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Fuels For Schools & Communities

Recommended Wood Fuel Specifications, PA Fuels for Schools and Communities

http://www.pafuelsforschools.psu.edu/resources/fuelstandards.asp
Approved for release January 2015
Drafted by industry/equipment manufacturers
Vetted by boiler operators
Wood Fuel Standard & Specification
PA Fuels for Schools & Communities

<table>
<thead>
<tr>
<th>Wood Species or Type</th>
<th>Moisture Content (% by weight)</th>
<th>BTU/Energy Value as Received (per lb.)</th>
<th>Smallest Wood Particle Size</th>
<th>Largest Wood Particle Size</th>
<th>Contains Bark, Leaves, Twigs etc.</th>
<th>% Overs (oversized material)</th>
<th>Ash Content (% by weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATEGORY A: Medium Clean Chip</td>
<td>&gt;65% hardwood, &quot;virgin wood&quot; only, no greater than 50% (wet basis)</td>
<td>greater than 5000 btu per lb (HHV) as received</td>
<td>3/4&quot; (max dimension), no sander dust or wood flour</td>
<td>not to exceed 3&quot; x 3&quot; x 1/2&quot;</td>
<td>yes</td>
<td>not to exceed 1% by weight</td>
<td>not to exceed 1% by weight</td>
</tr>
<tr>
<td>CATEGORY B: SRWC Chip</td>
<td>Short rotation woody crop, &quot;virgin wood&quot; only, no greater than 50% (wet basis)</td>
<td>greater than 5000 btu per lb (HHV) as received</td>
<td>3/4&quot; (max dimension), no sander dust or wood flour</td>
<td>not to exceed 3&quot; x 3&quot; x 1&quot;</td>
<td>yes</td>
<td>not to exceed 1% by weight</td>
<td>not to exceed 3% by weight</td>
</tr>
<tr>
<td>CATEGORY C: Medium Variable Chip</td>
<td>hardwood or softwood, &quot;virgin wood&quot; only, no greater than 50% (wet basis)</td>
<td>greater than 4500 btu per lb (HHV) as received</td>
<td>3/4&quot; (max dimension), no sander dust or wood flour</td>
<td>not to exceed 3&quot; x 3&quot; x 1/2&quot;</td>
<td>yes</td>
<td>not to exceed 5% by weight</td>
<td>not to exceed 3% by weight</td>
</tr>
</tbody>
</table>

Note: for the purpose of this spec, "hardwood" refers to higher density species of hardwoods such as oak and maple, rather than aspen, poplar, etc.

Note: fuels must not contain any dirt, rocks, or debris.

Note: fuels must not contain any paint, glue, chemical treatments, or other manufactured or hazardous materials (no C&D waste).

Map of PA by regions and counties.
Each county name followed in parentheses by number of facilities that participated in the survey and number of known facilities in that county.
430 facilities identified to be surveyed
- across 62 of the 67 counties in PA
312 businesses participated
Statewide participant rate = 73%
Total production reported = 185 million cubic feet
- equivalent to 1.2 billion board feet of wood
253 facilities reporting
With a Growth Rate of 2.5% on 17 million forested acres, could have a Sustainable Annual Harvest = 12 million grn tons
As a Reference:
* Early 1990's = used 6 million grn tons
* Early 2000's = used 2 million grn tons (PSU)
* 2014 TPO report = 185 mm cu ft / 33 cu ft per grn ton
  = 5.6 million grn tons
  (as reported by 253 mills)

2.0 million green tons (66.3. million cubic feet) of residues reported by 192 mills.
- Bark, coarse and sawdust compose most of the residue volume -- at 41%, 32% and 23%
- 39% of all residues made into mulch/soil additive -- 81% of that volume from bark
- 16% of the reported residues used in the manufacture of fiber/composite products
- 17% of the total residue used for animal bedding -- mostly shavings and sawdust
- 8% of the total residue volume used for bio-energy pellets -- coarse, sawdust, and shavings
  - 160,000 grn tons