

## **PREPUBLICATION COPY NOTICE:**

The EPA acting administrator signed the following proposed rule on **May 23, 2013**:

### **Formaldehyde Emissions Standards for Composite Wood Products; Proposed Rule [RIN 2070-AJ92; FRL-9342-3]**

This is a **prepublication** version of the proposed rule that EPA is submitting for publication in the *Federal Register*. While the Agency has taken steps to ensure the accuracy of this Internet version of the proposed rule, it is not the official version of the proposed rule for purposes of public comment. Please refer to the official version of the proposed rule that will appear in a forthcoming *Federal Register* publication.

Once the official version of the proposed rule publishes in the *Federal Register*, the prepublication version of the proposed rule that appears on the Web site will be replaced with a link to the proposed rule that appears in the *Federal Register* publication. At that time, you will also be able to access the on-line docket for this rulemaking at <http://www.regulations.gov>. You can then use EPA's electronic docket and comment system at [www.regulations.gov](http://www.regulations.gov) to submit or view public comments, access the index listing of the contents of the docket, and to access those documents in the docket that are available electronically. The docket number for this rulemaking is **EPA-HQ-OPPT-2012-0018**. For further information about the docket and commenting, please consult the ADDRESSES section in the front of the proposed rule.

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 770**

**[EPA-HQ-OPPT-2012-0018; FRL-9342-3]**

**RIN 2070–AJ92**

**Formaldehyde Emissions Standards for Composite Wood Products**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** EPA is proposing new requirements under the Formaldehyde Standards for Composite Wood Products Act, or Title VI of the Toxic Substances Control Act (TSCA). These proposed requirements are designed to implement the statutory formaldehyde emission standards for hardwood plywood, medium-density fiberboard, and particleboard sold, supplied, offered for sale, or manufactured (including imported) in the United States. As directed by the statute, this proposal includes provisions relating to, among other things, laminated products, products made with no-added formaldehyde resins or ultra low-emitting formaldehyde resins, testing requirements, product labeling, chain of custody documentation and other recordkeeping requirements, enforcement, and product inventory sell-through provisions, including a product stockpiling prohibition. The composite wood product formaldehyde emission standards contained in TSCA Title VI are identical to the emission standards currently in place in California. This regulatory proposal implements these emissions standards and is designed to ensure compliance with the TSCA Title VI formaldehyde emission standards while aligning,

where practical, with the regulatory requirements in California.

**DATES:** Comments must be received on or before [*insert date 60 days after date of publication in the Federal Register*].

**ADDRESSES:** Submit your comments, identified by docket identification (ID) number EPA-HQ-OPPT-2012-0018, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.

- *Mail:* Document Control Office (7407M), Office of Pollution Prevention and Toxics (OPPT), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001.

- *Hand Delivery:* OPPT Document Control Office (DCO), EPA East Bldg., Rm. 6428, 1201 Constitution Ave., NW., Washington, DC. Attention: Docket ID Number EPA-HQ-OPPT-2012-0018. The DCO is open from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The telephone number for the DCO is (202) 564-8930. Such deliveries are only accepted during the DCO's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

*Instructions:* Direct your comments to docket ID number EPA-HQ-OPPT-2012-0018. EPA's policy is that all comments received will be included in the docket without change and may be made available on-line at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through [regulations.gov](http://www.regulations.gov) or e-mail. The [regulations.gov](http://www.regulations.gov) website is an "anonymous access" system, which means EPA will

not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through [regulations.gov](http://www.regulations.gov), your e-mail address will be automatically captured and included as part of the comment that is placed in the docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

*Docket:* All documents in the docket are listed in the docket index available at <http://www.regulations.gov>. Although listed in the index, some information is not publicly available, *e.g.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available electronically at <http://www.regulations.gov>, or, if only available in hard copy, at the OPPT Docket. The OPPT Docket is located in the EPA Docket Center (EPA/DC) at Rm. 3334, EPA West Bldg., 1301 Constitution Ave., NW., Washington, DC. The EPA/DC Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number of the EPA/DC Public Reading Room is (202) 566-1744, and the telephone number for the OPPT Docket is (202) 566-0280. Docket visitors are required to show photographic identification, pass through a metal detector, and sign the EPA visitor log. All visitor bags are processed through an X-ray machine and subject to search. Visitors will be provided an EPA/DC badge that must be visible at all times in the building and returned upon departure.

**FOR FURTHER INFORMATION CONTACT:** *For technical information contact:* Cindy Wheeler, National Program Chemicals Division, Office of Pollution Prevention and Toxics, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460–0001; telephone number: 202-566-0484; e-mail address: *wheeler.cindy@epa.gov*.

*For general information contact:* The TSCA-Hotline, ABVI-Goodwill, 422 South Clinton Ave., Rochester, NY 14620; telephone number: (202) 554–1404; e-mail address: *TSCA-Hotline@epa.gov*.

## **SUPPLEMENTARY INFORMATION:**

### **I. General Information**

#### *A. Does this Action Apply to Me?*

This document is directed to the public in general. However, this document may be of particular interest to the following entities:

- Veneer, plywood, and engineered wood product manufacturing (NAICS code 3212).
- Manufactured home (mobile home) manufacturing (NAICS code 321991).
- Prefabricated wood building manufacturing (NAICS code 321992).
- All other basic organic chemical manufacturing (NAICS code 325199), *e.g.*, formaldehyde manufacturing.
- Furniture and related product manufacturing (NAICS code 337).
- Furniture merchant wholesalers (NAICS code 42321).
- Lumber, plywood, millwork, and wood panel merchant wholesalers (NAICS code 42331).
- Other construction material merchant wholesalers (NAICS code 423390), *e.g.*, merchant wholesale distributors of manufactured homes (*i.e.*, mobile homes) and/or

prefabricated buildings.

- Furniture stores (NAICS code 4421).
- Building material and supplies dealers (NAICS code 4441).
- Manufactured (mobile) home dealers (NAICS code 45393).
- Motor home manufacturing (NAICS code 336213).
- Travel trailer and camper manufacturing (NAICS code 336214).
- Recreational vehicle (RV) dealers (NAICS code 441210).
- Recreational vehicle merchant wholesalers (NAICS code 423110).
- Plastics material and resin manufacturing (NAICS code 325211).

This listing is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. Other types of entities not listed in this unit could also be affected. The North American Industrial Classification System (NAICS) codes have been provided to assist you and others in determining whether this action might apply to certain entities. If you have any questions regarding the applicability of this action to a particular entity, consult the technical person listed under **FOR FURTHER INFORMATION CONTACT**.

*B. What Should I Consider as I Prepare My Comments for EPA?*

1. *Submitting CBI.* Do not submit this information to EPA through regulations.gov or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD-ROM that you mail to EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the

information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. *Tips for preparing your comments.* When submitting comments, remember to:

i. Identify the document by docket ID number and other identifying information (subject heading, **Federal Register** date and page number).

ii. Follow directions. The Agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.

iii. Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

iv. Describe any assumptions and provide any technical information and/or data that you used.

v. If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

vi. Provide specific examples to illustrate your concerns and suggest alternatives.

vii. Explain your views as clearly as possible, avoiding the use of profanity or personal threats.

viii. Make sure to submit your comments by the comment period deadline identified.

## **II. Background**

### *A. Executive Summary*

1. *Purpose of the regulatory action.* EPA is proposing a rule to implement the emission standards and other provisions of the Formaldehyde Standards for Composite Wood Products Act, enacted as Title VI of Toxic Substances Control Act (TSCA), 15 U.S.C. 2697. The purpose of TSCA Title VI is to reduce formaldehyde emissions from composite wood products. This

proposed rule would implement the emission standards established by TSCA Title VI for composite wood products sold, supplied, offered for sale, or manufactured in the United States (including imported products). TSCA Title VI directs EPA to promulgate supplementary provisions to ensure compliance with the emissions standards by January 1, 2013.

2. *Summary of the major provisions.* TSCA Title VI requires EPA to promulgate regulations that include provisions on labeling; chain of custody requirements; sell-through provisions; ultra low-emitting formaldehyde resins (ULEF); no-added formaldehyde-based resins (NAF); finished goods; third-party testing and certification; auditing and reporting of third-party certifiers (TPC); recordkeeping; enforcement; laminated products; and exceptions from regulatory requirements for products and components containing *de minimis* amounts of composite wood products. The listed topics are addressed in this proposal, with the exception of topics related to third-party certification which are being handled in a separate regulatory proposal. EPA also proposes several definitions, clarifies frequency and process requirements for emissions testing, and provides a means of determining test method equivalence. The emission standards themselves are set by statute and are not altered in this proposal.

TSCA Title VI grants EPA the authority to modify the statutory definition of “laminated product” and directs EPA to use all available and relevant information to determine whether the definition of hardwood plywood should exempt engineered veneer or any laminated product. EPA is proposing to exempt laminated products in which a wood veneer is attached to a compliant and certified platform using a NAF resin. EPA is also proposing modifications to the statutory definition of “laminated product.”

This action includes labeling requirements for composite wood panels and finished goods. It also includes “chain of custody requirements” and recordkeeping requirements with a

proposed 3-year record retention period. EPA is also proposing to specifically require TSCA section 13 import certification for composite wood products that are articles. EPA has decided not to propose an exception from any of the regulatory requirements for products containing *de minimis* amounts of composite wood products.

EPA proposes to set the manufactured-by date at 1 year after publication of the final rule in the **Federal Register**. Composite wood panels made after the manufactured-by-date would be subject to the emissions standards. Although TSCA Title VI allows EPA to set this date at 180 days after promulgation of the final implementing regulations, EPA believes that more time will be needed to ensure infrastructure is in place and allow panel producers time to develop their initial qualifying data for certification.

EPA proposes to provide producers of panels made with NAF-based resins or ULEF resins with an exemption from TPC oversight and formaldehyde emissions testing after an initial testing period of 3 months for each product type made with NAF-based resins and 6 months for each product type made with ULEF resins. These specific initial testing periods are required by the statute and are designed to ensure that the products meet the TSCA section 601(a)(7) formaldehyde emission standards for products made with NAF-based resins or the TSCA section 601(a)(10) formaldehyde emission standards for products made with ULEF resins.

3. *Costs and benefits.* EPA has prepared an analysis of the potential costs and benefits associated with this rulemaking. This analysis is summarized in greater detail in Unit V.A. Table 1 provides a brief outline of the costs and benefits of this proposal. The estimated costs of the proposed rule exceed the quantified benefits. There are additional unquantified benefits due to other avoided health effects. After assessing both the costs and the benefits of the proposal, including the unquantified benefits, EPA has made a reasoned determination that the benefits of

the proposal justify its costs.

**Table 1.--Summary of Costs and Benefits of Proposal**

<b>Category</b>	<b>Description</b>
Benefits	This proposed rule will reduce exposures to formaldehyde, resulting in benefits from avoided adverse health effects. For the subset of health effects where the results were quantified, the estimated annualized benefits (due to avoided incidence of eye irritation and nasopharyngeal cancer) are \$20 million to \$48 million per year using a 3% discount rate, and \$9 million to \$23 million per year using a 7% discount rate. There are additional unquantified benefits due to other avoided health effects.
Costs	The annualized costs of this proposed rule are estimated at \$72 million to \$81 million per year using a 3% discount rate, and \$80 million to \$89 million per year using a 7% discount rate.
Effects on State, Local, and Tribal Governments	Government entities are not expected to be subject to the rule's requirements, which apply to entities that manufacture, fabricate, distribute, or sell composite wood products. The proposed rule does not have a significant intergovernmental mandate, significant or unique effect on small governments, or have Federalism implications.
Small Entity Impacts	This rule would impact nearly 879,000 small businesses: Over 851,000 have costs impacts less than 1% of revenues, over 23,000 firms have impacts between 1% and 3%, and over 4,000 firms have impacts greater than 3% of revenues. Most firms with impacts over 1% have annualized costs of less than \$250 per year.
Environmental Justice and Protection of Children	This rule increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population or children.

*B. What Action is the Agency Taking?*

EPA is proposing a rule to implement the emission standards and other provisions of the Formaldehyde Standards for Composite Wood Products Act, enacted as Title VI of Toxic Substances Control Act (TSCA), 15 U.S.C. 2697. This proposed rule would implement emissions standards established by TSCA Title VI for composite wood products sold, supplied, offered for sale, or manufactured in the United States. Pursuant to TSCA section 3(7), the definition of "manufacture" includes import. As required by Title VI, these regulations apply to

hardwood plywood, medium-density fiberboard, and particleboard. TSCA Title VI also directs EPA to promulgate supplementary provisions to ensure compliance with the emissions standards, including provisions related to labeling; chain of custody requirements; sell-through provisions; ULEF resins; no-added formaldehyde-based resins; finished goods; third-party testing and certification; auditing and reporting of third-party certifiers; recordkeeping; enforcement; laminated products; and exceptions from the requirements of regulations promulgated pursuant to this subsection for products and components containing *de minimis* amounts of composite wood products.

EPA issued a separate proposal on the third party certification provisions (the TPC proposal) (Ref. 1). The TPC proposal included provisions for the accreditation of TPCs and general requirements for accreditation bodies and TPCs.

The proposed requirements in this document are consistent, to the extent EPA deemed appropriate and practical, with the requirements currently in effect in California under a California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) (Ref. 2). By aligning with the CARB ATCM requirements, EPA seeks to avoid differing or duplicative regulatory requirements that would result in an increased burden on the regulated community.

#### *C. What is the Agency's Authority for Taking this Action?*

This proposal is being issued under the authority of section 601 of TSCA, 15 U.S.C. 2697.

#### *D. Formaldehyde Sources and Health Effects*

Formaldehyde is a colorless, flammable gas at room temperature and has a strong odor. It is found in resins used in the manufacture of composite wood products (*i.e.*, hardwood plywood, particleboard and medium-density fiberboard). It is also found in household products such as

glues, permanent press fabrics, carpets, antiseptics, medicines, cosmetics, dishwashing liquids, fabric softeners, shoe care agents, lacquers, plastics and paper product coatings. It is a by-product of combustion and certain other natural processes. Examples of sources of formaldehyde gas inside homes include cigarette smoke, unvented, fuel-burning appliances (*e.g.*, gas stoves, kerosene space heaters), and composite wood products made using formaldehyde-based resins (Ref. 3).

Formaldehyde is an irritant and the National Toxicology Program recently classified it as a known human carcinogen (Ref. 4). Depending on concentration, formaldehyde can cause eye, nose, and throat irritation, even when exposure is of relatively short duration. In the indoor environment, sensory reactions and various symptoms as a result of mucous membrane irritation are potential effects, including respiratory symptoms. In addition, formaldehyde is a by-product of human metabolism, and thus endogenous levels are present in the body.

In 1991, EPA classified formaldehyde as a probable human carcinogen, “based on limited evidence in humans, and sufficient evidence in animals,” and derived an inhalation unit risk factor for assessing formaldehyde cancer risk. The risk factor and supporting documentation is included in EPA’s Integrated Risk Information System (IRIS) assessment of formaldehyde (Ref. 5). Formaldehyde is also listed under section 112(b)(1) of the Clean Air Act (CAA) as a hazardous air pollutant (HAP). The CAA requires EPA to regulate emissions of HAPs from a published list of industrial source categories. EPA has developed lists of major and area source categories that must meet emission standards for HAPs and has developed (or is developing) standards for these source categories. The plywood and composite wood products (PCWP) National Emission Standards for Hazardous Air Pollutants (NESHAP), codified at 40 CFR part 63, subpart DDDD, first issued in 2004, is one of these standards. The PCWP NESHAP controls

emissions of formaldehyde and other HAPs (primarily acetaldehyde, acrolein, methanol, phenol, and propionaldehyde) from various process units (*e.g.*, blenders, dryers, formers, board coolers, and presses) at PCWP facilities.

In 2004, EPA determined that unit risk derived from the Chemical Industry Institute of Toxicology (CIIT; CIIT 1999) biologically-based cancer dose-response modeling of formaldehyde-induced respiratory cancer ( $5.5 \times 10^{-9}$  per micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )) better reflected the current state of the science than the 1991 IRIS cancer unit risk. The authors of the CIIT modeling (Conolly *et al.* 2004) presented their risk estimates as values more conservative than their maximum likelihood estimates, and as “conservative in the face of modeling uncertainties.” Consequently, EPA used the CIIT value in risk assessments supporting regulatory actions developed under the authority of the Clean Air Act. For example, in the 2006 rulemaking that reconsidered the PCWP NESHAP, OAR stated “[i]n the case of formaldehyde, we have determined that the cancer potency derived using the approach developed by CIIT, which has been peer reviewed by an external review panel sponsored by EPA and the Canadian government, represents an appropriate alternative to EPA’s current IRIS URE [unit risk estimate] for formaldehyde. Therefore, this potency represents the best available peer-reviewed science at this time.” (Ref. 6, p. 8348). However, subsequent research published by EPA suggests that the CIIT model was not appropriate and was very sensitive to unmeasured parameters such that very different estimates, including the 1991 IRIS assessment values, were consistent with the available scientific data. Because the CIIT values do not reflect the extent of uncertainty in estimates using the data that are available, EPA has decided that those estimates do not reflect the broad range of possible risk and that the data are not supportive of interpreting  $5.5 \times 10^{-9}$  per  $\mu\text{g}/\text{m}^3$  as providing a health-protective estimate of human risk. Furthermore, the 1991 IRIS

assessment values are consistent with unit risks estimated by Schlosser et al. (2003) based on Benchmark Dose modeling of the best available data at the time. Thus, in 2010, EPA returned to using the Agency's current value on IRIS,  $1.3 \times 10^{-5}$  per  $\mu\text{g}/\text{m}^3$ , which was last revised in 1991 as better reflecting the current state of the science as to the potential human cancer risk of exposure to formaldehyde (Ref. 7).

The IRIS program in EPA's Office of Research and Development (ORD) recently completed a draft assessment of the potential cancer and non-cancer health effects that may result from chronic exposure to formaldehyde by inhalation (Ref. 8). This draft IRIS assessment was peer-reviewed by the National Research Council of the National Academy of Sciences (NRC) with its review of the EPA's draft assessment completed in April of 2011 (Ref. 9). EPA will fully address all the NRC recommendations on formaldehyde. The draft formaldehyde IRIS assessment will be revised in response to the NRC peer review and public comments, and the final assessment will be posted on the IRIS website. In the interim, EPA will present findings using the 1991 IRIS value as a primary estimate, and may also consider other information as the science evolves. In addition, EPA developed concentration-response functions to estimate the impact of exposure to formaldehyde on eye irritation for use in the non-cancer benefits assessment to support this rule, and proposes additional analysis to address respiratory symptoms and other potential adverse effects. The derivation of these concentration-response functions, uncertainties, and EPA's proposed approach for using the concentration-response functions in the benefits assessment were externally peer reviewed in 2011 (Ref. 10). While the economic analysis of cancer benefits is based on the unit risk, which is a reasonable upper bound on the central estimate of risk, the non-cancer benefits were evaluated using the estimated concentration-response functions which reflect the central effect estimates rather than upper

bounds.

*E. History of this Rulemaking*

1. *Overview of the CARB ATCM.* In 2007, CARB issued an ATCM to reduce formaldehyde emissions from hardwood plywood, medium-density fiberboard, and particleboard, products referred to collectively as composite wood products. The CARB ATCM was approved on April 18, 2008, by the California Office of Administrative Law and the first emission standards took effect on January 1, 2009. The CARB ATCM requires manufacturers to meet formaldehyde emission standards for the covered composite wood products that are sold, offered for sale, supplied, or manufactured for use in California. The CARB ATCM also requires that compliant composite wood products be used in finished goods sold, offered for sale, supplied or manufactured for sale in California. The CARB ATCM does not apply to hardwood plywood and particleboard materials when installed in manufactured homes subject to regulations promulgated by the United States Department of Housing and Urban Development (HUD).

The CARB ATCM Phase 1 emission standards for hardwood plywood veneer core, particleboard, and medium-density fiberboard took effect on January 1, 2009. The Phase 1 standard for hardwood plywood composite core took effect on July 1, 2009. The more stringent Phase 2 standards first took effect on January 1, 2010, for hardwood plywood veneer core. Phase 2 standards for medium-density fiberboard and particleboard took effect on January 1, 2011, the Phase 2 standard for thin medium density fiberboard took effect on January 1, 2012, and the Phase 2 standard for hardwood plywood composite core took effect on July 1, 2012.

