment***

**Plastic Friction Liners.** Using plastic friction liners such as UHMW (ultra high molecular weight) Polyethylene sheets in the troughs of chain conveyors greatly extends the equipment life. Not all conveyors can accommodate these liners, in which case steel plate works better.

**Shear Pins.** The impact surfaces (knife-to-anvil surface or hammer-to-grate surface) in size-reduction equipment should be equipped with shearing pins to avoid catastrophic damage from hard contaminants. If a large hard contaminant is fed into the size-reduction equipment, a fast-acting overload shear pin reduces damage from the shock load.

**Implementation:** Wood-waste processors should design their facility to remove highly abrasive materials early in processing. Operators should also look for opportunities to install reinforcements or

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friction reducing lines to protect against excessive wear. Quality size-reduction equipment should offer shear pins as an available feature.

**Benefits:** The implementation of several measures to minimize equipment wear reduces operating maintenance costs and reduces down-time. Some measures can also protect expensive size-reduction equipment against catastrophic damage.

**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. Portland Metropolitan Service District. "Investigation of Alternative Markets for Recycled Wood." Prepared by International Resources Unlimited, Inc.. Eugene, OR. 1992.
2. Walsh, Dan. Northwest Wood and Fiber Recovery; Portland, OR.

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