

**Renewable Biomass Group
Potential Emission Calculations**

Table C-26. Pellet Mills and Pellet Coolers Potential VOC and HAP Emissions

Pollutant	factor (lb/ton)	Units	Control Efficiency ⁵ (%)	Potential Emissions ⁶	
				(lb/hr)	(tpy)
VOC ¹	0.50	lb/ton	95%	1.42	6.21
Acetaldehyde ¹	1.00E-03	lb/ton	95%	0.00	0.01
Formaldehyde ¹	2.00E-03	lb/ton	95%	0.01	0.02
Methanol ¹	1.00E-03	lb/ton	95%	0.00	0.01
Acrolein ²	5.84E-06	lb/ft ³	95%	8.29E-04	0.00
Phenol ²	1.07E-04	lb/ft ³	95%	0.02	0.07
Propionaldehyde ³	1.08E-02	lb/ton	95%	0.03	0.13
Total HAP ⁴	-	-		0.06	0.25

1. Emission factors from GA EPD guidance for pelletizers and pellet mills (without steam injection or extraction) at Wood Pellets Facilities. Emissions are quantified from the overall pelletizing and pellet milling processes, not individually by each component. Therefore, annual emissions are based on the annual throughputs through the overall pelletizing and pellet milling process.

2. Uncontrolled emission factors from AP-42 Section 10.6.2 (Particleboard Manufacturing) Table 10.6.2-6, Board Cooler, UF resin (06/02). Emission factors are converted from lb/MSF to lb/ft³ using the conversion (0.26 kg/m³ = 1 lb/MSF 3/4) provided in Footnote a of Table 10.6.2-6.

$$\text{Factor Conversion } 0.26 \text{ kg/m}^3 = 0.016 \text{ lb/ft}^3$$

3. Emission factors from Enviva Pellets Sampson (NC) permit application from pellet mill/pellet cooler testing.

4. Total HAP is the sum of all individual HAP emissions.

5. Per GA EPD guidance for storage/handling at Wood Pellets Facilities, a 95% DRE is applied for VOC and HAP emissions routed to an RTO. Emissions from the pellet mills and pellet coolers will be routed to the dryer and will be treated through the RTO.

6. Potential emissions are calculated as follows:

$$\text{Potential Emissions (lb/hour)} = \text{Potential Emissions (tpy)} * 2,000 \text{ (lb/ton)} / \text{Annual Operation (hr/yr)}$$

$$\text{Potential Emissions (tons/year)} = \text{Emission Factor (lb/ton)} * (1 - \text{Control Efficiency (\%)}) * \text{Annual Throughput (tons/year)} / 2,000 \text{ (lbs/ton)}$$

$$\text{Potential Emissions (tons/year)} = \text{Emission Factor (lb/ft}^3\text{)} * \text{Annual Volumetric Throughput (ft}^3\text{/year)} / 2,000 \text{ (lbs/ton)}$$

Where annual emissions assume 8,760 hours of operation per year for conservatism.