The CARB ATCM requires manufacturers of the regulated composite wood products to demonstrate compliance with the emission standards by having their emissions tests and quality

control processes certified by a TPC. TPCs must be approved by CARB and must follow specified requirements to verify that a manufacturer's production meets applicable formaldehyde emission standards and that the manufacturers follow prescribed quality control practices. Once approved by CARB, manufacturers who use NAF resin systems are exempted from ongoing testing requirements after 3 months of successful testing in cooperation with a TPC.

Manufacturers who use ULEF resin systems may be approved by CARB to reduce the frequency of ongoing testing or, if they meet more stringent emissions requirements, may be exempted from ongoing testing requirements for 2 years. The exemption based on ULEF resin is granted after approval by CARB and 6 months of testing in cooperation with a TPC. Manufacturers who receive exemptions based on NAF or ULEF resin can reapply every 2 years for the exemption from TPC oversight and formaldehyde emissions testing by submitting the chemical formulation of the resin and the results of at least one primary or secondary method test for each product type (based on a panel or set of panels randomly selected and tested by a TPC).

Under the CARB ATCM, manufacturers of composite wood products are required to label their covered products to identify them as meeting either the Phase 1 or Phase 2 emission standards, or as being made with either NAF or ULEF resins. Manufacturers must also include a statement of compliance on the bill of lading or invoice for the composite wood product. The CARB ATCM also imposes recordkeeping requirements on manufacturers to document their compliance with the regulations, and the records must be kept for 2 years.

The CARB ATCM requires distributors, importers, fabricators, and retailers to purchase and sell panels and finished goods that comply with the applicable formaldehyde emission standards. They must take "reasonable prudent precautions," such as communicating with their suppliers, to ensure that the products they purchase are in compliance with the applicable

emission standards. Like manufacturers, distributors and importers must also provide a statement of compliance on the composite wood or finished good product bill of lading or invoice. Like manufacturers, distributors, importers, fabricators and retailers must also maintain records documenting compliance for a period of 2 years. Importers and fabricators must label their finished goods as compliant with the applicable standards. The labeling requirement also applies to distributors if the product is in some way modified. One example of a modification that would make a distributor subject to the labeling requirement is if the distributor receives composite wood product panels, cuts them into different shapes or sizes, and applies edge banding to them.

More information on the specific requirements of the CARB ATCM and the relationship between the CARB ATCM and this proposal is presented in Unit III.

2. *TSCA section 21 petition.* On March 24, 2008, 25 organizations and approximately 5,000 individuals petitioned EPA under section 21 of TSCA to use its authority under section 6 of TSCA to adopt the CARB ATCM nationally. The petitioners asked EPA to assess and reduce the risks posed by formaldehyde emitted from hardwood plywood, particleboard, and medium-density fiberboard by exercising its authority under TSCA section 6 to adopt and apply nationwide the CARB formaldehyde emissions regulation for these composite wood products. In addition, petitioners requested EPA to extend this regulation to include composite wood products used in manufactured homes.

On June 27, 2008, EPA issued a **Federal Register** notice explaining the Agency's decision to grant in part and deny in part the petitioners' request (Ref. 11). EPA denied the petitioners' request to immediately pursue a TSCA section 6 rulemaking, stating that the available information at the time was insufficient to support an evaluation of whether

formaldehyde emitted from hardwood plywood, particleboard, and medium-density fiberboard presents or will present an unreasonable risk to human health (including cancer and non-cancer endpoints) under TSCA section 6. As discussed in detail in the **Federal Register** notice announcing EPA's response to the petition, EPA's evaluation of the data provided by the petitioners revealed significant information gaps that would have needed to be filled to support an evaluation of whether use of formaldehyde in these products presents or will present an unreasonable risk under TSCA section 6. However, EPA did agree to initiate a proceeding to investigate whether and what type of regulatory or other action might be appropriate to protect against risks posed by formaldehyde emitted from pressed wood products.

Accordingly, on December 3, 2008, EPA issued an Advance Notice of Proposed Rulemaking (ANPR) that announced EPA's intention to investigate whether and what regulatory or other action might be appropriate to protect against risks posed by formaldehyde emitted from the products covered by the CARB ATCM as well as other pressed wood products. To help inform EPA's decision on the best ways to address risks posed by formaldehyde emissions from pressed wood products, the Agency requested public comments and held 6 half-day public meetings in Research Triangle Park, NC; Portland, OR; Chicago, IL; Dallas, TX; Washington, DC; and New Orleans, LA. These meetings took place January through March of 2009. EPA received and reviewed comments submitted during the ANPR comment period which can be found at [regulations.gov](http://regulations.gov) under docket number EPA-HQ-OPPT-2008-0627.

3. *The Formaldehyde Standards for Composite Wood Products Act.* On July 7, 2010, President Obama signed into law the Formaldehyde Standards for Composite Wood Products Act, or Title VI of TSCA, 15 U.S.C. 2697. The statute establishes formaldehyde emission standards that are identical to the CARB ATCM Phase 2 standards for hardwood plywood,

medium-density fiberboard, and particleboard sold, supplied, offered for sale, or manufactured in the United States and directs EPA to issue final implementing regulations by January 1, 2013. Pursuant to TSCA section 3(7), the definition of “manufacture” includes import. TSCA Title VI does not give EPA the authority to raise or lower the established emission standards, and EPA must promulgate the implementing regulations in a manner that ensures compliance with the standards. Congress directed EPA to consider a number of elements for inclusion in the implementing regulations, many of which are aspects of the CARB program. These elements include: (a) labeling, (b) chain of custody requirements, (c) sell-through provisions, (d) ultra low-emitting formaldehyde resins, (e) no-added formaldehyde-based resins, (f) finished goods, (g) third-party testing and certification, (h) auditing and reporting of TPCs, (i) recordkeeping, (j) enforcement, (k) laminated products, and (l) exceptions from the requirements of regulations promulgated for products and components containing *de minimis* amounts of composite wood products.

### **III. Provisions of this Proposed Rule**

#### *A. Scope and Applicability*

Pursuant to TSCA Title VI, this proposed regulation would generally cover entities that manufacture (including import), supply, sell, or offer for sale hardwood plywood, medium-density fiberboard, and particleboard in the United States, whether in the form of a panel or incorporated into a finished good.

1. *Hardwood plywood--a. General definition.* The statute defines the term “hardwood plywood” as a hardwood or decorative panel that is intended for interior use and composed of an assembly of layers or plies of veneer joined by an adhesive with a lumber, particleboard, medium-density fiberboard (MDF), or hardboard core or any other special core or back material.

The statutory definition also references a voluntary consensus standard for hardwood plywood, American National Standards Institute/Hardwood Plywood and Veneer Association HP-1-2009 (ANSI/HPVA HP-1) (Ref. 12). The statutory definition also describes four specific exclusions from the term: Military-specified plywood, curved plywood, structural plywood, and wood-based structural-use panels. The latter two are described by reference to voluntary consensus standards (Refs. 13 and 14). EPA is proposing to incorporate the basic statutory definition of hardwood plywood and the statutory exclusions into the regulation with one modification. Although the statutory definition of hardwood plywood does not specifically mention hardwood plywood made with a veneer core, TSCA section 601(b)(2)(A) establishes a formaldehyde emission standard for hardwood plywood with a veneer core. Therefore, in order to avoid any potential confusion about whether hardwood plywood made with a veneer core is covered by the regulations, EPA proposes to add “veneer core” to the list of cores in the definition of hardwood plywood.

As part of this rulemaking, EPA convened a Small Business Advocacy Review (SBAR) Panel. More information on the Panel process, including the final report of the Panel, is discussed in Unit V. The SBAR Panel made several recommendations on definitions associated with the definition of hardwood plywood (Ref. 15). The definition of the term in TSCA Title VI, and as proposed in this rulemaking, only includes products that are “panels.” Therefore, only hardwood plywood panels would be required to be tested and certified. The SBAR Panel recommended that EPA reduce uncertainty in the regulated community by clearly defining “panel” in a way that is based on the intent of the statute, and considers trade usage and the limitations of current test methods. EPA is proposing to define panel as a flat or raised piece of composite wood. Raised panels (*e.g.*, raised panel cabinet doors) are specifically included in this

proposed definition because they can be produced using a similar manufacturing procedure as flat panels, and have a similar potential to emit formaldehyde. EPA requests comment on test method limitations and the extent to which they should affect the definition of the term “panel.”

EPA is also proposing a definition of “intended for interior use.” Under TSCA Title VI, in order for a product to be regulated as hardwood plywood, it must be intended for interior use. The SBAR Panel recommended that EPA develop a clear definition for “interior use” in order to eliminate potential confusion in the regulated community. The Panel further recommended that the definition be based on the intent of the statute and with consideration of how the hardwood plywood is likely to be used and stored once incorporated into a finished good. EPA recognizes that the primary purpose of TSCA Title VI is to reduce formaldehyde emissions from composite wood products inside buildings and similar living areas, such as trailers and recreational vehicles. This is in contrast to other regulations, such as the PCWP NESHAP, which is designed to reduce emissions from buildings and other facilities. Therefore, EPA is proposing to define the phrase “intended for interior use.” When applied to products, the phrase would mean intended for use or storage inside a building or recreational vehicle, or constructed in such a way that it is not suitable for long-term use in a location exposed to the elements.

*b. Laminated products.* For the purposes of TSCA Title VI, laminated products are a subset of hardwood plywood. The statute defines laminated product as a product made by affixing a wood veneer to a particleboard, MDF, or veneer-core platform. The statutory definition further provides that laminated products are component parts used in the construction or assembly of a finished good, and that a laminated product is produced by the manufacturer or fabricator of the finished good in which the product is incorporated. Congress granted EPA the authority to modify the statutory definition of laminated product through rulemaking (TSCA

section 601(a)(3)(C)(i)(II)). EPA is also directed to use all available and relevant information to determine whether the definition of hardwood plywood should exempt engineered veneer or any laminated product. As discussed in this Unit, EPA is proposing to exempt some, but not all, laminated products from the definition of hardwood plywood. EPA is further proposing to delete from the definition of laminated product the provision that limits applicability to producers of finished goods.

*i. CARB ATCM.* The CARB ATCM defines laminated product as a finished good or component part of a finished good made by a fabricator in which a laminate or laminates are affixed to a platform. Under this definition, if the platform consists of a composite wood product, the platform must comply with the applicable emission standards. The CARB ATCM defines fabricator as any person who uses composite wood products to make finished goods, including producers of laminated products. Laminate is defined under the CARB ATCM as a veneer or other material affixed as a decorative surface to a platform. Under the CARB ATCM, fabricators or laminated product manufacturers have different requirements compared with requirements for manufacturers of composite wood products. In particular, fabricators do not need to conduct formaldehyde emissions testing or comply with TPC certification requirements; instead, fabricators need to ensure that they are using compliant composite wood products through recordkeeping and labeling.

Under the CARB ATCM, a facility that affixes wood veneers to purchased cores or platforms and then sells the panels (often referred to as a 3-ply mill) is considered a regulated hardwood plywood manufacturer. In addition, a facility that manufactures its own platforms or cores and attaches decorative face and back veneers is a regulated hardwood plywood manufacturer, whether or not the facility sells the resulting hardwood plywood panels or uses

those panels to make a finished good. However, CARB considers a facility that affixes veneers to purchased platforms and then uses the panels to make a finished good to be a fabricator or laminated product manufacturer. For example, a cabinet manufacturer who affixes veneers to purchased composite wood platforms and then cuts the panels and assembles them into cabinets would be a fabricator or laminated product manufacturer. In addition, CARB considers a facility that produces architectural plywood or custom panels to be a fabricator or laminated product manufacturer.

ii. *Other background information on laminated products.* The statute includes laminated products within the definition of hardwood plywood unless EPA specifically exempts them through rulemaking. The provision authorizing EPA to exempt any laminated products, TSCA section 601(a)(3)(C), directs EPA to consider all available and relevant information on the topic in a rulemaking under TSCA section 601(d). Section 601(d) requires EPA to promulgate regulations to implement the formaldehyde emission standards of TSCA Title VI in a manner that ensures compliance with the emission standards.

In determining whether to exempt any laminated products, EPA analyzed available information on formaldehyde emissions. A 2003 Composite Panel Association (CPA) technical bulletin presents information on formaldehyde emission reductions resulting from the application of different types of laminates (*e.g.*, vinyl, paper, melamine, polyethylene) and coatings (*e.g.*, acrylate, acrylic, polyurethane) (Ref. 16). According to the bulletin, documented emission reductions ranged from approximately 50% to 95% compared with unlaminated or uncoated products. However, the technical bulletin does not present emission reduction data for wood veneer laminates. The bulletin notes that wood veneer laminates have been shown to be effective barriers for some volatile organic compounds (VOCs) but have only low to moderate

effectiveness as a barrier for formaldehyde, depending on the type of wood veneer used. This may be related to the porosity of the wood veneer, since according to the technical bulletin, the effectiveness of an emission barrier is determined by its basic permeability or porosity, as well as the integrity of the laminate or coating. Some woods are more porous than others. In addition, the technical bulletin points out that wood veneers are frequently applied to particleboard and MDF using urea-formaldehyde adhesives, and these adhesives create the potential for another source of formaldehyde emissions. EPA requests comments, information, and data on the formaldehyde emissions of wood veneered laminated products, particularly relative to the emissions of comparable hardwood plywood products that are not considered laminated products under the CARB ATCM.

As directed by the statute, EPA evaluated other available and relevant information. Some of this information came to EPA through the SBAR Panel process, particularly through the advice and recommendations of the Small Entity Representatives (SERs) to the SBAR Panel. Several SERs submitted oral or written comments on potential provisions for laminated products under TSCA Title VI. One SER argued that laminators add only about 1/10th the resin a platform manufacturer adds (*e.g.*, 1.1 pounds of resin per panel to attach the veneer versus 9.6 total pounds resin per panel) and that laminators use a minor, if not *de minimis*, amount of urea-formaldehyde resin (Ref. 15). Furthermore, this SER stated that laminators using NAF resins would not add at all to the formaldehyde emissions from the product (Ref. 15), but did not provide data supporting this assertion. Multiple SERs noted that if laminators are regulated under TSCA Title VI, they would be paying for their products to be certified twice (Ref. 15). According to these SERs, the composite wood platform manufacturer would pay for certification of the platform and pass that cost along to the laminator who purchases the platform. If the

laminator is also regulated under TSCA Title VI, such that the laminator would have to have its product certified again after the veneer is attached, then the laminated product would have two certifications, one for the composite wood platform and one for the final product. These SERs contended that this would put them at a distinct disadvantage with respect to manufacturers who make the entire product in-house and therefore have only one certification for the final product. Another SER commented that if laminated products were regulated as hardwood plywood, it could be costly and burdensome to thousands of small cabinet makers that laminate on a kitchen-by-kitchen basis (Ref. 15). Several SERs suggested that many laminators laminate component parts, not panels. In particular, it was suggested that the “raised panel doors” that are used on some cabinets do not meet the definition of a hardwood plywood panel under the ANSI/HPVA HP-1 standard. Several SERs provided suggestions to EPA on which laminators should be exempted by rule; these included laminators not using urea-formaldehyde, laminators using a certified composite wood platform or core, and cabinetmakers producing less than 10 million square feet of laminated product. One SER specifically suggested that EPA exempt from the third-party certification and testing requirements those laminators that certify that they use NAF resins to attach veneers to compliant cores or otherwise include a statement of compliance under penalty of perjury (Ref. 15). Many small manufacturers of laminated products have contended that the testing requirements would be extremely burdensome for them if they are required to test each product type because many of the smaller manufacturers and custom manufacturers produce many different product types, often made to order.

In contrast, the Hardwood Plywood and Veneer Association (HPVA) informed EPA both orally and in written comments submitted in response to EPA’s 2008 ANPR that it considers the CARB ATCM provision for fabricators to be a “giant loophole” for certain hardwood plywood

manufacturers (Ref. 17). HPVA's comments state that "[t]he emission standards must apply to any and all hardwood plywood irrespective of who manufactures the hardwood plywood. CARB arbitrarily differentiates between a primary hardwood plywood manufacturer and a 'fabricator' who also manufactures hardwood plywood but is exempt from having to certify the hardwood plywood they manufacture" (Ref. 17). HPVA also contends that the processes that fabricators and manufacturers of hardwood plywood use to lay up the veneers or press the face and back onto a core or platform are identical as are the hardwood plywood panels that they produce.

*iii. Proposed exemption for laminated products.* Because of the potential for increased formaldehyde emissions from attaching a wood veneer to a platform, and because the final laminated product can be indistinguishable from other products that are considered hardwood plywood, EPA proposes to conclude that there is an insufficient basis to categorically exempt all laminated products from the definition of hardwood plywood based on information currently available to EPA. Accordingly, EPA is proposing to exempt laminated products in which a wood veneer is attached to a compliant and certified platform using a NAF resin. EPA believes the proposed exemption would be consistent with the statutory directive to promulgate regulations in a manner that ensures compliance with the formaldehyde emission standards. If the laminated product is made from a veneer core platform that is certified as meeting the emission standards for hardwood plywood, and a veneer that is attached with a NAF resin, it is very unlikely that the laminated product would exceed the hardwood plywood standards. If the laminated product is made from a particleboard or MDF platform that is certified as meeting the applicable emission standards, and a veneer that is attached with a NAF resin, the final laminated product may not meet the hardwood plywood standard, but it is very unlikely that it would exceed the applicable particleboard or MDF emission standard. EPA interprets its statutory

authority with respect to laminated products to give EPA the discretion to exempt laminated products from the definition of hardwood plywood if EPA has reasonable assurance that the exempted products would comply with the emission standards in TSCA section 601(b)(2) for the relevant platform. EPA believes that the proposed exemption is responsive to comments from SERs and other affected entities and that it is a reasonable approach to addressing policy inequities between entities making similar products. EPA also believes that the proposed exemption is protective of public health, because most laminated products made by attaching veneers with NAF resins to compliant platforms would meet the emission standards for hardwood plywood, and all would comply with the standards for MDF or particleboard. EPA specifically requests comments, information, and data relating to the proposed exemption.

To qualify for this exemption, laminated product producers would be required to maintain records demonstrating that they are using compliant platforms and NAF resins. These records could include records of purchases of NAF resins and of compliant, certified platforms, or, if the resins or platforms are made in-house, records demonstrating that the platforms have been certified by an accredited TPC and records demonstrating the production of NAF resins.

The statute defines the term “laminated product” as a product in which a wood veneer is affixed to a particleboard platform, a medium-density fiberboard platform, or a veneer-core platform, and that is a component part used in the construction or assembly of a finished good. The statute further defines a laminated product as being produced by the manufacturer or fabricator of the finished good in which the product is incorporated. EPA is proposing a definition of laminated product that is based on the statutory definition with several modifications. First, EPA is proposing to include not only wood veneers, but also woody grass veneers (*e.g.* bamboo). Woody grass veneers are similar to wood veneers in that they can be

porous and therefore not effective barriers to formaldehyde emissions, and they can be affixed to cores and platforms using urea-formaldehyde resins. In addition, including woody grass veneers is consistent with the definition of hardwood plywood in the ANSI/HPVA HP-1 standard, which specifies that “–the decorative face veneer is made from a hardwood or softwood species or woody grass.” To ensure greater clarity in the regulatory provisions on this specific issue, EPA is proposing to include a definition of veneer that is based on the ANSI/HPVA HP-1 standard, but also refers to woody grasses and their specific structure. EPA is proposing to define veneer as a thin sheet of wood or woody grass that is rotary cut, sliced, or sawed from a log, bolt, flitch, block, or culm. EPA is also proposing to define woody grass as a plant of the family *Poaceae* (formerly *Gramineae*) with hard lignified tissues or woody parts. EPA requests comment on these definitions and whether they are consistent with industry usage.

