

MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT) STANDARDS DEVELOPMENT INFORMATION COLLECTION REQUEST

Engineered Wood Products

I. Instructions

This information request is to be completed for operations that comprise the plywood and particleboard manufacturing source category at your plant. The plywood and particleboard source category includes facilities that manufacture oriented strandboard (OSB), waferboard, hardboard, fiberboard, medium density fiberboard (MDF), particleboard (including particleboard made from straw and/or other agricultural fibers), hardwood and softwood plywood, hardwood and softwood veneer. The source category also includes structural composite lumber (e.g., laminated veneer lumber [LVL], laminated strand lumber [LSL], parallel strand lumber [PSL]) and other engineered wood products such as glue-laminated beams and I-joists. In addition, the plywood and particleboard source category may also include lumber drying kilns. Therefore, this survey is requesting information on lumber kilns which are located on the same site as (co-located with) a facility that manufactures any of the wood products mentioned above. This survey does not include stand-alone sawmill operations.

We are requesting plant-specific information on operations at your facility that use or emit hazardous air pollutants (HAP's). Fill out this information request as completely as possible from existing information. At a minimum, provide information on the presence of HAP emissions. No additional monitoring or emission testing is required by your company to respond to this request. If the answer to a question is unknown (UK), unavailable (UA), or not applicable (NA), respondents should state whichever of these is applicable, rather than leaving the survey block blank.

The EPA understands that some of the requested information (e.g., annual production rates, may be considered confidential business information (CBI) by the survey respondents. As explained in the cover letter to this survey, EPA and its contractor will follow established procedures for protecting CBI. However, respondents must indicate which information in their survey responses they wish to claim as CBI. To assist the respondents, EPA has included a footnote at the bottom of each page of the survey that asks the respondent to indicate if the information entered on that page is confidential, nonconfidential, or partially confidential. Respondents that mark "partially confidential" are then asked to circle the specific responses that are considered CBI. Respondents should refer to the Enclosure 2 of the cover letter for information on what EPA considers CBI. For example, publicly available information and emissions data are not eligible for confidentiality claims.

If you have any questions regarding this request, please contact Ms. Penny Lassiter of EPA at (919) 541-5396 or by E-mail at lassiter.penny@epamail.epa.gov; Ms. Rebecca Nicholson of MRI at (919) 851-8181, ext. 5452 or bnicholson@mriresearch.org; or Ms. Katie Hanks of MRI at (919) 851-8181, ext. 5175 or khanks@mriresearch.org. For your convenience, we have provided in Attachment A additional information on the scope and purpose of this survey.

F. Size of company:

- 1. Please indicate below the approximate number of employees (worldwide) in the business enterprise that owns this plant, including where applicable the parent company (specified in question E above) and all subsidiaries, branches, and unrelated establishments owned by the parent company.

<50 100-249 500-999 >1,500
 50-99 250-499 1,000-1,499

- 2. Please indicate below the total number of employees at all facilities located at this site.

<50 100-249 500-999 >1,500
 50-99 250-499 1,000-1,499

- 3. Are there any manufacturing operations at your facility that are not related to the production of engineered wood products? If so, please describe the operations and indicate the number of employees associated with the operations.

G. From the list provided below, please check the wood products manufactured at your facility.

- Laminated veneer lumber
- Parallel strand lumber
- Laminated strand lumber
- Glue-laminated beams
- Wood I-joists
- Kiln-dried lumber
- Other (please specify) _____
- Other (please specify) _____

H. In Table 1 below, please provide 1997 gross annual production and the annual plant operating capacity for each of the products checked in question G above. Use units of cubic feet (ft³/yr) for LVL, PSL, and LSL; million board feet (MMBF/yr) for glue-laminated beams and kiln-dried lumber; and lineal feet (ft/yr) for I-joists. Please provide appropriate units for any other wood products you listed in question G above.

- B. Please describe any planned expansions or additions of production equipment approved in the corporate budget for the next 5 years that will alter the production information provided in questions II.H, II.I, and III.A above. Are any of the expansions or equipment additions expected to alter air emissions from the plant?

