



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection

Utilization of Wood Residue

Wood Residue Problems

Chemically treated and virgin wood residue is a serious issue facing wood manufacturers. Large quantities of sawdust, wood chips, slab wood, pallets and bark are manufacturing by-products. Environmental regulations require safe storage, handling and disposal of these materials because residue volume, transportation costs and low market value pose serious problems.

Chemically Treated Wood

Environmental concerns stem from the use of preservation agents and chemically contaminated wood. Preservation agents include chromated copper arsenate (CCA), ammoniacal copper zinc arsenate (ACZA), ammoniacal copper quaternary compound (ACQ), pentachlorophenol, and creosote, used to weatherize wood for durability.

Creosote-treated wood residues can be burned to recover energy in high-temperature municipal or industrial incinerators. Landfill disposal, however, remains the primary acceptable option for management of chemically treated wood residues or virgin wood residues contaminated by exposure to chemical products or wastes.

Fuel

Virgin hardwood and softwood residues make good fuel in commercial and industrial settings. Approximately 7 million BTUs per ton are produced from incinerating green wood residue (75 percent moisture content) as a fuel. Dry wood residue (10 percent moisture content), such as planer shavings from kiln-dried lumber, produces about 13 million BTUs per ton.

Wood densification, which is the compression of uniformly sized hard or softwood particles into a wood-fuel product, provides a marketing opportunity for wood bi-products. Compressed wood logs produce the same heat as cord wood, burn longer and reduce smoke emissions and ash, but densified fuels are the green alternative. Because of the prohibitive cost of processing densified wood waste,

transporting wood residue to an existing commercial densifying operation may be an option.

Composting and Mulching

Composting incorporates both residual wood and organic waste streams and produces high quality, nutrient rich fertilizer. Consolidation of these dual waste streams into a useable and saleable commodity represents a marketing opportunity to farmers, residential gardeners, landscaping operations, plant nurseries and other businesses that regularly use compost.

Hardwood residues are an excellent carbon source for the composting of organic wastes such as manure, food processing waste or biosolids. Virgin wood residues improve soil tilth when blended properly. Ammonium nitrate is needed at a blend of 100 pounds per ton of wood to offset "nitrogen starvation" caused by wood decomposition. Composting wood residues and other pre-decomposition activities prior to spreading can minimize nitrogen starvation.

Wood waste can be processed to make ground cover or decorative landscaping material. Municipalities will mulch in an effort to recycle residential yard waste. Businesses mulch uncontaminated pallets or other virgin wood by-products for a variety of uses. Mulch generated by a business makes good on-site landscaping and, with approval from the local municipality, small amounts of virgin wood waste may be added to the community-mulching program.

Animal Bedding

Virgin sawdust is frequently used as animal bedding and litter products. Over 12,000 pet stores and countless farms need virgin wood chips, shavings, and sawdust, especially from pine, cedar, cottonwood, aspen and basswood.

Packaging

Wood is the traditional packaging material in fruit boxes and crates but plastic products have begun to replace wood as packaging material. Environmentally conscious consumers will prefer biodegradable packaging and, therefore, increase the use of wood residue. Wood-manufacturing facilities should seek out companies that use environmentally correct packaging materials as a means of disposing of wood remnants.

Specialty Products

Wood pieces generated by manufacturing operations are marketable in the specialty wood products industry. Dowels, gavels, handles, baskets, cutting boards, craft wood and knobs are examples of those products. Many mills find that short pieces of lumber can be dried and sold to schools and hobbyists for \$3 per board foot. A Wisconsin-based wood manufacturer has sold bulk-dried trim for up to \$.50 per pound.

The generation, processing (including composting and mulching), storage and disposal of wood residues are regulated activities. Generators of contaminated or virgin wood residues should contact their regional DEP office to ensure all wood residue management alternatives are consistent with environmental protection requirements.

By-Product Utilization Quicklist

Slabs and Pieces

- √ fuel
- √ specialty wood for crafts

Wood Sawdust

- √ fuel
- √ color chips for mulch
- √ composting
- √ packaging
- √ animal bedding

Chips

- √ fuel
- √ pulp production
- √ mulch
- √ composting
- √ packaging
- √ animal bedding

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