EPA’s proposed definition would not include a provision stating that a laminated product is produced by the manufacturer or fabricator of the finished good in which the product is incorporated. EPA does not believe that the application of the third-party certification and testing requirements under TSCA Title VI should differ depending on the identity of the product manufacturer. If the applicability limitation is retained, an entity that purchases certified particleboard or MDF panels, cuts and otherwise prepares them for future use as kitchen cabinet doors, attaches a hardwood veneer using a NAF resin, and then sells them to a kitchen cabinet manufacturer would not be considered a laminated product manufacturer and would not qualify for the proposed exemption from the definition of hardwood plywood. The door producer would then have to comply with the third-party certification and testing requirements applicable to hardwood plywood manufacturers. In contrast, still under a scenario where the applicability limitation is retained, if the entity also produced the kitchen cabinets, considered a finished good

under the statute, then the entity would be a laminated product manufacturer and would be exempt from the proposed testing and certification requirements. EPA has no reason to believe that the formaldehyde emissions from the cabinet doors would differ depending on who makes the door. It may be that entities that produce the entire finished good in-house are smaller than entities that only produce part of the good, such as cabinet doors, and thus it would be significantly more burdensome for them to have to comply with the certification and testing provisions of this proposal. However, EPA has no evidence that this is the case. In addition, if the emissions from the products are the same, EPA does not currently perceive a reason that justifies additional testing, regardless of the size of the entity making the product. Considering these factors, EPA's proposed definition of laminated product does not include a provision limiting applicability to the manufacturer or fabricator of the finished good in which the product is incorporated. EPA specifically requests comments, information, and data on this aspect of the proposed definition of laminated product.

In addition, to provide additional clarity for the regulated community and the public on the applicability of this regulation, EPA is proposing to define "component part," a term used in the definition of "laminated product," as a part that contains one or more composite wood products and is used in the assembly of finished goods. EPA is also proposing to define "fabricator" as an entity that incorporates composite wood products into component parts or into finished goods.

TSCA Title VI also directs EPA to determine whether the definition of hardwood plywood should exempt engineered veneer. EPA interprets the phrase "assembly of layers or plies of veneer" in the definition of hardwood plywood to include engineered veneer. EPA understands engineered veneer to be a veneer that is created by dyeing and gluing together

veneer leaves in a mold to produce a block. The block is then sliced into leaves of veneer with a designed appearance that is highly repeatable. EPA also understands that engineered veneer is often made using urea-formaldehyde resin, and EPA expects that engineered veneer made with urea-formaldehyde resin will have formaldehyde emission rates that are similar to other composite wood products made with urea-formaldehyde resin. EPA has not identified any information justifying an exemption for engineered veneer, so this proposal does not include such an exemption.

2. *Particleboard and medium-density fiberboard.* The statute defines the term “particleboard” as a panel composed of cellulosic material in the form of discrete particles (as distinguished from fibers, flakes, or strands) that are pressed together with resin, as determined under the voluntary consensus standard ANSI A208.1–2009 (Ref. 18). The statute further excludes products specified in the “Voluntary Product Standard—Performance Standard for Wood-Based Structural-Use Panels” (Ref. 14). EPA is proposing to incorporate the statutory definition of particleboard into the implementing regulations without change.

The statute defines the term “medium-density fiberboard” as a panel composed of cellulosic fibers made by dry forming and pressing a resinated fiber mat, as determined under the voluntary consensus standard ANSI A208.2–2009 (Ref. 19). EPA is proposing to incorporate the statutory definition of medium-density fiberboard without change. This proposed rule also includes a separate definition for a related term, “thin medium-density fiberboard.” The statute provides for a slightly-higher formaldehyde emission standard for thin medium-density fiberboard, 0.13 ppm, than it does for regular medium-density fiberboard, 0.11 ppm. CARB defines “thin medium-density fiberboard” as medium density fiberboard that has a maximum thickness of 8 millimeters (mm). The voluntary consensus standard for medium-density

fiberboard, ANSI A208.2–2009 (Medium Density Fiberboard (MDF) For Interior Applications), defines “thin medium-density fiberboard” as medium-density fiberboard with a thickness less than or equal to 8 mm or 0.315 inches (Ref. 19). EPA is proposing to use the same definition as the voluntary consensus standard because it is consistent with CARB and EPA believes that it reflects the common industry understanding of the term.

3. *Statutory exemptions.* TSCA section 601(c) exempts a number of products from the formaldehyde emission standards for composite wood products. These exemptions include, but are not limited to, hardboard, structural plywood, structural panels, oriented strandboard, glued laminated lumber, prefabricated wood I-joists, finger-jointed lumber, wood packaging, composite wood products used inside new vehicles other than recreational vehicles, windows that contain less than 5% by volume of composite wood products, exterior doors and garage doors that contain less than 3% by volume of composite wood products, and exterior and garage doors that are made with NAF-based or ULEF-based resins. EPA proposes to incorporate these exemptions into the implementing regulations without modification.

The statute exempts any finished good that has previously been sold or supplied to an individual or entity that purchased or acquired the finished good in good faith for purposes other than resale. The statute provides two examples: Antiques and secondhand furniture. EPA’s interpretation of this exemption is such that once a finished good, such as a piece of furniture, is sold to an end-user, the piece of furniture is no longer subject to TSCA Title VI. Thus, dealers in secondhand furniture would not have any obligations under this proposed rule.

With respect to exterior and garage doors made with NAF-based or ULEF-based resins, these resin types are defined elsewhere in the statute, with reference to both the composition of the resin and the formaldehyde emissions of composite wood products made with the resin. EPA

interprets these statutory provisions to mean that, in order to be eligible for this exemption, exterior and garage doors must comply with the emission standards contained in the statutory definitions of NAF-based resins and ULEF-based resins, as measured by the testing described in the statutory definitions. However, EPA is not proposing to require that manufacturers, fabricators, distributors, or retailers of these doors comply with the third-party certification, recordkeeping, or labeling provisions of the TSCA Title VI implementing regulations. EPA requests comments on whether any additional clarifications are needed, or whether manufacturers, fabricators, distributors, or retailers of such doors should be required to comply with any of the provisions of the TSCA Title VI implementing regulations. For example, should manufacturers of these doors be required to maintain records to demonstrate that they are purchasing or manufacturing NAF-based or ULEF-based resins or composite wood products made with NAF-based or ULEF-based resins and that the required testing has been conducted?

While many of the exemptions are defined within the text of the exemption itself, by reference to an applicable voluntary consensus standard or other parameter, hardboard is not so defined. Rather, TSCA Title VI provides that “the term ‘hardboard’ has such meaning as the Administrator shall establish, by regulation pursuant to subsection (d).”

Under the CARB ATCM, hardboard is defined as “a composite panel composed of cellulosic fibers, made by dry or wet forming and hot pressing of a fiber mat with or without resins, that complies with one of the following ANSI standards: ‘Basic Hardboard’ (ANSI A135.4-2004), ‘Prefinished Hardboard Paneling’ (ANSI A135.5-2004), or ‘Hardboard Siding’ (ANSI A135.6- 2006)” (Refs. 20, 21 and 22). The CARB ATCM further excludes hardboard from the definition of composite wood product. Accordingly, hardboard is not subject to the emission standards in the CARB ATCM.

EPA understands that the definition of hardboard has been recently reevaluated by industry in the context of a pending revision to the voluntary consensus standard for basic hardboard, ANSI A135.4 (Ref. 20). EPA was informed that final approval of revisions to ANSI A135.4, along with revisions to the prefinished hardboard paneling standard, ANSI A135.5 and the hardboard siding standard, ANSI A135.6, would be anticipated by the end of 2011 (Refs. 20, 21 and 22).

The Composite Panel Association, sponsor of the ANSI standard, also informed EPA in its comments to the SBAR Panel that the Association intended to vote on a proposed revision to ANSI A135.4 that included the following definition:

Hardboard is a panel manufactured primarily from inter-felted lignocellulosic fibers consolidated under heat and pressure in a hot press to a density of 500 kg/m<sup>3</sup> (31 lbs/ft<sup>3</sup>) or greater by:

- (A) a wet process, or
- (B) a dry process that uses:
  - (a) a phenolic resin, or
  - (b) a resin system in which there is no added formaldehyde as part of the resin cross-linking structure.

Other materials may be added to improve certain properties, such as stiffness, hardness, finishing properties, resistance to abrasion and moisture, as well as to increase strength, durability, and utility. (Ref. 15)

EPA is concerned that, because hardboard and thin medium-density fiberboard share similar appearances and end uses, a broad definition of hardboard could lead to thin medium-density fiberboard being erroneously categorized as hardboard and exempted from the emission standards. This is contrary to the clear intent of TSCA Title VI which specifically includes an emissions standard for thin medium-density fiberboard. EPA believes that the definition quoted above would address this concern. Accordingly, EPA is proposing to base its definition of hardboard on this definition. EPA's proposal defines hardboard as a panel composed of cellulosic fibers made by dry or wet forming and hot pressing of a fiber mat, either without

resins, or with a phenolic resin (*e.g.*, a phenol-formaldehyde resin) or a resin system in which there is no added formaldehyde as part of the resin cross-linking structure, as determined under one of the following ANSI standards: ANSI A135.4 (Basic Hardboard), ANSI A135.5 (Prefinished Hardboard Paneling), or ANSI A135.6 (Hardboard Siding). EPA believes this is consistent with TSCA 601(d) which requires EPA to promulgate regulations in a manner that ensures compliance with the statutory emission standards.

Revisions to the three ANSI hardboard standards have been made and the revised versions are now available (Refs. 23, 24 and 25). EPA requests comment on the proposed hardboard definition and whether any changes should be made to the definition in light of the recent ANSI standard revisions.

In general, EPA believes that composite wood products made with phenol-formaldehyde resins have lower formaldehyde emission rates than do products made with urea-formaldehyde resins. In fact, phenol-formaldehyde resin is mentioned in TSCA Title VI as a resin that may qualify for ULEF resin status. EPA has some data on formaldehyde emissions from hardboard made with phenol-formaldehyde resins (Refs. 26 and 27). The data appear to support the idea that products made with phenol formaldehyde resins have lower formaldehyde emission rates. EPA requests comment, information, and data on hardboard made with phenol-formaldehyde resins and whether such products should be included within the definition of the term hardboard, thereby exempting such products from the statutory emission standards.

*4. Other definitions.* EPA is also proposing to define a number of other terms used in the proposed regulations to ensure that the meaning and applicability of the regulatory requirements are clear. These terms include “distributor,” “importer,” “purchaser,” and “retailer.” EPA is proposing to define “distributor” as an entity that supplies composite wood products, component

parts, or finished goods to others. The term “importer” would be defined, consistent with the definition of the term “manufacturer” in TSCA section 3 and the definition of “importer” in 40 CFR 710.3, as an entity that imports composite wood products, component parts that contain composite wood products, or finished goods that contain composite wood products into the customs territory of the United States (as defined in general note 2 of the Harmonized Tariff Schedules of the United States). The term includes the entity primarily liable for the payment of any duties on the products, or an authorized agent acting on the entity’s behalf. The term “purchaser” would be defined as an entity that acquires composite wood products in exchange for money or its equivalent. Finally, “retailer” would be defined as an entity that generally sells smaller quantities of composite wood products directly to consumers. EPA requests comment on the utility of these definitions, whether these definitions comport with typical industry usage, and whether any other general terms should be defined in EPA’s regulation.

*B. Formaldehyde Emission Standards*

TSCA Title VI establishes formaldehyde emission standards for composite wood products (hardwood plywood, particleboard, and medium-density fiberboard) so that beginning July 1, 2012, or 180 days after the final implementing regulations are promulgated, whichever is later, the standards mirror the CARB ATCM Phase 2 emission levels. The statute also provides for emission standards that would apply after the effective date of the implementing regulations but before July 2011, or before July 2012. However, the July 2012 date has already passed, so these interim standards will not take effect.

When the later TSCA Title VI emission standards take effect 180 days after implementing regulations are promulgated, the emission limit for hardwood plywood will be 0.05 parts per million (ppm) formaldehyde. For medium-density fiberboard, the limit will be

0.11 ppm. For thin medium-density fiberboard, the limit will be 0.13 ppm. For particleboard, the limit will be 0.09 ppm. The statute does not give EPA authority to modify these emission standards.

Because each of the two statutory emission standards for hardwood plywood is 0.05 ppm for any final rule taking effect after July 1, 2012, the proposed regulation merely states that the emission standard for hardwood plywood is 0.05 ppm. With this language, EPA intends that any product that meets the definition of hardwood plywood is subject to the hardwood plywood emission limit, regardless of the makeup of its core. EPA notes that the statutory definition of hardwood plywood includes a number of different types of cores that may not appear to expressly fit under the statutory emission standards for veneer core and composite core. Yet, EPA does not believe that Congress intended to exempt hardwood plywood made with a lumber core, for example, from the emission standards of TSCA Title VI in part because the statute says that “the emission standards . . . shall apply to hardwood plywood.” Therefore, EPA proposes an emission standard for hardwood plywood of 0.05 ppm, given that the two statutory emission standards for hardwood plywood are ultimately identical. EPA requests comment on whether and how this revision would affect entities making laminated products with lumber cores or any other special core material.

### *C. Product Certification in General*

Under this proposal, composite wood products sold, supplied, offered for sale, or manufactured (including imported) within the United States would have to be certified, unless they are specifically exempted by TSCA Title VI or excluded by the proposed rule. In general, this means that the formaldehyde emission levels from the composite wood products would have been demonstrated to be below the emission standards in TSCA Title VI. This demonstration

would be through a combination of testing performed by an accredited third-party certifier (TPC), and repeated on a quarterly basis, and more frequent quality control testing performed by the maker of the composite wood product, an accredited TPC, or a contract laboratory. Specific proposed requirements for this testing are discussed in Unit III.D.

EPA is proposing to require makers of composite wood product panels to apply to an accredited TPC for product certification, and to design and establish a quality control program, including testing, that is both approved by the accredited TPC and specific to the panel producer. For each product type to be certified, the panel producer would have to have at least one quarterly test result and 3 months of quality control testing data that demonstrate that the formaldehyde emission rates of the product are below the emission standards established by TSCA Title VI and discussed in greater detail in Unit III.C. Uncertified product produced after the manufactured-by date, discussed in Unit III.I., would not be permitted to be sold, supplied, or offered for sale in the United States. Under this proposal, products currently certified by approved TPCs under the CARB ATCM would be considered certified for purposes of TSCA Title VI. However, in the TPC proposal, EPA proposed to allow CARB-approved TPCs 1 year to become accredited under TSCA Title VI. If that provision is finalized as proposed, a panel producer whose TPC does not become accredited under TSCA Title VI in a timely manner would have to apply to an accredited TPC to be able to continue to make certified product after the manufactured-by date. EPA requests comment on this approach for CARB-certified products and whether a different approach or additional requirements should be imposed for these products.

#### *D. Formaldehyde Emission Testing Requirements*

TSCA Title VI requires that composite wood products be measured for compliance with

the statutory emission standards by quarterly tests pursuant to test methods ASTM E-1333-96 or ASTM D-6007-02 (Refs. 28 and 29). TSCA Title VI also requires that quality control tests be conducted pursuant to ASTM D-6007-02, ASTM D-5582, or such other test methods as may be established by EPA through rulemaking (Refs. 29 and 30). Under the statute, test results conducted using any test method other than ASTM E-1333-96 (2002) must include a showing of equivalence by means that EPA must establish through rulemaking. Under TSCA Title VI, EPA must also establish, through rulemaking, the number and frequency of tests required to demonstrate compliance with the emission standards. This unit of the preamble discusses EPA's proposed rulemaking on each of these statutory elements.

1. *CARB ATCM formaldehyde testing requirements.* The CARB ATCM requires that compliance with the emission standards for hardwood plywood, medium-density fiberboard, and particleboard be demonstrated by conducting emission tests, verified by TPCs using ASTM E-1333-96 (2002) (large chamber test method), referred to as the primary test method, or ASTM D-6007-02 (small chamber test method), referred to as the secondary test method. If ASTM D-6007-02 is used, equivalence between ASTM D-6007-02 and ASTM E-1333-96 (2002) must be established at least once each year by the TPC. The CARB ATCM specifies minimum requirements for demonstrating equivalence in section 93120.9(a)(2)(B) of the ATCM; demonstration of equivalence for the purposes of this proposal is discussed in Unit III.D.3. of this document. The CARB ATCM allows alternate secondary test methods to be used if they are demonstrated to provide equivalent results to those obtained using ASTM E-1333-96 (2002) (following the requirements in section 93120.9(a)(2)(B)) and are approved in writing by the CARB Executive Officer, following submission of an application for approval. The CARB ATCM also requires quality control testing using a test method that is correlated to the primary,

secondary, or alternate secondary test method. The CARB ATCM also provides that all panels must be tested in an unfinished condition, prior to the application of a finishing or topcoat.

The CARB ATCM requires that an initial qualifying primary or secondary method test be conducted on each product type, from each production line of each facility; however, it also allows a manufacturer to group two or more product types together if they have “similar emission characteristics.” The emissions from each product type from each production line cannot exceed the applicable standard. If an initial qualification test exceeds the emission standard, certification lapses on all of the products represented by that product group.

Under the CARB ATCM, after the initial qualifying test, primary or secondary method tests must be conducted at least quarterly. For particleboard and medium-density fiberboard, these quarterly tests must be conducted on randomly selected samples of each product type (unless approved NAF or ULEF resins are used). Again, products can be grouped for testing, but if a quarterly test exceeds the emission standard, certification lapses on all of the products represented by that grouping. For hardwood plywood, a primary or secondary method test is required at least quarterly (unless approved NAF or ULEF resins are used) on randomly selected samples of the hardwood plywood product determined by the TPC to have the highest potential to emit formaldehyde.

The CARB ATCM also requires “small scale” quality control tests that must be conducted at the composite wood product manufacturing facility, a contract laboratory, or a laboratory operated by an approved TPC. These tests must be conducted on all lots of each product type being certified unless prior notice is given, and tests must be reported to the TPC. The CARB ATCM lists the following as approved small-scale test methods: ASTM D 5582-00 (desiccator), ASTM D-6007-02 (small chamber), and alternative tests that can be shown to

correlate to the primary or secondary method tests and are approved by the CARB Executive Officer. CARB has approved the following for use as alternative small-scale test methods: EN 717-2 (gas analysis), DMC (dynamic micro chamber), EN 120 (perforator method), and JIS A 1460 (24-hr desiccator). CARB does not expressly permit the grouping of product types for quality control testing. However, CARB does provide TPCs and manufacturers with some flexibility in interpreting the term “product type” to allow similar products, particularly those made with the same resin system, to be considered to belong to the same product type for quality control testing purposes (Ref. 2).

a. *Basic testing frequency requirements for particleboard and medium-density fiberboard under the CARB ATCM.* The CARB ATCM requires manufacturers of particleboard and medium-density fiberboard (that do not qualify for NAF or ULEF TPC exemption or reduced testing) to conduct routine small-scale quality control tests at least once per shift (8 or 12 hours, plus or minus 1 hour of production) for each production line for each product type. Quality assurance and quality control requirements for the purposes of this proposal are discussed in Unit III.E. Quality control tests must also be conducted whenever a product type production ends, even if 8 hours of production has not been reached, or whenever one of the following occurs: (1) The resin formulation is changed so that the formaldehyde to urea ratio is increased; (2) an increase by more than 10% in the amount of formaldehyde resin used, by square foot or by panel; (3) a decrease in the designated press time by more than 20%; or (4) the Quality Control Manager or Quality Control Employee has reason to believe that the panel being produced may not meet the requirements of the applicable standards. The CARB ATCM allows for reduced testing for particleboard and medium-density fiberboard when the facility demonstrates consistent operations and low variability of test values to the satisfaction of the

TPC based on criteria established by the TPC. Testing frequency still must occur at least once per 48-hour production period.

b. *Basic testing frequency requirements for hardwood plywood under the CARB ATCM.*

The CARB ATCM requires manufacturers of hardwood plywood (that do not qualify for NAF or ULEF TPC exemption or reduced testing) to conduct routine small-scale quality control tests on each product type and product line based on production at the facility with the following testing frequency: At least one test per week per product type and product line if the weekly hardwood plywood production is less than 200,000 square feet; at least two tests per week per product type and product line if the weekly hardwood plywood production is between 200,000 and 400,000 square feet; and at least four times per week per product type and product line if the weekly hardwood plywood production is greater than 400,000 square feet. The CARB ATCM also requires that quality control samples must be analyzed within a period of time specified in the manufacturer's quality control manual to avoid distribution of non-complying lots.