- C. Describe any factors not addressed in the above questions that might distinguish your facility from other engineered wood products plants.

IV. Wood Drying

Please complete Table 3-A for rotary dryers (and predryers), Table 3-B for veneer dryers, and Table 3-C for any co-located lumber kilns. Tables 3-A through 3-C are included at the end of this questionnaire. Complete only those tables that apply to your facility. Make additional copies of the tables if needed. Skip ahead to section V if your plant does not dry wood. If your plant dries wood in a dryer other than a rotary dryer, veneer dryer, or lumber kiln, please describe the drying process below.

V. Resins, Additives, and Other Chemical Compounds

Please list in Table 4 (at the end of this questionnaire) the types and amounts of resins, additives, and other chemical compounds used per year to manufacture engineered wood products. Do not include resins, additives, or compounds used for surface coating, printing, or laminating films over wood products. Resin, additive and other compound usage data should be based on 1997 levels. If you manufacture more than one type of engineered wood product, please make sure that you specify which product each resin is used for.

VI. Resin Curing and Pressing

What process is used to cure resin in wood products manufactured at the plant (check all that apply below)? Complete Table 5 (at the end of this questionnaire) for each press or resin curing device at the facility.

- continuous room temperature press
- batch room temperature press
- continuous hot press
- batch hot press
- infrared tunnel
- heated clamps
- radio frequency press/dryer
- room temperature clamps
- other (specify _____)

VII. Facility Emissions

A. Complete a separate Table 6 for each process line identified in Question II.G. Each unit operation at your facility that is a source of HAP emissions and has not already been listed in your response to this questionnaire should be listed in Table 6. DO NOT include the dryers and presses that you have already listed in Tables 3-A, 3-B, 3-C, or 5. Emission sources such as sanding and sawing operations and pneumatic conveying systems for wood material should NOT be listed in Table 6. If the exhaust gas flowrates from some unit operations that you list in Table 6 are unknown or cannot be accurately estimated, write “not available” in the flow rate column. Ranges of flow rates or moisture contents can be listed for sources with variable flows and moisture contents.

B. Are there any processes not covered under this questionnaire (e.g., wood treatment) that are directly related to the manufacture of the products checked in question II.G above which use or emit HAP? If so, please describe the processes below.

C. Emission Test Data:

1. Have any emission sources at your facility been tested for HAP's since *January 1, 1995*? (Check one)
 - Yes (Continue with Question 2, below.)
 - No (Skip to Section VIII, below.)

2. Using Table 7, identify each emission point that has been tested for HAP's since January 1, 1995; describe the sampling location (e.g., "after the wet ESP"); provide the date the tests took place; specify which pollutants were tested; and list the source test methods used to measure each pollutant.

3. Do the test report(s) include process data (e.g., dryer throughput) such that emission factors could be developed that relate emissions to process parameters such as production? (Check one)
 - Yes (Continue with Question 4, below.)
 - Some do, some don't (Continue with Question 4 below.)
 - No (Skip to Section VIII, below. A copy of the test report is not required at this time, but may be requested at a later date.)

4. Have the results of the HAP emissions tests performed since January 1, 1995 been submitted to (please check):
 - a. EPA? Yes No
If yes, list EPA Division/contact name: _____
 - b. NCASI? Yes No

If the answers to Questions 4a and 4b are both No, please submit a complete copy of the test report(s) with your response to this survey.

If the answer to either Question 4a or 4b is Yes, a copy of the test report(s) is not required at this time, but may be requested at a later date.

