



Best Practices in Wood Waste Recycling

Sorting Techniques for Manual Contaminant Removal

Material: Wood Waste

Issue: *Materials that are delivered to a wood waste processing facility contain a myriad of non-wood contaminants. These contaminants include small pieces of metal (e.g., nails, fasteners), dirt, chemicals, lead-based paint, and other trace materials. Certain quantities of these contaminants must be removed to ensure the wood can be processed and the end-product is marketable. A piece of processing equipment alone, such as a ferrous magnet or an air separation system, might be insufficient to obtain the required level of cleanliness. As a result, a manual sorting system might be a viable option to augment the processing equipment. However, there are a number of factors to consider: the location of the facility, the labor pool, and labor rates in the area. Implementing a combination of mechanical and manual sorting systems requires adopting or establishing quality control standards and issuing adherence by all personnel, throughout the facility.*

Best Practice: This Best Practice recommends implementing a manual sorting system by line sorters in addition to a facility tipping fee/charge system. The tipping fee/charge system ensures marketable wood-base materials are produced by managing the quality of waste-loads delivered to the facility before they reach the manual sorting system. Size variations of feedstock and types of materials that could potentially contaminate the wood waste present a challenge to the processing facility. The following practices are recommended to overcome these challenges and control the quality of the finished product:

- Place a mobile shear-sizing equipment at the receiving side of the plant
- Use screening equipment to remove and control the fine materials
- Capture the ferrous metal with magnets
- Establish a series of manual sorting systems

The following are recommended elements for implementing a manual sorting system:

- Receiving, Set-Up, And In-Feed Procedures
- Burden-Depth And -Size Fractioning
- Positive Versus Negative Sorting
- Processing Line Turns
- Finished Product Storage Areas And Procedures
- Residuals Management
- Quality Control
- Sorting Staff Selection, Training, And Management

Implementation: Load the wood waste material onto a conveyor belt to accommodate existing processed or shredded material. The conveyor belt should be wide enough to provide a maximum of four-inch burden-depth while maintaining the processing rate of the equipment. Additional size-reduction equipment and air separation subsystem for small paper/plastic materials might be required. This requirement depends upon the quality of the feedstock and the size-control required to market the wood

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fraction materials. However, an eight-inch burden-depth is required if the manual sorting system involves larger-sized material that were not reduced in size previously. Additionally, the materials should be subject to at least one waterfall section to ensure materials turn over and become visible to the personnel removing contaminants downstream. Sorters on both sides of the conveyor belt are required when incoming materials are about 48-inches (ground material) and 54-inches (raw materials) wide. These materials typically originate from construction waste containers and demolition sites. At a minimum, four sorters would be required to ensure high quality end-products and accommodate the various levels of contamination, size of the contaminants, and processing equipment systems.

Benefits: The quality, consistency, and marketability of the end-product depends upon the cleanliness and quality of the incoming wood waste. However, the benefits of combining mechanical and manual sorting systems are determined by its ability to:

- Reduce disparate types of wood waste to a consistent, smaller size and shape
- Reduce the contamination to an acceptable and consistent level
- Process high volumes despite the diversity of feedstocks and possible contaminants
- Adjust to market changes
- Remain competitive
- Maintain operational capacity despite contamination problems or major specification changes

Maintaining an efficient and cost-effective sorting system requires a set of quality control standards, good management, and a competent, motivated work force. Otherwise, the degradation of the system could become a liability. A manual sorting system adds value to the finished product, provides flexibility to respond to market changes, and offers a profitable operation.

Application Site: Processing Facility.

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

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