2. *Proposed general testing requirements.* As an initial matter, EPA is proposing to define several terms that would be used in the testing requirements. EPA is proposing to use the term "panel producer" to refer to those facilities that actually make composite wood products or laminated products, excluding importers that do not also make the products. Because TSCA section 3 defines the term "manufacture" to include import, EPA believes that using another term would clarify the regulation by referring to facilities that actually make the products regulated under TSCA Title VI for the purposes of the testing, certification, and recordkeeping requirements. Under this proposal, some laminated products would not be hardwood plywood, and the act of making those products would, therefore, not be subject to the testing and certification requirements. However, EPA believes that there are some laminated products that

cannot be made in such a way as to render them exempt from the testing and certification requirements. EPA is proposing to define “panel producer” as a manufacturing plant or other facility that manufactures (excluding facilities that solely import products) composite wood products on the premises. EPA is also proposing to incorporate within this definition a statement that this includes laminated products not excluded from the definition of hardwood plywood. EPA requests comment on whether the term “panel producer” should apply separately to each specific facility owned or operated by an entity that produces composite wood products for the purposes of the testing, certification and recordkeeping requirements, or whether the term “panel producer” should apply to the entire business entity that produces the composite wood products. For example, should panel producers be required to have a quality control manual for each separate facility?

EPA is proposing to incorporate the CARB definition of the term “product type” with some modifications. The term “manufacturer” in the CARB definition would be replaced by the term “panel producer.” Under this proposal, “product type” means a type of composite wood product that differs from another made by the same panel producer, based on wood type, composition, thickness, number of plies (if hardwood plywood), or resin used. In order to make it clear that TPCs and manufacturers have the flexibility to treat similar products similarly, the proposed definition includes a statement that products with similar emissions made with the same resin systems may be considered to be the same product type.

EPA is also proposing to define “lot” to mean a particular lot or batch of a product type made during a single production run. EPA believes that this is common industry usage of the term. Likewise, EPA is proposing to define “production line” as a set of operations and physical industrial or mechanical equipment used to produce a composite wood product. EPA requests

comment on the utility of these definitions, and whether other terms should also be defined, such as “production run.”

In addition, entities conducting formaldehyde testing would be required to use the procedures, such as testing conditions and loading ratios, specified in the method being used. As required by CARB, EPA is also proposing to require that all equipment used in formaldehyde testing be calibrated in accordance with the equipment manufacturer’s instructions. EPA believes that this requirement is important for ensuring that the equipment is working properly and that accurate results are obtained.

a. *Quarterly testing requirements.* EPA is proposing to require that accredited TPCs conduct the quarterly tests required by TSCA Title VI. The statute requires these tests to be performed using ASTM E-1333-96 (2002) or, upon a showing of equivalence as discussed in this unit, ASTM D-6007-02 (Refs. 28 and 29). In the TPC proposal, using the authority provided by TSCA section 601(d)(5), EPA proposed to incorporate ASTM E-1333-10, the most recent version of this method, into the testing requirements, rather than the 2002 version (Refs. 1 and 31). EPA will review the comments received on the TPC proposal and determine whether to incorporate ASTM E-1333-10 into the testing requirements in place of ASTM E-1333-96 (2002) before issuing the final rule.

EPA is proposing to require that the TPC laboratories test randomly chosen samples from a single lot that is ready for shipment by the panel producer. Neither the top nor bottom composite wood product of a bundle would be selected because the emissions from these products may not be representative of the bundle. For particleboard and medium-density fiberboard, the proposed rule would require quarterly tests to be conducted on randomly selected samples of each product type (unless they qualify for reduced testing based on ULEF or NAF

resin). For hardwood plywood, the proposed rule would require quarterly tests to be conducted on randomly selected samples of the hardwood plywood product determined by the TPC to have the highest potential to emit formaldehyde (unless they qualify for reduced testing based on ULEF or NAF resins).

As under the CARB ATCM, this proposal would allow product types to be grouped for quarterly testing. EPA is proposing to allow accredited TPCs to approve the grouping of products with similar characteristics, particularly those characteristics that are most likely to affect emissions, such as the type of wood or the resin system(s) used to make the composite wood product. For hardwood plywood, other factors that are likely to influence formaldehyde emissions are core type, press time, veneer type (*i.e.*, species), and whether or not the core is certified. EPA requests comment on the appropriate criteria for grouping product types for quality control testing, given the statutory directive to promulgate implementing regulations in a manner that ensures compliance with the emission standards. For example, one possibility could be to allow panel producers and accredited TPCs to identify the products that are likely to have the highest emissions and to test those products.

Samples selected for quarterly testing would have to be dead-stacked (*i.e.*, closely stacked) or air tight wrapped between the time of sample selection and the start of test conditioning (as specified in ASTM E-1333-10 or, as appropriate, ASTM D-6007-02). Samples would have to be labeled as such, signed by the TPC, bundled air tight, wrapped in polyethylene, protected by cover sheets, and promptly shipped to the laboratory testing facility. EPA is proposing to require conditioning to begin as soon as possible, but no more than 30 days after production. This requirement, also included in the CARB ATCM, is designed to prevent panel producers from holding composite wood products to allow them to off-gas. TPCs must notify

panel producers in writing within 24 hours of a failed quarterly test result. Lots represented by a failed quarterly test result, would have to be handled as non-complying lots in accordance with the proposed requirements discussed in Unit III.D.4. If lots were grouped for quarterly testing, all lots in the group represented by a failed quarterly test result would have to be treated as non-complying lots. EPA requests comment on all aspects of these sampling requirements, including whether the 30-day requirement is appropriate.

b. *Quality control test methods.* EPA is proposing that in addition to ASTM D-6007-02 and ASTM D-5582, the following methods would also be allowed for quality control testing (with a showing of equivalence as described in this Unit): EN 717-2 (gas analysis method) (Ref. 32), DMC (Dynamic Micro Chamber) (Ref. 33), EN 120 (Perforator Method) (Ref. 34), and JIS A 1460 (24-hr Desiccator Method) (Ref. 35). EPA believes that these are appropriate methods for quality control testing based on CARB's evaluation and approval of these methods as alternative small-scale test methods, and test results using these methods have been demonstrated to have adequate correlations with test results using ASTM E-1333-10. EPA proposes to establish these additional methods pursuant to section 601(b)(3)(A)(ii) for quality control testing; as a general matter, EPA does not endorse any particular method over others. Other methods may also be appropriate for quality control testing, such as EN 717-1 (chamber method), EN 717-3 (flask method), ISO/DIS 12460-1(1-cubic-meter chamber method), ISO/DIS 12460-2 (small-scale chamber method), ISO/DIS 12460-3 (gas analysis method), or ISO/DIS 12460-4 (desiccator method). EPA requests comment on whether these methods should also be allowed for quality control testing.

c. *Proposed quality control testing frequency for particleboard and medium-density fiberboard that do not qualify for reduced testing based on ULEF or NAF resins.* EPA is

proposing to require the same quality control testing frequency for particleboard and medium-density fiberboard as is required under the CARB ATCM. This proposal would require quality control tests at least once per shift (8 or 12 hours, plus or minus one hour of production) for each production line for each product type. Quality control tests would also be conducted whenever a product type production ends, even if 8 hours of production has not been reached, or whenever (1) there is a significant change to the resin formulation, *e.g.*, an increase in the formaldehyde-to-urea ratio; (2) there is an increase by more than 10% in the amount of formaldehyde resin used; (3) there is a decrease in the designated press time by more than 20%; or (4) the quality control manager or quality control employee has reason to believe that the panel being produced may not meet the requirements of the applicable standards.

Also consistent with the CARB ATCM, EPA is not proposing to allow the grouping of products for quality control testing purposes. However, EPA is proposing to allow accredited TPCs and panel producers some flexibility in determining which products constitute a product type. CARB's guidance to its TPCs on defining product type include mention of those characteristics most likely to affect product emissions, such as type of wood or the resin system(s) used to make the composite wood product. Again, for hardwood plywood, these factors include core type, press time, veneer type (*i.e.*, species), and whether or not the core is certified.

EPA is proposing to allow reduced quality control testing requirements similar to CARB's for particleboard and medium-density fiberboard when the panel producer demonstrates consistent operations and low variability of test values. Under the EPA proposal, the panel producer would be required to request approval for reduced quality control testing from an accredited TPC. If approved, quality control testing would still have to occur at least once per

48-hour production period. Unlike CARB, EPA is proposing to establish criteria for demonstrating consistency and low variability. Under EPA's proposed requirements, which are based on a Composite Panel Association voluntary program, a 30 panel running average would be maintained (Ref. 36). If the 30 panel running average remains two standard deviations below the designated Quality Control Limit (QCL) for the previous 60 consecutive days or more, testing frequency could be reduced to one test per 24-hour production period. When the 30 panel running average remains three standard deviations below the QCL for the previous 60 days or more, testing frequency could be reduced to once every 48-hour production period. The QCL would be the quality control test value that is the correlative equivalent to the emission standard based on the ASTM E-1333-10 method. The QCL is established by using a simple linear regression where the dependent variables (Y-axis) are the quality control test results and the independent variables (X-axis) are the ASTM E-1333-10 test results. More information on the establishment of the QCL can be found in the TPC proposal (Ref. 1). An accredited TPC would be required to approve a request for reduced quality control testing as long as the data submitted by the panel producer demonstrate compliance with the criteria and the TPC does not otherwise have reason to believe that the data are inaccurate or that the panel producer's production processes are inadequate to ensure continued compliance with the emission standards. EPA will provide a list of panel producers and products types that are allowed reduced testing under this provision on the EPA website. EPA requests comment on whether there should be a finite time period for reduced testing, after which a new application and demonstration would be required, or whether reduced testing should continue to be allowed as long as the quality control test data demonstrate continued eligibility for reduced testing.

As in the CARB ATCM, EPA is proposing that all panels would be tested in an unfinished condition, prior to the application of a finishing or topcoat. EPA believes that the proposed testing frequency is sufficient to ensure compliance with the emission standards, but is not overly burdensome. EPA believes that most U.S. producers of particleboard and medium-density fiberboard have been complying with the testing requirements under the CARB ATCM and thus, the rule, if finalized as proposed, would not impose an additional burden on these producers.

d. *Proposed quality control testing frequency for hardwood plywood that does not qualify for reduced testing based on ULEF or NAF resins.* EPA is generally proposing to require the same frequency of testing for hardwood plywood that CARB requires. EPA believes that this testing frequency is adequate to ensure compliance with the TSCA Title VI emission standards and consistency with CARB makes it easier for panel producers already complying with CARB to comply with these proposed requirements. Similarly, if a quality control test exceeds the applicable emission standards for that product, all lots of products represented by that test result would be considered to be non-complying lots and would have to be treated and retested in accordance with the procedures discussed in Unit III.D.4.

EPA's proposed quality control testing frequency requirements for hardwood plywood are generally similar to CARB and are likewise based on production volume. Under this proposal, hardwood plywood panel producers would be required to conduct routine quality control tests on each production line of each product type based on total hardwood plywood production by the panel producer with the following testing frequency: At least one test per week per production line of each product type if the weekly hardwood plywood production is between 100,000 and 200,000 square feet; at least two tests per week per production line of each

product type if the weekly hardwood plywood production is between 200,000 and 400,000 square feet; and at least four times per week per production line of each product type if the weekly hardwood plywood production is greater than 400,000 square feet. EPA believes that, for some small specialty panel producers, even one quality control test per week would be excessive. Very small custom manufacturers may make significantly less than 100,000 square feet of product per week per product type. In order to address the inequity of requiring small manufacturers to conduct many more tests than required of large manufacturers for the same production volume, if weekly production of hardwood plywood at the panel producer is less than 100,000 square feet, EPA is proposing to require one quality control test per 100,000 square feet of each lot produced of each product type produced. If the panel producer never produces 100,000 square feet of a particular product type at one time, EPA is proposing to require just one quality control test of that product type per production run or lot produced.

EPA believes that the proposed testing frequency for hardwood plywood is sufficient to ensure compliance with the emission standards but is not overly burdensome. EPA believes that most U.S. hardwood plywood panel producers as well as many foreign producers have been complying with the CARB ATCM testing requirements and thus, the rule, if finalized as proposed, would not impose an additional burden on these producers. For laminated product producers that do not have to test under the CARB ATCM requirements, this proposed testing would be a new requirement; however, because the requirements are based on production volume, EPA believes that they would not be overly burdensome. EPA requests comment on whether these proposed requirements are sufficient to ensure compliance with the standards.

Under the CARB ATCM, only particleboard and medium-density fiberboard producers are required to conduct quality control testing when product type production ends, changes are

made to the resin formulation or the amount of resin used, or there is a significant decrease in press time. There is no similar provision applicable to hardwood plywood. EPA's proposal is consistent with the CARB ATCM, but EPA requests comment on whether quality control testing should be required for hardwood plywood production in these situations, or in any other situations, such as when the quality control manager or quality control employee has reason to believe that the panels in production may not meet the emission standard. EPA is also requesting comment on whether the proposed reduced quality control testing for consistent particleboard and medium-density fiberboard manufacturing operations should also be applicable to hardwood plywood.

3. *Means of showing test method equivalence.* EPA is proposing that equivalence between ASTM E-1333-10 and any other test method used would be demonstrated by the TPC for each laboratory used by the TPC or panel producer that is using the alternative method at least once each year or whenever there is a significant change in equipment, procedures, or the qualifications of testing personnel.

The CARB ATCM includes a specific method for demonstrating equivalence between ASTM E-1333-96 (2002) and ASTM D-6007-02. The CARB ATCM method requires at least 10 comparison sample sets, which compare the results of the 2 methods, for an equivalence demonstration. The 10 comparison sample sets consist of testing a minimum of 5 sample sets in at least 2 out of 3 specified ranges of formaldehyde concentrations. For the ASTM E-1333-96 (2002) method, each comparison sample consists of the result of simultaneously testing an appropriate number of panels (factoring in the loading rate) from the same batch of panels tested by the ASTM D-6007-02 method. For the ASTM D-6007 method, each comparison sample consists of testing 9 specimens representing evenly distributed portions of an entire panel. The

nine specimens are tested in groups of 3 specimens (factoring in loading rate), resulting in 3 test results, which are averaged to represent one data point for the panel, and matched to their respective ASTM E-1333-96 (2002) comparison sample result. CARB requires that equivalence be established between the ASTM E-1333-96 (2002) and ASTM D-6007-02 methods to represent the range in emissions based on the emission standards for the composite wood products being tested.

EPA is proposing the same general methodology as is required under the CARB ATCM. However, because the CARB phase 2 emission standards will be in effect by the time EPA issues a final rule, EPA believes that it will be very difficult, if not impossible, to find products with emissions in the intermediate and upper ranges specified by the CARB equivalency demonstration requirements. EPA's proposed procedure, therefore, does not include the requirement of testing different formaldehyde concentration ranges. Instead, EPA is proposing that equivalence be demonstrated in a range of formaldehyde concentrations that is representative of the emissions of the products that the TPC certifies. Therefore, EPA is proposing to require a minimum of 5 comparison sample sets rather than 10. In addition, EPA is proposing to allow for more flexibility in sampling and not require testing of 9 specimens representing evenly distributed portions of an entire panel. EPA believes that for some types of panels, within panel variability is such that fewer specimens can be tested, but for other panels testing of at least 9 specimens would be needed. EPA believes that TPCs and panel producers are best able to determine the sampling and testing needed to account for within panel variability for a specific product type and is therefore proposing to allow for flexibility in the distribution and number of specimens to require for the small chamber test comparison sample set.

EPA is proposing the following method for demonstrating equivalence between ASTM

E-1333-10 and ASTM D-6007-02: An equivalence demonstration would include at least five comparison sample sets (*i.e.*, five large chamber sample sets and five small chamber sample sets), which compare the results of the two methods. For the ASTM E-1333-10 method, each comparison sample would consist of the result of simultaneously testing an appropriate number of panels, using the applicable loading ratios from the method, from the same batch of panels tested by the ASTM D-6007-02 method. For the ASTM D6007 method, each comparison sample would consist of testing specimens representing portions of panels tested in the ASTM E-1333-10 and matched to their respective ASTM E-1333-10 method comparison sample result. The arithmetic mean,  $\bar{x}$ , and standard deviation,  $S$ , of the difference of all comparison sets would be calculated as follows:

$$\bar{X} = \sum_{i=1}^n D_i / n \quad S = \sqrt{\sum_{i=1}^n (D_i - \bar{X})^2 / (n - 1)}$$

Where  $\bar{x}$  = arithmetic mean;

$S$  = standard deviation;

$n$  = number of sets;

$D_i$  = difference between the ASTM E-1333-10 and the ASTM D-6007-02 method values for the  $i$ th set; and

$i$  ranges from 1 to  $n$ .

EPA is proposing that ASTM D-6007-02 method would be considered equivalent to the ASTM E-1333-10 method if the following condition were met:

$$|\bar{X}| + 0.88S \leq C$$

where  $C$  is equal to 0.026 (Ref. 37).

EPA believes that the proposed means for showing equivalence between ASTM E-1333-10 and ASTM D-6007-02 is a reasonable method of showing equivalence. EPA independently analyzed this proposed method for demonstrating equivalence by evaluating CARB's Supplemental Analysis Supporting the Test for Demonstrating Equivalence between Primary and Secondary Methods for Measuring Formaldehyde Emissions from Composite Wood Products (Ref. 37) and by comparing CARB's method with the two-one sided t-test (TOST). EPA is proposing to use the CARB method because it appears to be satisfactory for the desired purpose, it is simpler than the TOST method, it is not overly burdensome, and industry is already using it. EPA requests comment on whether the proposed means of showing equivalence is appropriate. EPA specifically requests comment on whether 5 comparison sample sets are sufficient or whether 10 should be required. In addition, EPA requests comment on whether testing products in two different ranges of formaldehyde concentrations should be required, as is required under the CARB ATCM, and what ranges would be appropriate (*e.g.*, lower range less than 0.05 ppm and upper range 0.05 ppm - 0.13 ppm as measured by ASTM E-1333-10). EPA also requests comment on whether sampling should be left to the TPCs and manufacturers, or whether EPA should require testing of nine specimens (representing evenly distributed portions of an entire panel) tested in groups of three specimens, resulting in three test results, which would be averaged to represent one comparison sample for the ASTM D-6007-02 method, or whether some other sampling protocol should be required. EPA also requests comment on whether the proposed criteria for demonstrating equivalence are appropriate, or whether other criteria would be more appropriate, such as establishing equivalence criteria based on the TOST method.

EPA is proposing to require that equivalence between ASTM E-1333-10 and any formaldehyde quality control test method used other than ASTM D-6007-02 would be

demonstrated by establishing a linear regression and an acceptable correlation, as defined by the correlation coefficient, or “r” value. Although correlation will not show that the test methods give equivalent results, it will demonstrate whether a quality control test method can be used to adequately estimate the corresponding ASTM E-1333-10 test result; therefore, if there is an acceptable correlation, the quality control test method can be used to estimate whether the product meets the emission standards. The correlation would be based on a minimum sample size of five data pairs and a simple linear regression where the dependent variable (Y-axis) is the quality control test value and the independent variable (X-axis) is the ASTM E-1333-10 test value. EPA is proposing the following minimum acceptable correlation coefficients (“r” values) for the correlation:

Minimum Correlation for Equivalency Correlations

Degrees of Freedom (n-2)	“r” Value
3	0.878
4	0.811
5	0.754
6	0.707
7	0.666
8	0.632
9	0.602
10 or more	0.576

The number of data pairs is represented by the letter “n.” For example, correlations based on five data pairs have 3-degrees of freedom, and the correlation coefficient would need to

be 0.878 or greater. These values are the same as those recommended by CARB in its Certification Guideline No. CWP-10-001 (Ref. 38). EPA requests comment, information, and data on these values and whether they adequately account for the uncertainties (*e.g.*, sample preparation, emission testing) and thus, are appropriate for this purpose.