TABLE 3-A: ROTARY DRYERS

ROTARY DRYERS	DRYER NO. _____	DRYER NO. _____	DRYER NO. _____
Product line (from question II.G)			
1997 dryer throughput, OD tons			
1997 dryer furnish: average percent hardwood, % average percent softwood, %			
Firing method: Direct-fired or indirect-fired			
Number of passes: single-pass, double-pass, triple-pass			
Range in furnish moisture content, % dry basis At dryer inlet At dryer outlet			
Operating temperature range, °F: Dryer inlet Dryer outlet			
Exhaust gas flow rate, acfm @ °F ^a			
Percent moisture (by volume) in exhaust gas, %			
Are exhaust gases from the dryer recycled in any manner? If yes, indicate the following: - Percent recycled to blend chamber - Percent routed to combustion unit - Percent exhausted directly to atmosphere or to control device - Other percent (specify use)			
Type of air pollution control device or method (if any) ^b			

^aProvide flow rate in units of actual cubic feet per minute (acfm) and specify gas temperature.

^bIf you have an air pollution control device or method, please complete section VIII.

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TABLE 3-B: VENEER DRYERS

VENEER DRYERS	DRYER NO. _____	DRYER NO. _____	DRYER NO. _____
Product line (from question II.G)			
1997 dryer throughput (provide units)			
1997 dryer furnish: average percent hardwood, % average percent softwood, %			
Direct-fired, indirect-fired, or other (please explain)			
Dryer type: longitudinal, jet, or other (specify)			
Number of decks			
Number of zones			
Number of doors or sections			
Target veneer dryness (% moisture, dry basis)			
Zone 1 temperature range, °F Zone 2 temperature range, °F Zone 3 temperature range, °F			
Exhaust gas flow rate, acfm @ °F ^{a, b}			
Percent moisture (by volume) in exhaust gas, %			
Are exhaust gases from the dryer recycled in any manner? If yes, indicate the following: - Percent recycled to blend chamber - Percent routed to combustion unit - Percent exhausted directly to atmosphere or to control device - Other percent (specify use)			
Type of air pollution control device or method (if any) ^c			

^aProvide flow rate in units of actual cubic feet per minute (acfm) and specify gas temperature.

^bIf exhaust from each zone passes through a separate stack and is not combined downstream of the veneer dryer prior to entering the atmosphere, please provide exhaust flow rates for each zone.

^cIf you have an air pollution control device or method, please complete section VIII.

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TABLE 3-C: CO-LOCATED LUMBER KILNS

LUMBER KILNS	KILN NO. _____	KILN NO. _____	KILN NO. _____
Product line (from question II.G)			
1997 throughput, MBF/yr ^a			
1997 kiln furnish: average percent hardwood, % average percent softwood, %			
Firing method: Direct-fired or indirect-fired			
Range in lumber moisture: green lumber, % moisture, dry basis dried lumber, % moisture, dry basis			
Range of kiln drying cycle length, hr			
Total number of vents			
What percentage (if any) of kiln exhaust gases are recirculated to a combustion unit?			
Type of air pollution control device or method (if any) ^b			

^aMBF/cycle - thousand board feet per year

^bIf you have an air pollution control device or method, please complete section VIII.

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TABLE 4: FORMULATION AND USAGE OF RESINS, ADDITIVES,
AND OTHER COMPOUNDS

Resin/adhesive or additive type ^a	Range in percent solids by weight ^b	Density (lb/gal) ^b	Total annual usage ^c	Range in HAP content and percent by weight ^d
<i>Example: liquid phenol-formaldehyde resin used in LVL</i>	35-40%	10.8 lb/gal	951,282 gal/yr	0.1-0.3% free formaldehyde 1-1.5% phenol

^aList only major resin/adhesive or additive types for each product. A range in percent solids and HAP content is requested to account for any seasonal variations in resin/adhesives or additives.

^bComplete this column for liquids only ($1 \text{ g/cm}^3 = 8.3452 \text{ lb/gal}$)

^cIndicate total annual resin usage (i.e., amount of resin used including water and solids). Please specify units (e.g., ton/yr or gal/yr)

^dBe sure to report the free formaldehyde content for resins containing formaldehyde; report the phenol content for phenol-formaldehyde and phenol-resorcinol-formaldehyde resins. Report the methyl diphenyl diisocyanate (MDI) content for MDI resins. For other additives and compounds, report the percent HAP by weight (if any).