Because of the low emissions required for regulated composite wood products, it may be necessary to include more than five data pairs and/or a range of products (with a suitable range in emissions, *e.g.*, 0 – 0.1 ppm) in the testing to achieve acceptable correlation coefficients. In addition to the requirement of establishing a new correlation annually or whenever there is a significant change in equipment, procedures, or the qualifications of testing personnel, EPA is proposing that a new correlation would need to be established by the TPC for the panel producer whenever a TPC's quarterly test results compared with the panel producer's quality control test results do not fit the previously established correlation. In addition, if a panel producer fails two quarterly tests in a row, a new correlation curve would have to be established.

EPA requests comment on the proposed correlation method for demonstrating equivalence and whether the proposed acceptable correlation coefficients are reasonable. EPA also requests comment on whether the term “equivalency” needs to be defined more clearly and whether additional statistical parameters are needed to make a determination of “equivalency” for the quality control methods.

4. *Non-complying lots.* EPA is proposing to require producers of non-complying lots of composite wood products to treat such lots in a manner similar to the CARB ATCM requirements. A non-complying lot would be any lot or batch represented by a quarterly or quality control test value that exceeds the applicable emission standard for the particular composite wood product. In the case of a quarterly test value, only the particular lot from which

the sample was taken would be considered a non-complying lot; lots produced after the previous quarterly test but before the lot from which the sample was taken would still be considered certified product. However, future production of product type(s) represented by a failed quarterly test would not be considered certified and would have to be treated as a non-complying lot until the product type(s) are re-qualified through a successful quarterly test.

TPCs would be required to notify EPA and the panel producer of any quarterly tests that exceed the applicable standard within 24 hours of obtaining the test result. Panel producers would be required to segregate the non-complying lot from other product. Products in non-complying lots could only be sold, supplied, or offered for sale in the United States if a test value that meets the applicable standard is obtained after the products are treated with scavengers, to absorb excess formaldehyde, or treated through another process that reduces formaldehyde emissions, *e.g.* aging. EPA is proposing to define the term “scavenger” as a chemical or chemicals that can be applied to resins or composite wood products to reduce the amount of formaldehyde that can be emitted from composite wood products. EPA requests comment on whether this definition is appropriate. EPA also requests comment on processes other than aging that could be used to reduce formaldehyde emissions from non-complying lots. Under this proposal, panel producers would be required to keep records of the disposition of non-complying lots, including the specific treatment used and the subsequent test results demonstrating compliance.

Non-complying lots, by definition, do not meet the applicable emission standards and may not be sold, supplied, or offered for sale in the United States. In order to ensure that this does not occur, EPA is proposing to require that panel producers retain lots of composite wood products from which quality control or quarterly samples have been selected until the samples

have been tested and the results received. With respect to quarterly samples, this includes lots that are grouped for purposes of quarterly testing. EPA believes that this approach may be less burdensome overall and offer better protection to importers, distributors, wholesalers, retailers, and consumers than an approach relying on after-the-fact enforcement actions and customer notifications.

*E. Quality Assurance and Quality Control Requirements for Composite Wood Product Panel Producers*

Composite wood product panel producers are responsible for ensuring that their products meet the emission standards of TSCA Title VI. Quality assurance and quality control requirements for panel producers are necessary to ensure that all of their products comply with the applicable standards, including those that are not actually tested. EPA believes that the proposed quality assurance and quality control requirements would help ensure proper handling of test samples, test equipment, and quality control testing. EPA is generally proposing quality assurance requirements that are identical to the requirements under the CARB ATCM. As discussed in more detail in Unit III.F., these quality assurance and quality control requirements do not apply to any product type made with a NAF-based resin or ULEF resin for which the panel producer is eligible for an exemption from the third party certification requirements, except for the purpose of applying for re-approval for the exemption.

Under this proposal, each panel producer would be required to have a written quality control manual containing at a minimum: (1) Organizational structure of the quality control department; (2) sampling procedures; (3) method of handling samples, including a specific maximum time period for analyzing quality control samples; (4) frequency of quality control testing; (5) procedures to identify changes in formaldehyde emissions resulting from production changes (*e.g.*, increase in the percentage of resin, increase in formaldehyde/urea molar ratio in

the resin, or decrease in press time); (6) provisions for additional testing; (7) recordkeeping requirements; (8) average percentage of resin and press time for each product type; (9) product grouping, if applicable, and (10) procedures for reduced quality control testing, if applicable. The TPC would review and approve the manual to ensure that the manual is complete and that the panel producer's procedures are adequate to ensure that the TSCA Title VI emission standards are being met on an ongoing basis. The proposed requirement for a quality control manual is consistent with CARB and with international voluntary consensus standards, such as the International Standards Organization (ISO) 9000 series of standards. EPA requests comment on what should be included in the quality control manual.

This proposal would also require each panel producer to designate a quality control facility for conducting quality control formaldehyde testing of their product. The quality control facility must be a laboratory owned and operated by the panel producer, a TPC, or a contract laboratory.

EPA is also proposing to require each panel producer to designate a person as quality control manager with adequate experience and/or training to be responsible for formaldehyde emission quality control. EPA is requesting comment on criteria for determining whether an individual's experience and/or training are appropriate for this position. For example, should the quality control manager have a certain number of years of experience in the wood products industry, or a degree in chemistry or a related field?

The quality control manager would have to have the authority to take actions necessary to ensure that applicable emission standards are being met. The quality control manager would also be identified in writing to the TPC. Under this proposal, the panel producer would have to notify the TPC in writing within 10 days of any change in the identity of the quality control manager

and provide the TPC with the new quality control manager's qualifications. The quality control manager would review and approve all reports of quality control testing conducted on the production of the panel producer. The quality control manager would also be responsible for ensuring that the samples are collected, packaged, and shipped according to the procedures specified in the quality control manual. The panel producer quality control manager would monitor the testing facility's results, and would immediately inform the TPC in writing of any significant changes in production that could affect formaldehyde emission rates.

EPA is proposing to require panel producers to submit monthly product data reports for each panel producer, production line and product type, to their TPC. The content requirements for the product data reports would be similar to the CARB requirements and include a data sheet for each specific product with test and production information, and a quality control graph containing the established quality control limit (QCL) and shipping QCL, if applicable, the results of quality control tests, and retest values. EPA requests comment on whether other useful information, or a different format, should be required.

EPA is also proposing to require that each quality control facility have quality control employees with adequate experience and/or training to conduct accurate and precise chemical quantitative analytical tests. EPA requests comment on the criteria for determining whether an individual's experience and/or training are appropriate for this position. The quality control manager would identify each person conducting formaldehyde quality control testing in the quality control manual and to the accredited TPC.

#### *F. NAF and ULEF Resins*

TSCA Title VI section 601(d)(2)(D) and (E) directs EPA to include, in its implementing regulations, provisions related to products made with NAF and ULEF resins. The statute also

defines, under section 601(a)(7) and (10) respectively, what constitutes NAF-based and ULEF-based resins, in terms of the composition of the resin system and maximum formaldehyde emissions for composite wood products made with these resin systems. In general, a NAF composite wood product cannot incorporate a resin formulated with formaldehyde. A ULEF composite wood product is one made from resins that may contain formaldehyde, but emit it at particularly low levels, such as melamine-urea-formaldehyde resin, phenol formaldehyde resin, resorcinol formaldehyde, or other formaldehyde-based resins. The statutory maximum emissions for products made with NAF-based or ULEF-based resins are identical to those in the CARB ATCM.

Under the CARB ATCM, ULEF and NAF manufactures are provided with incentives such as reduced testing requirements for ULEF, and for NAF, a 2-year exemption from TPC oversight and formaldehyde emissions testing for one individual product type. If further reduced emission standards are met, ULEF manufacturers can also be exempted from TPC oversight and formaldehyde emissions testing. ULEF and NAF manufacturers must apply to CARB to get the initial exemption for either the reduced testing of their individual products (for ULEF) or for a total exemption from TPC oversight and formaldehyde emissions testing (ULEF or NAF). A separate exemption is required for each composite wood product type. The NAF exemption under the CARB ATCM from TPC oversight and formaldehyde emissions testing requires an initial 3-month formaldehyde emissions testing period with a TPC. For manufacturers to receive a ULEF exemption from TPC oversight and formaldehyde emissions testing, 6 months of formaldehyde emissions testing with a TPC is required. In addition, formaldehyde emissions must be reduced to below the standard ULEF emissions level. Exempt NAF and ULEF manufacturers must reapply to CARB for exemption from TPC oversight and formaldehyde

emissions testing every 2 years by submitting test results for each product type for which an exemption is sought, based on a panel or set of panels randomly selected and tested by a TPC, and the chemical formulation of the resin.

EPA is proposing a similar approach for the TSCA Title VI program. If certain emission thresholds are met, EPA proposes to provide producers of panels made with NAF-based resins or ULEF resins with an exemption from TPC oversight and formaldehyde emissions testing after an initial testing period of 3 months for each product type made with NAF-based resins or 6 months for each product type made with ULEF resins. These specific initial testing periods are required by the statute and are designed to ensure that the products meet the TSCA section 601(a) formaldehyde emission standards for products made with NAF-based or ULEF resins.

Whether using a NAF-based or ULEF resin, to qualify for the exemption from TPC oversight and formaldehyde emission testing for a particular product type, there can be no test result higher than 0.05 ppm of formaldehyde for hardwood plywood and 0.06 ppm for particleboard, medium-density fiberboard, and thin medium-density fiberboard during the initial testing period of 3 or 6 months for NAF-based or ULEF resins, respectively. In addition, test results for 90% of the required 3 or 6 months of quality control testing must be no higher than 0.04 ppm of formaldehyde.

EPA is also proposing that, if less stringent emission standards than these are met, producers of panels made with ULEF resins may still qualify for reduced formaldehyde emission testing—but not the TPC exemption or the exemption from emission testing after the initial 6 months. To qualify for this reduced testing provision for products made with ULEF resins, there can be no test result higher than 0.05 ppm of formaldehyde for hardwood plywood, 0.08 ppm for particleboard, 0.09 ppm for medium-density fiberboard, and 0.11 ppm for thin medium-density

fiberboard during the initial 6 month testing period. In addition, test results for 90% of the required quality control testing must be no higher than 0.05 ppm of formaldehyde for particleboard, 0.06 ppm for medium-density fiberboard, and 0.08 ppm for thin medium-density fiberboard. Under this reduced testing provision, qualifying panels would only need to be quality control tested at least once per week per product type and production line, except that hardwood plywood panel producers who qualify for less frequent quality control testing may continue to perform the lesser amount of testing. For these panels, what would otherwise be quarterly testing by an accredited TPC would instead only be required every 6 months.

An accredited TPC would be required to oversee the testing during the initial testing period, which must include at least one test result for the NAF exemption or two test results for either ULEF provision under ASTM E-1333-10 or, upon a showing of equivalence as discussed in this Unit, ASTM D-6007-02 (Refs. 31 and 29). In contrast to the CARB ATCM, EPA is not proposing to require the panel producer to formally apply to EPA for reduced testing or a TPC exemption. Rather, the panel producer would be required to apply to an accredited TPC for reduced testing or a TPC exemption based on the regulatory requirements and to send a copy of the application to EPA. EPA intends to list panel producers and product types that have been approved for reduced testing and exemption from TPC requirements on EPA's website.

To maintain eligibility for a TPC exemption, at least once every 2 years after the conclusion of the initial testing period, the panel producer would have to reapply for exemption to an accredited TPC and have one test result under ASTM E-1333-10 or, upon a showing of equivalence as discussed in this unit, ASTM D-6007-02, which demonstrates continued compliance with the reduced formaldehyde emission standards for each product type (Refs. 31 and 29). The test must be based on products randomly selected and tested by an accredited TPC.

In the case of approval for ULEF reduced testing, no periodic reapplication would be necessary because the panel producer would have ongoing TPC oversight.

Testing records and other records demonstrating eligibility for a TPC exemption or reduced testing, such as records showing the chemical composition of the resins used to manufacture the eligible products, would have to be maintained for a minimum of 3 years from the date that the record was created. EPA requests comment on whether the test records from the initial testing period should be kept for as long as a panel producer claims a TPC exemption.

Under this proposal, any change in the resin formulation, the core material, or any other part of the manufacturing process that may affect formaldehyde emission rates would render the product ineligible for the reduced testing approval or TPC exemption. EPA requests comment on whether other events, such as failed quarterly or routine quality control tests, should invalidate a reduced testing approval. EPA also requests comment on whether, in the event of such a change, the panel producer should be required to begin the TPC exemption process again with a 3 or 6 month testing period overseen by an accredited TPC, or whether a single TPC test of the modified product would be sufficient. EPA further requests comment on whether a distinction can be made between changes that are unlikely to result in changes in product emissions, which may not need extensive testing to confirm continued eligibility for the exemption, and more significant changes. EPA is particularly interested in specific examples of both types of changes.

Although this proposal contains a ULEF reduced testing provision, EPA requests comment on the utility of this option. It is EPA's understanding that very few manufacturers have sought the ULEF reduced testing provision under the CARB ATCM in lieu of the total exemption from TPC oversight and formaldehyde emissions testing requirements after the initial

testing period. As such, EPA anticipates that the vast majority of ULEF resin-based composite wood product manufacturers will apply for the full exemption from TPC oversight and formaldehyde emissions testing after the initial testing period.

EPA is also requesting comments, information, and data on the broader question of giving composite wood products made with ULEF resins preferential treatment under TSCA. EPA is particularly concerned with products made with urea-formaldehyde-based resins. EPA believes that it is more difficult to ensure that formaldehyde emissions from products made with these resins remain low over time, regardless of environmental conditions. It is well known that urea-formaldehyde resins can release formaldehyde when exposed to heat and humidity because of the chemistry of the resin. There are a number of older studies demonstrating that urea-formaldehyde resins have increased emissions in the presence of heat and humidity. For example, a 1985 review article analyzes data on the effects of temperature or humidity on formaldehyde emissions from urea-formaldehyde bonded particleboard and hardwood plywood from numerous studies from 1960-1984 (Ref. 39). This article concludes that formaldehyde emissions increased exponentially with increasing temperature. The relationship between humidity and formaldehyde emissions was more complex and variable, but the author concludes that the relationship was approximately linear.

Since the 1980s, changes have been made to resins to lower formaldehyde emissions; for example, the ratio of formaldehyde to urea is often lower, and sometimes scavengers are added to the resin. Several recent emission studies have been conducted on composite wood products that have been produced to meet stringent emission standards. A study on a hardwood plywood product made with urea-formaldehyde resin and a similar hardwood plywood product made with a NAF resin demonstrated that the urea-formaldehyde product emitted more formaldehyde as the

temperature and relative humidity increased. The study reports that both products met the CARB Phase 2 standard when initially tested in a small chamber under the test conditions specified by the method, *i.e.*, 25 °C and 50% relative humidity (Ref. 40). However, when the urea-formaldehyde product was tested at 35 °C and 100% relative humidity, its formaldehyde emissions increased by more than 31 times compared with the emissions measured at 25 °C and 30% relative humidity. In contrast, the formaldehyde emissions from the NAF product only increased slightly (less than 4 times) over the same change in temperature and humidity conditions. In addition, for the NAF product, total formaldehyde emissions reached a plateau and decreased rapidly after a few days under all of the test conditions.

Riedlinger *et al* measured formaldehyde emissions from four types of particleboard (PB) panels (made with UF, phenol-formaldehyde (PF), melamine-urea-formaldehyde (MUF), and polymeric diphenylmethane diisocyanate (pMDI) resins), one of which (the PF product) was certified as a ULEF panel under the CARB ATCM (Ref. 41). Testing was conducted at both the standard temperature/relative humidity conditions and at 30 °C and 75% relative humidity using ASTM D-6007 and the Dynamic Microchamber Method (Refs. 29 and 33) for up to 50 days. Aspects of the testing confound comparisons of the data; for example, testing at the standard and elevated temperature/relative humidity conditions was conducted in two different laboratories, using different sampling procedures and analytical methods, with sampling at different time points. Nonetheless, the study appears to show that formaldehyde emissions from panels made with all four resin types increased by factors of 2 to 3 under the elevated temperature/relative humidity conditions. Emissions from panels made with two non-UF resin types (*i.e.*, PF and pMDI) never exceeded the numerical emission limit of 0.09 ppm for PB, even at elevated conditions, whereas emissions from panels made with the UF resins (*i.e.*, UF and MUF)

exceeded that numerical emission limit at elevated temperature and relative humidity until about 20 or 25 days after the start of the testing.

EPA also recently conducted a study to investigate the effects of temperature and humidity on formaldehyde emissions from hardwood plywood made with different types of resins (Ref. 42). A CARB approved third-party certifier tested commercial hardwood plywood products certified as NAF or ULEF under the CARB ATCM using ASTM D-6007-02 (small chamber testing) at two different temperatures (25 °C and 30 °C) and three different relative humidities (50%, 70%, and 85%). The results demonstrate that while formaldehyde emissions increased from all panels with increasing temperature, the effect of temperature on emissions from ULEF panels made with urea-formaldehyde (ULEF-UF) was up to three times greater than on the NAF panels made with an acrylic resin or the ULEF panels made with phenol-formaldehyde. All formaldehyde emissions from the ULEF-UF panel exceeded the numerical emission limit for ULEF panels (0.05 ppm) except under standard conditions, while, in almost all cases, despite the chamber conditions, formaldehyde emissions for the ULEF-PF and NAF-acrylic panels were below the numerical emission standard.

Given this information, EPA requests comment on whether there should be a reduced testing option or a TPC exemption available to products made with ULEF resins. EPA also requests comment on whether the ULEF provisions should be limited to products made with a subset of ULEF resins that do not contain urea-formaldehyde polymer—in other words, limited to no-added urea formaldehyde-based (NAUF) resins. EPA believes that encouraging the use of NAUF resins is a more reliable way of ensuring that formaldehyde emissions from a particular product remain low over time, regardless of environmental conditions, such as heat and humidity.

### *G. De Minimis Exception*

Section 601(d)(2)(L) of TSCA allows EPA to promulgate, for products and components containing *de minimis* amounts of composite wood products, an exception to all of the requirements of the implementing regulations other than the formaldehyde emission standards. After due consideration, EPA has decided not to propose an exception from any of the regulatory requirements for products containing *de minimis* amounts of composite wood products. EPA does not have data on the emission levels of such products, nor does EPA know of any information that suggests that such products would not have formaldehyde emissions that exceed the statutory emission standards. In addition, EPA has not identified any apparent dividing line between products that contain *de minimis* amounts of composite wood products and other products. EPA requests comment, information and data on whether there should be such an exception, how the exception should be delineated, and what regulatory provisions should apply or not apply to such products. EPA notes that any decision on this particular exception would not affect the statutory exemption from the emission standards for windows, exterior doors, and garage doors made with small amounts of composite wood products.

### *H. Chain-of-Custody, Recordkeeping, and Labeling Requirements*

Section 601(d)(2) of TSCA Title VI also directs EPA to consider chain of custody, recordkeeping, and labeling requirements. For labeling, EPA is proposing requirements that generally follow the approach taken in the CARB ATCM because EPA believes that this approach supports compliance with the TSCA Title VI emission standards while not being unduly burdensome. With respect to chain of custody and recordkeeping requirements, EPA is proposing requirements similar to that of the CARB ATCM for entities that are manufacturers under TSCA. This includes entities who import, produce, or manufacture composite wood

panels, component parts, or finished goods. Again, EPA believes that this approach supports compliance with TSCA Title VI without undue burden. However, for distributors and retailers who are not manufacturers under TSCA, EPA is proposing that they only be required to keep invoices and bills of lading. EPA has determined that these ordinary business records would provide enough information to enable EPA to trace back a particular composite wood product to the panel producer and thus allow EPA to monitor compliance with TSCA Title VI. Each of these proposed requirements is discussed in more detail in this Unit.

1. *Chain of custody and recordkeeping requirements.* Most records would have to be kept for a period of 3 years from the date that they are generated. In addition, all records that would be required by this proposal would also have to be provided to EPA upon request to facilitate EPA's compliance monitoring activities.

Producers of hardwood plywood, particleboard, and medium-density fiberboard panels would be required to maintain records of quarterly emission testing and records of quality control testing. These records would have to identify the accredited TPC conducting or overseeing the testing, and would include the date, the product type tested, the lot or batch number that the tested material represents, and the test results. In addition, panel producers would have to maintain the following records:

- Production records, including a description of the composite wood product(s), date of manufacture, lot or batch numbers, and tracking information allowing each product to be traced to a specific lot number or batch produced.
- Changes in production, including changes in resin use, resin composition, and changes in the process, *e.g.*, press time.
- Purchaser information for each composite wood product, if applicable, including name,

contact person, address, telephone number, purchase order or invoice number, and amount purchased.

- Transporter information for each composite wood product, if applicable, including name, contact person, address, telephone number, shipping invoice number, and amount transported.

- Information on the disposition of non-complying lots or batches, including product type and amount of composite wood products affected, lot or batch numbers, mitigation measures used, results of retesting, and final disposition of the lots or batches.

In addition, laminated product producers whose products are exempt from the definition of hardwood plywood would have to maintain records demonstrating use of a NAF resin, including the resin trade name, resin manufacturer contact information, and resin supplier contact information, or, if the resin is made in-house, records sufficient to demonstrate that the resin is a NAF resin.

In order to assist customers such as fabricators, distributors, importers, and retailers in determining whether they are purchasing compliant composite wood products, EPA would require that all records pertaining to the compliance status of a particular lot, batch, or shipment of composite wood products be provided to purchasers upon request. EPA realizes that some of the information contained in these records is information that manufacturers might claim as Confidential Business Information (CBI) in other contexts. While information collected under TSCA may be entitled to confidential treatment if it meets the standard for Exemption 4 in the Freedom of Information Act (FOIA), 5 U.S.C. 552(b)(4), TSCA provides that health and safety studies and data derived from health and safety studies, are not entitled to confidential treatment, irrespective of the Exemption 4 standard, unless the data derived from such studies disclose

confidential processes used in the manufacturing or processing of a chemical substance or mixture or, in the case of a mixture, the release of data disclosing confidential portion of mixture information.

TSCA defines a "health and safety study" as any study of any effect of a chemical substance or mixture on health or the environment or on both, including underlying data and epidemiological studies, studies of occupational exposure to a chemical or mixture, toxicological, clinical, and ecological studies of a chemical or mixture, and any test performed pursuant to TSCA (15 U.S.C. 2602(6)). Because the testing required by TSCA Title VI and the implementing regulations would be "any test performed pursuant to the Act," such tests would be health and safety studies. Therefore, under TSCA, the formaldehyde emission test results of specific products are not entitled to confidential treatment. The names of the producers of panels for which formaldehyde emission data are generated similarly are not entitled to confidential treatment, analogous to how EPA treats the confidentiality of chemical identities in health and safety studies. It is a long established principle that the chemical name is part of, or underlying data to, a health and safety study. (See 40 CFR 716.3; 40 CFR 720.3(k)) The rationale for this is that the chemical name provides context for the study results, *i.e.*, the test relates to a specific chemical. Without knowing the chemical name, there is no basis for understanding the results of the test.

The same principle applies to producer names. The requirement to test formaldehyde emissions from specific composite wood products produced by specific panel producers, and an obligation to make those results available to downstream purchasers so that purchasers can determine whether they are purchasing compliant products, is integral to TSCA Title VI and these implementing regulations. In order to have context, the raw emission numbers must be

linked to the products tested. For this reason, the product name and the producer of the product constitute part of, or are underlying data to, a health and safety study. Therefore under TSCA, the product and panel producer name are not entitled to confidential treatment.

Producers of hardwood plywood, particleboard and medium-density fiberboard panels using NAF-based resins or ULEF resins who qualify for the reduced testing and third-party certification requirements discussed in Unit III.F. would have to maintain records demonstrating initial eligibility for the reduced testing. In addition, the panel producer would have to keep records documenting the following for each product type:

- The amount of resin use by volume and weight.
- Production volume, reported as square feet per product type.
- Resin trade name, resin manufacturer contact information, and resin supplier contact information.
- Changes in the production method, including changes in press time by more than 20%.
- Changes in the resin formulation.

Importers, fabricators of finished goods that incorporate composite wood products, laminated product producers whose products are exempt from the definition of hardwood plywood, distributors, and retailers would be required to take steps to ensure that they are purchasing composite wood products or component parts that comply with the emission standards. Importers, fabricators, and laminated product producers would be required to document these steps. In general, this means that the importer, fabricator, or producer would be required to obtain from the supplier records identifying the panel producer(s) that produced the composite wood products and the dates that the products were manufactured and purchased from the panel producer(s), and bills of lading or invoices that include a written affirmation from the

supplier that the composite wood products are compliant with this subpart. EPA requests comment on what documentation ought to be required of distributors and retailers in this regard. For example, should distributors and retailers be required to obtain bills of lading or invoices from their suppliers that include a written affirmation that the composite wood products are compliant with this subpart? Or should distributors and retailers be required to obtain the same records that EPA is proposing to require for importers, fabricators, and laminators? In addition, laminated product producers whose products are exempt from the definition of hardwood plywood would have to maintain records demonstrating use of a NAF resin, including the resin trade name, resin manufacturer contact information, and resin supplier contact information, or, if the resin is made in-house, records sufficient to demonstrate that the resin is a NAF resin.

For distributors and retailers who do not import, produce, or manufacture composite wood panels, component parts, or finished goods, EPA is proposing to require that they maintain invoices and bills of lading. The invoices and bills of lading would not be required to contain an affirmation by the supplier that the goods comply with TSCA Title IV. EPA believes that invoices and bills of lading are usually kept by most distributors and retailers already, as part of their general recordkeeping practices. EPA has determined that these records will enable EPA to identify the producer or importer of composite wood panels, component parts, or finished goods being sold by distributors and retailers. For finished goods, this will allow EPA to ultimately identify the producer of the composite wood panels that make up the finished goods. Without imposing additional recordkeeping burdens on most distributors and retailers, this requirement will allow EPA to effectively monitor compliance with TSCA Title VI.

Entities that fit within two or more of these recordkeeping categories, such as a fabricator of finished goods who also buys finished goods for resale, or a distributor that buys finished

goods from both foreign and domestic companies for resale, would be required to keep only the records for each product that correspond to the activities the entity undertook with respect to that product. For example, a domestic fabricator of finished goods who also buys domestic finished goods and sells both categories of finished goods to a domestic distributor for resale would have to keep the records required for fabricators on those products that the fabricator produces, and invoices and bills of lading only for those finished goods that the fabricator buys and resells. A distributor who purchases both foreign and domestic finished goods for resale would be required to keep the following records:

- For foreign finished goods that the distributor imports, records identifying the panel producer(s) that produced the composite wood products and the dates that the products were manufactured and purchased from the panel producer(s) as well as bills of lading or invoices that include a written affirmation from the supplier that the composite wood products are compliant with this subpart.

- For domestic finished goods, only invoices and bills of lading, which need not contain a written compliance affirmation from the supplier.

For imported finished goods, only the importer would be responsible for keeping the records identifying the panel producer and the date that the composite wood products were manufactured. For example, if the importer sells the goods to a domestic distributor, who then sells them to a domestic retailer, only the importer would have to keep the additional records. The domestic distributor and retailer would only be required to keep invoices and bills of lading.

With respect to home builders or producers of goods such as modular homes, manufactured homes, or recreational vehicles that contain composite wood products, EPA will generally consider these entities to be either fabricators or retailers for recordkeeping purposes,

depending on their activities with respect to composite wood products. For example, a home builder or manufactured home producer who purchases finished kitchen cabinets made of composite wood products from another entity, installs them in the home, and then sells the home to a consumer would be considered to be a retailer so long as no major modifications were made to the cabinets in the process of installing them. In contrast, a manufactured home producer would be considered a fabricator if the producer purchased finished composite wood panels, cut them into shelves or countertops, edge-banded them, and then installed them into a manufactured home and sold the home to a consumer. EPA believes that this approach is consistent with CARB's approach (Ref. 43, Questions 87, 89, and 91). These entities may also be importers if they import composite wood products, or components made with composite wood products, for installation into their homes or recreational vehicles. EPA requests comment on how the definition of "fabricator" and the record keeping requirements for fabricators would affect manufactured home producers.

In order for this recordkeeping system to function effectively, allowing EPA to determine the source of the composite wood products that make up an imported finished good, the records required to be kept by the importer would have to be accessible to EPA. EPA requests comment on alternative ways to ensure that this is the case. For example, EPA could require importer records to be maintained in the United States, either at the importer's place of business or at a registered agent's. Or EPA could require an electronic copy of the importer records to be available in the United States at the importer's place of business or with the importer's registered agent.

2. *Labeling.* The CARB ATCM requires that each panel or bundle of regulated composite wood products be labeled with the manufacturer name; product lot number or batch

produced; markings that denote the product complies with the applicable Phase 1 or Phase 2 emission standards; markings if the product was made using ULEF or NAF-based resins; the CARB assigned number of the TPC; and a statement of compliance on the bill of lading or invoice.

EPA is proposing similar labeling requirements. Under this proposal, panels or bundles of panels that are sold, supplied, or offered for sale in the United States would have to be labeled with the name of the panel producer, the lot or batch number, the number of the accredited TPC, and markings indicating that the product complies with the TSCA Title VI emission standards. Labels for products produced under the NAF or ULEF exemptions discussed in Unit III.F. would also have to include the designation “no-added formaldehyde” or “ultra low-emitting formaldehyde.” There would also have to be a statement of compliance on the bill of lading or invoice. Distributors and wholesalers who receive labeled bundles of regulated composite wood products and then divide and repackage them, whether in bundles or separately, would be required to label each separate bundle or item with the same information as required on the original label. EPA is proposing to define the term “bundle” as more than one composite wood product panel, component part, or finished good fastened together for transportation or sale. EPA requests comment on the utility of this definition and whether it represents common industry usage.

EPA is interested in any information or data available on how often retailers receive bundles of regulated composite wood products and then divide and repackage them. In addition, EPA requests comment on whether these retailers should then be required to label each separate bundle or item with the same information as required on the original label. EPA would also be interested in comments on other approaches that could be used to convey the information; for

example, allowing retailers to use signage in the retail display area, which contains the information on the label, to meet this requirement in lieu of separate labels on each product once debundled. Alternatively EPA requests comment on requiring fabricators and manufacturers to label every regulated product separately prior to bundling and also requiring wholesalers, distributors, and retailers to maintain those labels at all times.

Fabricators of finished goods containing composite wood products would be required to label every finished good they produce, or every box containing finished goods. As permitted by under the CARB ATCM, EPA is proposing to allow the label to be applied as a stamp, tag, sticker, or bar code. It would have to include, at a minimum, the fabricator's name, the date the finished good was produced and a marking to denote that the product was made in compliance with TSCA Title VI. EPA requests comment on whether a label applied as a bar code should be permitted, given that consumers of finished goods may not be able to read bar codes. EPA believes that many consumers of finished goods will be aware of the labeling requirements, either under the CARB ATCM or TSCA Title VI, and will be looking for a label that indicates compliance with the emission standards.

EPA proposes to allow boards to be shipped into and around the United States for quality control or quarterly tests. These boards may not be sold, offered for sale or supplied to any entity other than a TPC laboratory or contract laboratory prior to successful emissions testing. These boards or bundles must be labeled "For TSCA Title VI testing only, not for sale in the United States." The boards or bundles may be re-labeled as compliant with TSCA and offered for sale once they have successfully completed testing.

#### *I. Sell-through Provisions and Stockpiling*

TSCA Title VI directs EPA to establish sell-through provisions for composite wood

products, and finished goods containing regulated composite wood products, based on a designated date of manufacture, or “manufactured-by” date. Under the statute, composite wood products or finished goods manufactured before the specified manufactured-by date are not subject to statutory emission standards or testing requirements. TSCA Title VI states that the manufactured-by date must be no earlier than 180 days after promulgation of the final implementing regulations, but EPA has the discretion to establish, by rulemaking, a later date.

The manufactured-by date approach directed by TSCA Title VI differs from the CARB ACTM approach, which is based on a sell-through date. CARB established a series of dates by which products that are not compliant with all of the CARB requirements must be sold. In contrast, TSCA Title VI requires EPA to set a date by which all new products that are manufactured must be compliant with the emission standards. This approach should avoid some of the implementation issues encountered by CARB. For example, due to the economic recession, CARB found it necessary to extend the sell-through dates more than once to allow for the slow turnover of preexisting inventory (Refs. 44 and 45).

TSCA Title VI also directs EPA to prohibit the sale of inventory that was stockpiled, which is defined in the statute as manufacturing or purchasing composite wood products between the date the statute was enacted and the manufactured-by date at a rate significantly greater than the rate during a particular base period. EPA is directed to define what constitutes “a rate significantly greater” and to establish the base period. Under the statute, the base period must end before July 7, 2010, the date that the Formaldehyde Standards for Composite Wood Products Act was enacted.

EPA believes that because many products are already CARB ATCM-compliant, and because of a low consumer demand for products not CARB ATCM-compliant, stockpiling is not

likely to be advantageous for manufacturers. During the SBAR Panel process, at least one SER commented that consumers were asking for CARB-compliant products prior to the end of the CARB sell-through periods (Ref. 15). Moreover, EPA believes that the cost of storing stockpiled goods would reduce or eliminate any economic advantage to stockpiling. Another SER commented that “[g]iven the cost of carrying inventory there is a natural brake on accumulating non-complying inventories long before the effective date of the regulation.” (Ref. 15).

EPA proposes to set the manufactured-by date at 1 year after publication of the final rule in the **Federal Register**. Although TSCA Title VI allows EPA to set this date at 180 days after promulgation of the final implementing regulations, EPA believes that more time will be needed to get all of the infrastructure, such as the accredited TPCs, in place and allow panel producers time to develop their initial qualifying data for certification. The manufactured-by date would apply to both regulated composite wood panels and finished goods containing regulated composite wood panels. Composite wood products that can be shown to be manufactured before the established manufactured-by date would not be subject to the emissions standards, nor would they be required to be labeled or tested for emissions. Composite wood products manufactured before the manufactured-by date could be incorporated into finished goods at any time. Retailers, fabricators, and distributors would be permitted to continue to buy and sell these composite wood products and finished goods that incorporate these products, because they would be considered compliant with TSCA Title VI and its implementing regulations, assuming the absence of stockpiling as discussed below. Under TSCA, the term “manufacture” includes import, so the “manufactured-by” date would effectively be an “imported-by” date for imported goods.

In order to establish that a regulated composite wood product panel was made before the manufactured-by date, the panel producer or importer and any subsequent distributor, retailer or fabricator would be required to keep records that document when the product was manufactured. In the case of a finished good, any subsequent distributor, retailer or fabricator would be required to keep records that document that the composite wood products making up the finished good were either manufactured before the manufactured-by date or were manufactured in accordance with TSCA Title VI. In order to reduce consumer confusion, products that are made before the manufactured-by date would not be labeled as compliant with TSCA Title VI. Selling stockpiled regulated composite wood panels and finished goods containing regulated composite wood products would be prohibited. EPA proposes to define stockpiling as manufacturing or purchasing composite wood products between July 7, 2010, the date that the Formaldehyde Standards for Composite Wood Products Act was signed into law by the President, and the established manufactured-by date (1 year after the final regulations are promulgated), for the purpose of circumventing the TSCA Title VI emission standards, at an average annual rate 20% or greater than the amount manufactured or purchased during the 2009 calendar year. For producers of regulated composite wood panels, stockpiling would be measured by square footage of regulated composite wood panels produced. For importers and fabricators of finished goods containing regulated composite wood products, stockpiling would be measured by the square footage of regulated composite wood panels purchased to be incorporated into finished goods. In either case, entities that can demonstrate that they have a greater than 20% increase in purchasing or production of regulated composite wood panels for some reason other than circumventing the emissions standards would not be deemed to be stockpiling. Other reasons may include an immediate increase in customer demand or sales, or a planned business

expansion. EPA requests comment on whether the stockpiling provisions should apply to entities that were not in existence at the beginning of calendar year 2009.

EPA specifically requests comment on whether it is appropriate to set the proposed manufactured-by date at the date 1 year after the final implementing regulations are promulgated. EPA requests comment on alternate dates, and the rationale, including any available information and data, for selecting another date. EPA is also interested in how different manufactured-by dates would affect panel producers and fabricators of products that are not regulated under the CARB ATCM, but would be regulated under TSCA Title VI. EPA recognizes that increased production during the period after the statute was enacted may very well be due to the economic recovery and not to a desire on the part of panel producers, importers, and fabricators to circumvent the emission standards. EPA requests comment on the proposed stockpiling definition, including information and data for alternate baseline periods, rates, and measurements. EPA also requests comment on any data that might be available from which to derive an appropriate rate for determining potential stockpiling.

#### *J. Import Certification*

TSCA Title VI directs EPA, in coordination with U.S. Customs and Border Protection (CBP) and other appropriate Federal departments and agencies, to revise regulations promulgated pursuant to TSCA section 13 as necessary to ensure compliance. The TSCA section 13 regulations, promulgated by CBP, require importers to certify that shipments of chemical substances and mixtures are in compliance with TSCA or not subject to TSCA. EPA believes that most, if not all, products subject to TSCA Title VI would be considered articles. Articles, defined in 19 CFR 12.120(a), are generally formed to specific shapes or designs during manufacture and have end use functions related to their shape or design. Articles are generally

exempt from the TSCA section 13 certification requirements, but the regulations at 19 CFR 12.121(b) recognize that EPA has the authority to, by regulation or order, make the requirements applicable to articles.

EPA is proposing to specifically require TSCA section 13 import certification for composite wood products that are articles. TSCA section 13 import certification is a compliance monitoring tool and import certification for articles subject to TSCA Title VI would also serve as an important reminder of the TSCA Title VI requirements to the importer. The certification requirement would apply to imports of hardwood plywood, particleboard, and medium-density fiberboard panels, as well as finished goods containing such materials. Persons importing specifically exempted products, such as structural or curved plywood, and finished goods incorporating such products, would not be required to certify.

EPA generally believes that the existing import certification regulations, along with the specific labeling and recordkeeping requirements for composite wood products discussed in Unit III.H., are sufficient to ensure compliance with TSCA Title VI. However, EPA has begun consultations with CBP on the TSCA section 13 import regulations to determine whether revisions are warranted.

#### *K. Enforcement*

The failure to comply with any provision of TSCA Title VI, or the regulations implementing TSCA Title VI, is a prohibited act under TSCA section 15. Any person who commits a prohibited act under TSCA section 15 can be held liable for civil and criminal penalties.

#### *L. Report to Congress*

Section 3 of the Formaldehyde Standards for Composite Wood Products Act requires

EPA to report to Congress on an annual basis beginning in July 2011, and continuing through 2014. These reports must describe the status of the measures carried out or planned to be carried out pursuant to TSCA Title VI and the extent to which relevant industries have achieved compliance with the requirements of TSCA Title VI. The statute directs EPA to promulgate final implementing regulations by January 1, 2013. EPA is proposing to make the manufactured-by date 1 year after the final rule is promulgated, which would mean composite wood products manufactured through 1 year after promulgation would not be subject to the emission standards. EPA requests comment on how data on industry compliance could or should be obtained, and whether a reporting requirement would best accomplish this goal.

*M. HUD's Manufactured Housing Program*

Under the authority of the National Manufactured Housing Construction and Safety Standards Act of 1974, 42 U.S.C. 5401 *et seq.*, HUD regulates the construction of all manufactured (mobile) homes built in the United States. The HUD standards established pursuant to the 1974 Act cover many aspects of manufactured home construction, including body and frame requirements, thermal protection, plumbing, electrical, and fire safety. (*See* 24 CFR parts 3280 and 3282) HUD oversees the enforcement of the construction standards through third party inspection agencies and State governments.