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TABLE 5: PRESSES AND RESIN CURING EQUIPMENT

PRESSES/CURING EQUIPMENT	PRESS NO. _____	PRESS NO. _____	PRESS NO. _____
All Presses/Curing Equipment			
Product line (from question II.G)			
1997 press throughput, (provide units)			
Operating temperature range, °F (or room temperature)			
Heating method: hot oil, steam, or RF, IR, or other (specify)			
Type of air pollution control device or method (if any) ^a			
How is the press/press area ventilated (e.g., roof fans, enclosure)? Please describe.			
Continuous Presses/Curing Equipment			
Size of material entering press (width x height), ft			
Batch Presses/Curing Equipment			
Number of openings (for batch presses)			
Size of material pressed (length x width x height), ft (for batch presses)			
Length (or range) of press cycle, min (for batch presses)			

^aIf you have an air pollution control device or method, please complete section VIII.

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TABLE 7. EMISSIONS DATA COLLECTED SINCE JANUARY 1, 1995^a

TEST DATA	Test date: _____		Test date: _____		Test date: _____	
Name of unit operation or emission point tested						
Sampling location(s) ^b						
Pollutants (check pollutants tested and indicate test method used)	✓	Test Method Used	✓	Test Method Used	✓	Test Method Used
Methanol						
Formaldehyde						
Phenol						
Acetaldehyde						
Other HAP's (list below)						
PM/PM ₁₀ ^c						
VOC/THC ^c						

^aMake additional copies of this table as needed.

^bSampling location refers to the point(s) at which the emissions were measured (e.g., before scrubber, directly after the product cyclone, etc.).

^cFor the purposes of Table 7, only those particulate matter (PM), volatile organic compound (VOC), and total hydrocarbon (THC) data that were measured concurrently with the HAP emissions test should be listed.

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TABLE 8: AIR POLLUTION CONTROL DEVICES

CONTROL DEVICES	CONTROL ID _____	CONTROL ID _____	CONTROL ID _____
All Control Devices			
Control device type ^a			
Equipment controlled			
Manufacturer and model number			
Year installed			
Exhaust gas flow at control device inlet, acfm @ °F			
Pressure drop, in H ₂ O			
Solid material collected (provide only if material not reused onsite), lb/yr - End use/method of disposal			
Blowdown produced, gal/min - Method of disposal			
Wet Scrubbers			
Type of packing (if applicable)			
Packing material depth, ft			
Scrubber liquor recirculation rate, gal/min			
Liquid-to-gas ratio, gal/10 ³ acfm			
Inlet scrubbing liquor source of liquor pH percent solids type of alkali added, if any alkali addition rate (lbs/gal)			

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CONTROL DEVICES	CONTROL ID _____	CONTROL ID _____	CONTROL ID _____
Dry Electrostatic Precipitators			
Specific collection area, ft ² /1,000 acfm			
Particle resistivity, ohm-centimeter			
Cleaning method and frequency			
Wet Electrostatic Precipitators			
Specific collection area, ft ² /1,000 acfm			
Cleaning method and frequency			
Is WESP preceded by a quench chamber?			
Type of liquid used (e.g., pond water, recirculated)			
Water recirculation rate, gal/min			
Baghouses			
Bag material, weight, and coating (if any)			
Cleaning method and frequency			
Air to cloth ratio, acfm/ft ²			
Cyclones (excluding product separation cyclones) and Multiclones			
Number of tubes (enter 1 for cyclone)			
Tube diameter, in.			
Range of particle size, μm			
Incineration			
Type: thermal, catalytic or other (specify)			
Number of canisters			
1997 annual fuel use, provide units			

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CONTROL DEVICES	CONTROL ID _____	CONTROL ID _____	CONTROL ID _____
Gravel Beds, EFB s, and Sand Filters			
Electrified or non-electrified			
Filter bed volume, ft ³			
Number of filters			

^aPlease specify the type of control device, e.g., wet ESP, wet scrubber, baghouse, etc.

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