The HUD standards for manufactured housing include specific formaldehyde emission limits for plywood and particleboard materials installed in manufactured housing. In contrast, TSCA Title VI covers only hardwood plywood, a subset of plywood. In addition, TSCA Title VI also covers MDF, which is not covered by the current HUD standards. The HUD emission limits apply to any plywood or particleboard that is bonded with a resin system. In addition, HUD's limits also apply to plywood or particleboard that is coated with a surface finish

containing formaldehyde. HUD's current formaldehyde emission limits are 0.2 parts per million (ppm) for plywood and 0.3 ppm for particleboard, as measured by ASTM E-1333-96 (Ref. 28). These emission limits are higher than those established by the Formaldehyde Standards for Composite Wood Products Act of 2010, but section 4 of the 2010 Act directs HUD to update its regulations to ensure that the regulations reflect the standards established by section 601 of TSCA.

EPA is requesting comment on how best to harmonize EPA's regulatory program under TSCA Title VI with HUD's manufactured homes program. In particular, the focus of TSCA Title VI, with its emphasis on composite wood product panel producers and product certification, is somewhat different from the focus of the National Manufactured Housing Construction and Safety Standards Act of 1974 on manufactured home producers and consumer protection. In view of the differences in statutory authorities provided to EPA and HUD, are there additional provisions that EPA should consider or other actions that EPA and HUD should take to ensure that their respective programs are complementary?

#### **IV. References**

As indicated under **ADDRESSES**, a docket has been established for this rulemaking under docket ID number EPA-HQ-OPPT-2012-0018. The following is a listing of the documents that are specifically referenced in this proposed rule. The docket includes these documents and other information considered by EPA, including documents that are referenced within the documents that are included in the docket, even if the referenced document is not physically located in the docket. For assistance in locating these other documents, please consult the technical contact listed under **FOR FURTHER INFORMATION CONTACT**.

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12. American National Standards Institute (ANSI)/Hardwood Plywood and Veneer Association (HPVA). American National Standard for Hardwood and Decorative Plywood, ANSI/HPVA HP-1-2009.

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14. USDOC, NIST. Voluntary Product Standard PS-2-04 (2004), Performance Standard for Wood-Based Structural-Use Panels.

15. USEPA. Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule Implementing the Formaldehyde Standards for Composite Wood Products Act (TSCA Title VI) (April 4, 2011).

16. Composite Panel Association (CPA). VOC Emission Barrier Effects of Laminates, Overlays and Coatings for Particleboard, Medium Density Fiberboard (MDF) and Hardboard (2003), available at

<http://www.pbmdf.com/cpa30/files/ccLibraryFiles/Filename/000000000738/TB%20VOC.pdf>.

17. HPVA. Comments of the Hardwood Plywood and Veneer Association (HPVA) Submitted to the Environmental Protection Agency (EPA) on the Advanced Notice of Proposed Rulemaking (ANPR) for Formaldehyde from Certain Wood Products (March 19, 2009).
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19. ANSI. American National Standard for Medium Density Fiberboard (MDF) for Interior Applications, ANSI A208.2–2 2009.
20. ANSI. American National Standard, Basic Hardboard, ANSI A135.4 2004.
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22. ANSI. American National Standard, Hardboard Siding, ANSI A135.6 2006.
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29. ASTM International. ASTM D-6007-02 (2008), Standard Test Method for Determining Formaldehyde Concentrations in Air from Wood Products Using a Small-Scale

Chamber.

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44. CARB. Composite Wood Products Regulation Advisory: 10-01, Extension of Sell-Through Date for Distributors, Fabricators, and Retailers of Pre-Phase 1 Finished Goods (July 2010).

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## **V. Statutory and Executive Order Reviews**

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

Under section 3(f)(1) of Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a "significant regulatory action" because it raises novel legal or policy issues.

Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action.

EPA has prepared an analysis of the potential costs and benefits associated with this rulemaking. This analysis is contained in the Economic Analysis of the Formaldehyde Standards for Composite Wood Products Act Implementing Regulations Proposed Rule (Economic Analysis, Ref. 46) and is briefly summarized in Table 2, and in more detail below.

**Table 2.--Summary of Costs and Benefits of Proposal**

<b>Category</b>	<b>Description</b>
Benefits	This proposed rule will reduce exposures to formaldehyde, resulting in benefits from avoided adverse health effects. For the subset of health effects where the results were quantified, the estimated annualized benefits (due to avoided incidence of eye irritation and nasopharyngeal cancer) are \$20 million to \$48 million per year using a 3% discount rate, and \$9 million to \$23 million per year using a 7% discount rate. There are additional unquantified benefits due to other avoided health effects.
Costs	The annualized costs of this proposed rule are estimated at \$72 million to \$81 million per year using a 3% discount rate, and \$80 million to \$89 million per year using a 7% discount rate.
Effects on State, Local, and Tribal Governments	Government entities are not expected to be subject to the rule's requirements, which apply to entities that manufacture, fabricate, distribute, or sell composite wood products. The proposed rule does not have a significant intergovernmental mandate, significant or unique effect on small governments, or have Federalism implications.
Small Entity Impacts	This proposed rule would impact nearly 879,000 small businesses: over 851,000 have costs impacts less than 1% of revenues, over 23,000 firms have impacts between 1% and 3%, and over 4,000 firms have impacts greater than 3% of revenues. Most firms with impacts over 1% have annualized costs of less than \$250 per year.
Environmental Justice and Protection of Children	This proposed rule increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population or children.

1. *Entities subject to the proposed rule.* EPA analyzed the effect of this proposal on

panel producers, fabricators, wholesalers (*i.e.*, distributors and importers), and retailers. Due to the similarities between this proposal and the CARB ATCM, the incremental costs and benefits of this proposal are determined in part by the degree to which firms are already complying with the ATCM. So the following discussion of the number of entities subject to the TSCA Title VI rule includes an estimate of baseline compliance with the CARB ATCM. These estimates are displayed in Table 3.

Mills making hardwood plywood, MDF, or particleboard panels that would be classified as a composite wood product under the CARB ATCM are referred to here as stock panel producers. Thus, stock panel producers do not include facilities that only make products exempted from the CARB ATCM (and that are statutorily excluded from the TSCA Title VI rule) such as curved plywood, military specified plywood, structural plywood, and wood-based structural-use panels. There are approximately 90 stock panel mills in the U.S., operated by 54 firms. This count of stock panel producers excludes firms making laminated products that are included in the definition of hardwood plywood. These laminated product producers are discussed separately below.

A total of 79 stock panel mills have been certified as meeting the CARB Phase 2 standards for at least one of their composite wood products. (The Phase 2 standards are equivalent to the emissions standards in this proposal.) The CARB certified mills are responsible for virtually all the U.S. production volume of composite wood products. Approximately 99.6% of stock hardwood plywood produced in the U.S. is certified as meeting the CARB Phase 2 emissions standard, as is 100% of the MDF production and 98% of the particleboard production. All of these mills would incur costs for the time spent on rule familiarization under the TSCA Title VI program (*i.e.*, becoming familiar with the requirements

of the rule).

There are 16 U.S. stock panel mills making at least one product that is not certified as meeting the CARB Phase 2 standards. (Some of the 90 stock panel mills make both product lines that are certified under the CARB ATCM as well as product lines that are not certified because they are not intended to be sold in California.) These mills would incur costs for certification and testing due to the proposal, and some may incur costs to change raw materials and production processes in order to meet the emission standards in this proposal. They would also incur costs for rule familiarization and labeling.

Approximately 7,000 to 14,000 laminated product producers in the U.S. make products (such as custom hardwood plywood and architectural panels, windows, doors, kitchen cabinets, furniture, architectural woodwork and millwork, engineered wood flooring, and other goods) by affixing veneer to purchased platforms as part of the production process. These laminated products are regulated as hardwood plywood under this proposal unless they are made using NAF resins to attach the veneer to compliant and certified platforms, in which case they are exempted from the definition of hardwood plywood.

The wood products industry commonly uses the term laminates to describe products that are laminated with materials other than veneer, such as high pressure laminate, thermally fused paper, vinyl film, decorative foil, or polypropylene film. Such products are not considered to be hardwood plywood under this proposal regardless of the type of resin used. So firms making these products are considered fabricators (discussed below), and are not counted as laminated product producers.

The estimate of 7,000 to 14,000 laminated product producers excludes firms that use veneer to make products that are exempted from the definition of hardwood plywood because

they do not create panels (flat or raised pieces of composite wood product) during the production process; the products are made by affixing veneer to substrates other than particleboard, MDF, or veneer core platforms; or the products are statutorily exempted by TSCA Title VI (including products used in boats and aircraft, and products not intended for interior use) or otherwise do not qualify as regulated hardwood plywood (such as curved plywood, military specified plywood, and structural plywood).

Since laminated products are not considered to be hardwood plywood under the CARB ATCM, they are not certified or tested for emissions under that rule. But in order to be sold in California, such products must be made using certified composite wood products as platforms, and they must comply with the labeling and chain of custody requirements in the CARB ATCM.

Nationally, 2,700 to 4,000 of these laminated product producers are assumed to be using formaldehyde-based resins. It is generally less expensive for these firms to switch to a NAF resin than to pay for the certification and product testing required for panel producers under this proposal. EPA believes that nearly all laminated product producers using formaldehyde-based resins to attach wood or woody grass veneer to compliant and certified platforms will switch to NAF resins, in order to qualify for the exemption from the definition of hardwood plywood in this proposal. EPA assumes that only about 150 to 300 U.S. laminated product producers will continue using formaldehyde-based resins, and thus will need to certify and test their products as a result of this proposal.

There are approximately 80,000 fabricators in the U.S. making composite wood products into component parts or finished goods, including the 7,000 to 14,000 laminated product producers. The other 66,000 to 73,000 fabricators use composite wood products to make goods such as architectural components, cabinets, and furniture, without affixing veneer themselves.

Under the CARB ATCM, fabricated products sold in California must be made using certified composite wood products, and they must comply with the ATCM's labeling and chain of custody requirements. Nationwide, approximately 32,000 fabricators (including some laminated product producers) are estimated to comply with the labeling and chain of custody requirements in the CARB ATCM because their products may be sold in California. Firms that sell any products in California typically follow the CARB ATCM's requirements for all of their products, including products that are sold outside of California. Such firms would still incur rule familiarization costs due to this proposal. The remaining 48,000 fabricators that do not comply with the CARB ATCM because they do not sell any products in California would incur costs to comply with the chain of custody requirements in this proposal, as well as rule familiarization costs.

Approximately 86,000 U.S. distributors (also referred to as wholesalers) are estimated to sell goods containing composite wood products. As many as 24,000 wholesalers may be importing composite wood panels or component parts or finished goods containing composite wood products, and are considered manufacturers under TSCA. (This is the number of firms that may import the goods themselves, not those that only buy and sell goods imported by others.) Approximately 32,000 of the 86,000 wholesalers have at least one facility in California, and thus must comply with the labeling and chain of custody requirements in the CARB ATCM. Of the approximately 759,000 retailers in the U.S. that sell products containing composite wood products, about 101,000 have at least one facility in California and are following the chain of custody requirements in the CARB ATCM. Again, firms that sell any products in California typically follow the CARB ATCM's requirements for all of the products they sell, including products that are sold outside of California. All wholesale and retail firms will incur additional

costs for rule familiarization due to the Title VI rule. Of the 24,000 wholesalers importing composite wood products (who are subject to the rule’s recordkeeping requirements for TSCA manufacturers), about 15,000 do not have any facilities in California. Wholesalers that repackage products may incur additional labeling costs due to this proposal.

**Table 3.-- Number of Entities in the United States Subject to the Rule**

<b>Type</b>	<b>TSCA Universe</b>	<b>Baseline Condition (CARB ATCM Universe)</b>
Stock panel producers ( <i>i.e.</i> , manufacturers)	90 mills operated by 54 firms	79 mills have been certified by CARB for at least one product, but 16 mills make at least one product that is not CARB certified. Depending on the product type, 98% to 100% of U.S. production volume is CARB certified.
Laminated product producers ( <i>i.e.</i> , laminators)	7,000 to 14,000 firms	Laminators are considered fabricators under the CARB ATCM. Nationally, 32,000 of the combined group are subject to CARB ATCM requirements.
Fabricators	66,000 to 73,000 firms	
Wholesalers ( <i>i.e.</i> , distributors)	86,000 firms, of which 24,000 are importers.	32,000 are subject to CARB ATCM requirements, of which 9,000 are importers.
Retailers	759,000 firms	101,000 are subject to CARB ATCM requirements.
<b>Total</b>	<b>925,000 firms</b>	

2. *Options evaluated.* Congress directed EPA to consider a number of elements for inclusion in the implementing regulations, and EPA considered various options for addressing these elements. For many of the provisions, such as the product-inventory sell-through provision and the stockpiling prohibition, EPA did not have the data needed to make quantitative estimates of the effects of different options. EPA did have sufficient information to analyze several different options for how laminated products might be included in the definition of hardwood plywood, for the certification of ULEF products, and for the chain of custody and recordkeeping required by the rule. The Economic Analysis discusses emissions standards that are different from those set in TSCA Title VI. That discussion is simply for informational purposes, and the

breadth of the discussion should not necessarily imply that EPA has corresponding flexibility in implementing the statute. The options EPA analyzed with emissions standards consistent with TSCA Title VI are displayed in Table 4.

**Table 4.--Options Analyzed in the Economic Analysis**

<b>Option</b>	<b>Description</b>
Option SE	All laminated products are exempt from the definition of hardwood plywood.
Option SI	All laminated products are included in the definition of hardwood plywood.
Option SP	All laminated products are exempt from the definition of hardwood plywood except architectural panels and custom plywood.
Option SN	Laminated products made using NAF resins to attach veneer to platforms certified as NAF are exempt from the definition of hardwood plywood.
Option SC	Laminated products made using NAF resins to attach veneer to compliant and certified platforms are exempt from the definition of hardwood plywood.
Option SCR	Laminated products made using NAF resins to attach veneer to compliant and certified platforms are exempt from the definition of hardwood plywood; reduced recordkeeping requirements for firms that do not qualify as manufacturers under TSCA; no requirement to inform suppliers that the products supplied must comply with TSCA Title VI.
Option SEUR	All laminated products are exempt from the definition of hardwood plywood; ULEF certification allowed; reduced recordkeeping requirements for firms that do not qualify as manufacturers under TSCA; no requirement to inform suppliers that the products supplied must comply with TSCA Title VI.
Option SFCC	All laminated products are exempt from the definition of hardwood plywood; ULEF certification allowed; tested lots may be shipped before test results are available.
Proposed Option – Option SCUR	Laminated products made using NAF resins to attach veneer to compliant and certified platforms are exempt from the definition of hardwood plywood; ULEF certification allowed; reduced recordkeeping requirements for firms that do not qualify as manufacturers under TSCA; no requirement to inform suppliers that the products supplied must comply with TSCA Title VI.

3. *Benefits.* Reductions of formaldehyde emissions from composite wood products benefits individuals who reside, work, or otherwise spend a substantial amount of time where

new composite wood products are introduced to an indoor space. The Economic Analysis (Ref. 46) estimates the benefits of the options over a 30-year period for lowering formaldehyde emissions from composite wood products.

This benefits analysis uses an age-dependent exposure analysis that includes formaldehyde exposure from homes, daycare, schools, workplace, vehicles, and outdoors. For each option, there are 3,300 different exposure scenarios derived from 22 different composite wood product age/source combinations, 5 structure types, 5 climate zones, and 6 individual age/employment status combinations. Changes in exposure are estimated by changing the two broad categories where a substantial amount of new composite wood products might be introduced: New home construction and major renovations that include kitchen remodeling. Changes in the risk of the adverse health outcomes associated with the changes in exposure are estimated for nasopharyngeal cancer and sensory irritation. Table 5 displays the benefits for the options described in Table 4.

The total quantified benefits of the proposed option are between \$20 million and \$48 million per year (in 2010 dollars) using a 3% discount rate, and between \$9 million and \$23 million per year using a 7% discount rate. The majority of the quantified benefits are attributable to reductions in cancer risk. The benefits under the proposed option (Option SCUR) are less than 5% lower than those of the most protective option (Option SN). The proposed option has benefits that are 14% larger than the options that exclude laminated products from the definition of hardwood plywood (Options SE, SEUR, and SFCC).

There are additional unquantified benefits for all of the options from respiratory and other avoided health effects. While EPA has not valued these avoided health effects in this proposal,

EPA believes that the effects could be substantial and has represented their inclusion in the table below using the letter indicator “B”.

**Table 5. Summary of the Monetized Benefits (millions 2010\$)**

Regulatory Option	Benefit Category	Annual Cases Avoided	Annualized Benefits (\$ million)	
			3% Discount Rate	7% Discount Rate
Options SE, SEUR, and SFCC	Cancer	9 to 21	\$17 to \$38	\$8 to \$17
	Eye Irritation	22,133 to 170,214	\$1 to \$4	\$1 to \$4
	<b>Total Benefits</b>		<b>\$18 to \$42 + B</b>	<b>\$8 to \$20 + B</b>
Option SP	<b>Not estimated</b>			
Option SN	Cancer	11 to 25	\$20 to \$45	\$9 to \$20
	Eye Irritation	24,154 to 198,950	\$1 to \$5	\$1 to \$5
	<b>Total Benefits</b>		<b>\$21 to \$50 + B</b>	<b>\$10 to \$24 + B</b>
Options SI, SC, SCR, and SCUR (Proposed Option)	Cancer	10 to 24	\$20 to \$43	\$9 to \$19
	Eye Irritation	23,650 to 191,590	\$1 to \$5	\$1 to \$4
	<b>Total Benefits</b>		<b>\$20 to \$48 + B</b>	<b>\$9 to \$23 + B</b>
Totals may not add due to rounding. “B” represents the unquantified health benefits.				

Formaldehyde is classified as a known human carcinogen by the National Toxicology Program, based on evidence in humans and animals (Ref. 4). This analysis uses EPA’s 1991 IRIS Inhalation Unit Risk factor of  $1.3 \times 10^{-5}$  cancer cases per  $\mu\text{g}/\text{m}^3$  of formaldehyde. In June 2010, EPA released a draft IRIS Toxicological Review of Formaldehyde that recommended a different unit risk factor and recommended the use of age-dependent adjustment factors (ADAFs) to account for age-specific susceptibility. This draft assessment underwent independent scientific peer review by the NRC. However, given that EPA is currently in the process of revising the IRIS assessment based on the NRC review and public comments, the 1991 IRIS value is used to analyze this proposed rule.

The benefits of a reduction in cancer risk are based on the value of a reduction in the risk

an individual will ultimately die from the cancer (referred to as fatal cancer), and a reduction in the risk an individual will ultimately die from something other than the cancer (referred to as non-fatal cancer). These two categories reflect the two possible outcomes for nasopharyngeal cancer and do not reflect different types of cancer. The number of excess cancer cases was estimated and then divided into these two categories: 44.7% of the cancer risk reductions are assumed to be reductions in non-fatal cancer risk and 55.3% of the reductions are assumed to be reductions in fatal cancer (mortality) risk. The value of reduced mortality risk is \$8.01 per mortality micro-risk reduction – that is, a reduction of 1/1,000,000 in the risk of mortality. Non-fatal cases of nasopharyngeal cancer were valued using a cost-of-illness approach. The value of an avoided case of non-fatal nasopharyngeal cancer was estimated to be the present discounted value of the stream of expected medical expenditures and opportunity costs associated with the illness from the year of diagnosis, taking into account that the individual may die of other causes. Costs include the cost of diagnosis, initial treatment costs, and “maintenance” costs in each subsequent year. The stream of annual costs depends on the stage of the cancer at diagnosis, the individual’s age at diagnosis, and the individual’s employment status each year after diagnosis, resulting in a value of \$0.09 to \$0.14 per micro-risk reduction.

The benefits associated with avoiding non-cancer health impacts are described in an EPA report titled “Approach to Assessing Non-cancer Health Effects from Formaldehyde and Benefits from Reducing Non-cancer Health Effects as a Result of Implementing Formaldehyde Emission Limits for Composite Wood Products” (Ref. 10). The 2010 draft IRIS assessment identified seven categories of non-cancer health effects and proposed RfCs based on four effects: Sensory irritation, pulmonary function effects, asthma and allergic sensitization (atopy), and reproductive toxicity. The NRC supported the derivation of candidate reference concentrations

(RfCs) for each of these four endpoints based on human epidemiologic data (Ref. 9), but EPA determined there was sufficient information for quantitative concentration-response modeling for only three categories of effects. In the 2011 non-cancer approach document, EPA derived concentration-response functions from preferred studies for these three endpoints and recommended accompanying unit values. The available data on pulmonary function effects could not be advanced because it was not possible to link specific decrements in pulmonary function with specific economic costs and any associated benefits were not monetized. Likewise, benefits from the reduction of the other non-cancer effects for which candidate RfCs were not derived were also not monetized. EPA later concluded that, at this time, it only has sufficient information on the relationship between formaldehyde exposure and eye irritation to include a valuation estimate in the overall benefits analysis.

Information from two studies reporting sensory irritation in humans from chronic formaldehyde inhalation exposures in a residential environment were combined to create the concentration-response function for eye irritation. The function was based on a power model fit to the odds ratio of the prevalence of burning eyes reported in Figure 1 of Hanrahan *et al.* (Ref. 47). This function was then used with a willingness to pay to avoid eye irritation of \$26 to calculate the monetized benefits of reduced sensory irritation for all individuals.

Formaldehyde exposure is associated with a range of respiratory related effects. Effects from repeated exposure in humans include irritation of the upper respiratory tract, decrements in pulmonary function, and nasal epithelial lesions such as metaplasia and loss of cilia. Animal studies suggest that formaldehyde may also cause airway inflammation.

In occupational studies of formaldehyde exposure, lung function deficits and decreases in spirometric values (that is, the volume and speed of air that is exhaled or inhaled) have been

reported both in preshift versus postshift measurements and as a result of long-term exposures (Refs. 48-54). Studies of long-term formaldehyde exposure also report increased respiratory symptoms, such as cough, increased phlegm, chest tightness, and chest colds, in exposed workers (Refs. 48-51 and 53-54). In addition, some studies report an association between formaldehyde exposure in residential settings and respiratory symptoms (Ref. 55). Furthermore, there are also studies that report that formaldehyde exposure may increase the prevalence of asthma – particularly in the young (Ref. 56). Studies on asthma, as well as mechanistic information and their analyses, were evaluated in EPA’s recent Draft Toxicological Review of Formaldehyde – Inhalation Assessment through the Integrated Risk Information System (IRIS) Program (Ref. 8). This draft IRIS assessment was released in June 2010 for public comment and external peer review by the National Research Council of the National Academy of Sciences (NRC). The NRC released their review report in April 2011 (Ref. 9). The NRC suggested EPA should examine studies relating formaldehyde exposures to asthma, pulmonary function and changes in pulmonary pathology. EPA is currently revising the draft assessment in response to the NRC review.

EPA is committed to evaluating alternative approaches to quantifying the benefits associated with reduced respiratory symptoms such as exacerbation of symptoms among those who have chronic respiratory diseases, *e.g.*, bronchitis and asthma. For instance, the Agency will explore the extent to which approaches used to quantify respiratory symptoms in air quality rules might be applied to residential exposure to formaldehyde. If a scientifically defensible approach is available by the time the final rule is promulgated, EPA will include such quantification as part of the benefits analysis. Although uncertainty remains regarding how best to quantify the formaldehyde exposure’s effect on respiratory outcomes, EPA considers these effects to be

important non-monetized impacts that contribute to the overall benefits of this rule, as indicated by the “+B” in the various tables summarizing benefits.

Epidemiologic studies suggest an association between occupational exposure to formaldehyde and adverse reproductive outcomes in women, including reduced fertility (Refs. 57, 58 and 59). EPA does not feel that it has sufficient information at this time on the relationship between formaldehyde exposure and reduced fertility to include a valuation estimate in the overall benefits analysis.

There are three reasons why the total economic benefits reported above may be underestimated. First, there are a number of potential health effects that are not included in this analysis. In addition to cancer, the 2010 draft IRIS assessment enumerated potential health outcomes from formaldehyde exposure including sensory irritation, upper respiratory tract pathology, pulmonary function effects, asthma and allergic sensitization, immune function effects, neurological and behavioral toxicity, and developmental and reproductive toxicity. The NRC review of the draft IRIS assessment was released in April 2011 (Ref. 9), and EPA is currently revising the draft in response. Monetization of any health endpoint requires an estimated concentration-response function that can be appropriately linked for use in the economic analyses. At this time, only sensory irritation has sufficient data to quantify the benefits. Second, while the cancer benefits were evaluated using the unit risk as a reasonable upper bound on the central estimate of risk, the sensory irritation benefits were evaluated using a central estimate of the concentration-response function rather than an upper (or lower) bound which could also underestimate any associated economic benefits. Third, the valuation of some of these endpoints relies on cost-of-illness estimates rather than willingness to pay. In general, cost of illness estimates only capture mitigating and indirect costs, omitting averting

expenditures and lost utility associated with pain and suffering, and are, therefore, considered to be underestimates of economic benefits.

4. *Costs.* The Economic Analysis estimates the incremental cost to firms located in the U.S. of complying with the requirements of the proposal compared to the activities that firms are already undertaking, often in response to the CARB ATCM. The costs of the proposal for the industries subject to the rule are displayed in Tables 6 and 7.

Depending on their baseline compliance with the CARB ATCM, panel producers may incur costs for third-party certification, testing, and changes to raw materials and production processes where necessary to meet the emissions standards. Panel producers and other regulated firms may incur costs for labeling, recordkeeping and rule familiarization.

Stock panel producers are estimated to incur a total annualized cost of \$1 million per year under either a 3% or 7% discount rate. Laminated product producers incur a total annualized cost of \$18 million to \$32 million per year using a 3% discount rate and \$18 million to \$33 million per year using a 7% rate. Of this, \$3 million per year is incurred by firms that convert to NAF resins in order to qualify for the exemption from the definition of hardwood plywood, \$8 million to \$17 million per year is spent on resin changes, testing and certification by firms that continue to use formaldehyde-based resins and thus do not qualify for the exemption, and the balance is spent on rule familiarization, labeling, and recordkeeping. The remaining fabricators incur a total annualized cost of \$21 million to \$26 million per year using a 3% discount rate and \$21 million to \$27 million per year using a 7% discount rate. Wholesalers incur total annualized costs of \$16 million per year under a 3% discount rate and \$17 million per year using a 7% discount rate. Retailers are estimated to incur total annualized costs of \$10 million per year using a 3% discount rate and \$16 million per year using a 7% discount rate. The proposal is

estimated to result in a total cost of \$434 million to \$447 million in the first year. Annualized costs of the proposal are \$72 million to \$81 million per year using a 3% discount rate and \$80 million to \$89 million per year using a 7% discount rate.

Given the formaldehyde emissions standards that are set in Title VI of TSCA, annualized costs for the other options for laminated products ranged from \$60 million to \$293 million per year using a 3% discount rate, and \$68 million to \$311 million per year using a 7% discount rate.

The total costs by option are displayed in Table 8.

**Table 6.--Costs of Proposed Option by Industry Type (millions 2010\$)**

Industry Type	First Year		Annualized (3%)		Annualized (7%)	
	Low	High	Low	High	Low	High
Stock panel producers	\$2	\$2	\$1	\$1	\$1	\$1
Laminators	\$55	\$102	\$18	\$32	\$18	\$33
Fabricators (excluding laminators)	\$91	\$57	\$26	\$21	\$27	\$21
Wholesalers	\$71	\$71	\$16	\$16	\$17	\$17
Retailers	\$215	\$215	\$10	\$10	\$16	\$16
<b>Total</b>	<b>\$434</b>	<b>\$447</b>	<b>\$72</b>	<b>\$81</b>	<b>\$80</b>	<b>\$89</b>
Low and high end scenarios reflect the estimated number of laminators and the number of product lines certified per firm, not the low and high costs for each category of entities.						

Table 7. – Incremental Cost Estimates for the Proposed Rule by Type of Entity, Baseline Status, and Activity

Type of Entity	Baseline Status under CARB ATCM	Number of Mills, Firms, or Production Volume (msf <sup>1</sup> )	Activities with Incremental Costs Estimated	Number of Mills, Firms, or Production Volume Incurring Costs	Total Cost (million 2010\$)	
					First Year	Subsequent Years
Panel manufacturers	All panel manufacturers	62 mills	Become familiar with TSCA rule	62	\$0.02	---
			On-site daily quality control testing	21	\$0.2	\$0.02
			Set-up to label products as TSCA compliant	62	\$0.009	---
			Keep additional records	62	\$0.2	\$0.2
Manufacture products not certified under CARB ATCM	16 mills 49,600 msf	Have products tested and certified by a TPC	16	\$0.4	\$0.09	
		Changes to raw materials	47,300 msf	\$1.1	\$1.1	
Wood veneer laminated product manufacturers	All laminators	7,486 to 13,875 firms	Become familiar with the TSCA rule	7,486 to 13,875	\$2.2 to \$4.1	---
			Set-up to label products as TSCA compliant	7,486 to 13,875	\$34.1 to \$63.2	---
	Laminators defined as hardwood plywood producers under TSCA	150 to 277 firms 7,248 msf	Have products tested and certified by a TPC	150 to 277	\$9.3 to \$19.6	\$8.4 to \$17.2
			On-site daily quality control testing	150 to 277	\$1.6 to \$3.0	\$0.1 to \$0.2
			Keep additional records	150 to 277	\$1.4 to \$2.5	\$1.4 to \$2.5
			Changes to raw materials	2,149 msf	\$0.06	\$0.06
	Laminators defined as fabricators under TSCA	7,336 to 13,598 firms and 355,164 msf	Changes to raw materials	106,317 msf	\$3.2	\$3.2
	Laminators defined as fabricators; not compliant with CARB ATCM requirements for fabricators	7,336 to 13,598 firms	Keep additional records	674 to 1,249	\$3.7 to \$6.8	\$3.7 to \$6.8
Fabricators that are not laminators	All fabricators that are not laminators 66,103 to 72,492 firms	Become familiar with the TSCA rule	66,103 to 72,492	\$19.5 to \$21.3	---	
		Set-up to label products as TSCA compliant	66,103 to 72,492	\$16.8 to \$45.9	---	
Fabricators not compliant with CARB ATCM requirements	33,665 to 40,054 firms	Keep additional records	3,703 to 4,406	\$20.3 to \$24.1	\$20.3 to \$24.1	
Wholesalers	All wholesalers	85,560 firms	Become familiar with the TSCA rule	85,560	\$31.9	---
			If repackaging or replacing an original label, set-up to label products as TSCA compliant	855	\$3.9	---
	Wholesalers that import and are not compliant with CARB ATCM	15,045 firms	Set up systems to keep additional records	8,576	\$21.5	---
Retailers	All retailers	759,048 firms	Keep additional records	6,649	\$13.5	\$13.5
			Become familiar with the TSCA rule	759,048	\$214.7	---
<b>Total</b>					<b>\$434 to \$447</b>	<b>\$56 to \$65</b>

<sup>1</sup> Production volume is reported in thousands of square feet (msf) of production

**Table 8.--Total Costs by Option (millions 2010\$)**

Option	First Year		Annualized (3%)		Annualized (7%)	
	Low	High	Low	High	Low	High
Option SE	\$595	\$595	\$100	\$100	\$112	\$112
Option SI	\$919	\$1,254	\$204	\$293	\$218	\$311
Option SP	\$600	\$600	\$104	\$104	\$115	\$115
Option SN	\$626	\$639	\$128	\$137	\$139	\$148
Option SC	\$609	\$621	\$112	\$121	\$123	\$132
Option SCR	\$435	\$447	\$72	\$81	\$80	\$89
Option SEUR	\$420	\$420	\$60	\$60	\$68	\$68
Option SFCC	\$594	\$594	\$100	\$100	\$111	\$111
<b>Proposed Option – Option SCUR</b>	<b>\$434</b>	<b>\$447</b>	<b>\$72</b>	<b>\$81</b>	<b>\$80</b>	<b>\$89</b>

5. *Net benefits.* Net benefits are the difference between benefits and costs. The net benefits for the options are displayed in Tables 9 and 10. The proposal is estimated to result in quantified net benefits of -\$24 million to -\$60 million per year using a 3% discount rate, and -\$57 million to -\$79 million per year using a 7% discount rate. Quantified net benefits for the other options based on the formaldehyde emissions standards that are set in Title VI of TSCA range from -\$18 million to -\$273 million per year using a 3% discount rate and -\$48 million to -\$302 million per year using a 7% discount rate. There are additional unquantified benefits due to respiratory and other avoided health effects. EPA considers health benefits from avoided health effects to be potentially important non-monetized impacts that contribute to the overall net benefits of this proposed rule, and has represented their inclusion in the table below using the letter “B”.

**Table 9.--Annualized Net Benefits by Option (millions 2010\$, 3% discount rate)**

Option	Costs		Benefits		Net Benefits	
	Low Estimate	High Estimate	Lower Estimate	Higher Estimate	Lower Net Estimate	Higher Net Estimate
Option SE	\$100	\$100	\$18+B	\$42+B	(\$82)+B	(\$58)+B
Option SI	\$204	\$293	\$20+B	\$48+B	(\$273)+B	(\$157)+B
Option SP	\$104	\$104	Not estimated	Not estimated	Not estimated	Not estimated
Option SN	\$128	\$137	\$21+B	\$50+B	(\$116)+B	(\$79)+B
Option SC	\$112	\$121	\$20+B	\$48+B	(\$101)+B	(\$64)+B
Option SCR	\$72	\$81	\$20+B	\$48+B	(\$61)+B	(\$24)+B
Option SEUR	\$60	\$60	\$18+B	\$42+B	(\$42)+B	(\$18)+B
Option SFCC	\$100	\$100	\$18+B	\$42+B	(\$82)+B	(\$58)+B
<b>Proposed Option – Option SCUR</b>	<b>\$72</b>	<b>\$81</b>	<b>\$20+B</b>	<b>\$48+B</b>	<b>(\$60)+B</b>	<b>(\$24)+B</b>

“B” represents the unquantified health benefits.

**Table 10.-- Annualized Net Benefits by Option (millions 2010\$, 7% discount rate)**

Option	Costs		Benefits		Net Benefits	
	Low Estimate	High Estimate	Lower Estimate	Higher Estimate	Lower Net Estimate	Higher Net Estimate
Option SE	\$112	\$112	\$8+B	\$20+B	(\$103)+B	(\$91)+B
Option SI	\$218	\$311	\$9+B	\$23+B	(\$302)+B	(\$195)+B
Option SP	\$115	\$115	Not estimated	Not estimated	Not estimated	Not estimated
Option SN	\$139	\$148	\$10+B	\$24+B	(\$138)+B	(\$114)+B
Option SC	\$123	\$132	\$9+B	\$23+B	(\$123)+B	(\$100)+B
Option SCR	\$80	\$89	\$9+B	\$23+B	(\$80)+B	(\$57)+B
Option SEUR	\$68	\$68	\$8+B	\$20+B	(\$60)+B	(\$48)+B
Option SFCC	\$111	\$111	\$8+B	\$20+B	(\$103)+B	(\$91)+B
<b>Proposed Option – Option SCUR</b>	<b>\$80</b>	<b>\$89</b>	<b>\$9+B</b>	<b>\$23+B</b>	<b>(\$79)+B</b>	<b>(\$57)+B</b>

“B” represents the unquantified health benefits.

Costs exceed quantified benefits by a larger margin for the proposed rule (Option SCUR) than for Option SEUR, which exempts all laminated products from the definition of hardwood plywood. However, both the relative ranking of the options and the fact that quantified net benefits are negative for all the options might change if EPA could quantify additional health benefits. Furthermore, as explained elsewhere in this proposal, currently available information indicates that laminated products can exceed the formaldehyde emission standards. Therefore, on the basis of information currently available to the Agency, EPA has concluded that exempting all laminated products from the definition of hardwood plywood is not consistent with TSCA Title VI’s statutory mandate that EPA promulgate regulations in a manner that ensures

compliance with the emission standards in TSCA section 601(b)(2). Of the options that are consistent with the statutory mandate, the proposed rule has the lowest costs as well as the best balance between costs and quantified benefits. After assessing both the costs and the benefits of the proposal, including the unquantified benefits, EPA has made a reasoned determination that the benefits of the proposal justify its costs.

To further improve the analysis for the final rule, the Agency is also specifically interested in supporting information on the following questions related to the data, estimates, and assumptions used in the Agency's analysis:

1. What, if any, differences are there in actual formaldehyde emissions levels between products made domestically and those imported into the U.S.? Are data available characterizing the differences in emissions between products that are certified under the CARB ATCM and those that are not certified because they are sold in the U.S. outside of California?

2. Is there evidence that products that do not comply with the CARB ATCM are being sold in California? If so, are there differences in compliance between products made domestically and those imported into the U.S.? Is there information available to indicate how the level of compliance with the TSCA Title VI rule can be expected to differ from compliance with the CARB ATCM?

3. Did firms located outside of California that sell regulated composite wood products in California incur different costs due to the CARB ATCM compared to firms located in California? If so, what influenced these differences in costs? How did the differences, if any, depend on firm type (panel producer, fabricator, distributor, or retailer), firm size, complexity of the supply chain, or other factors?

4. To what extent are wholesalers that do not have a physical location in California

complying with the CARB ATCM's recordkeeping requirements because they sell goods that may ultimately be sold in California?

5. In addition to the Census data that EPA used in its analysis, what other information is available that would allow EPA to better characterize the number of firms in different industries affected by the rule?

6. For each industry that uses veneer to manufacture products, how many firms make laminated products sold in the U.S. that could potentially be included in the definition of hardwood plywood under TSCA Title VI because they meet all of the following criteria: (a) They affix a wood or woody grass veneer to the face and/or back of a purchased platform to produce a component part used in the construction or assembly of a finished good; (b) they are applying veneer to a particleboard, MDF, or veneer-core platform; (c) they are making a product that qualifies as a panel under the proposed rule, where a panel is defined as a flat or raised piece of composite wood product; and (d) they are making a product that does not qualify for one of the statutory exemptions in TSCA Title VI (such as the exemptions for products intended for use in a new vehicle such as a rail car, boat, or aircraft, or the exemption for products intended for exterior use)?

7. To what extent are the laminated products described above currently made using an added formaldehyde resin to affix the veneer to the platform? To what extent will these products continue to use added formaldehyde resins after the TSCA Title VI rule is implemented? What if any process or performance issues will face laminated product producers that switch to NAF resins?

8. To what extent were firms' customary recordkeeping practices generally sufficient to meet the chain of custody requirements in the CARB ATCM? For firms that had to modify their

recordkeeping systems or practices to comply with the CARB ATCM, how much additional effort or cost was required, on a one-time or ongoing basis? How do those costs depend on firm type (panel producer, fabricator, distributor, or retailer), firm size, complexity of the supply chain, or other factors?

9. If your firm has a schedule for the retention of records, how long do you retain records such as purchasing records, invoices, bills of lading, production records, shipping information, and product testing information? What policies does your firm have for the retention or destruction of these records? In light of your firm's records retention and destruction policies or your ordinary business practices, how would the differences between a 2-year recordkeeping period, a 3-year period, and a 5-year period affect your recordkeeping cost under TSCA Title VI? What are the key components of your recordkeeping costs (labor, computer storage, physical storage for paper records, etc.), and how do these costs change as the recordkeeping period increases? Please provide a detailed response.

10. What costs did fabricators incur to label their products due to the CARB ATCM? What factors, such as production volume or the number or complexity of the products, determined the magnitude of those costs? Were there additional costs due to the CARB labeling requirement after the first year? If so, what were the costs for, how large were they, and what factors influenced those costs? How common is it for distributors or retailers to repackage or relabel goods? To what extent do distributors or retailers apply labels under the CARB ATCM, either because they are repackaging goods that were originally labeled on the packaging instead of on the individual items, or because they are replacing an original label applied by the panel producer or fabricator with a label listing a different company name?

11. What data are available on the types and quantities of goods containing composite

wood products used within a typical residence? How do these quantities differ by the type of dwelling (single family attached housing, single family detached housing, multi-family housing, manufactured housing, etc.)? Are there differences in the typical quantities of composite wood products used associated with the race or income of the residents?

12. In the absence of a requirement that panel producers hold lots selected for testing until the test results are received, how likely is it that panels would be shipped before the test results are available? Given the lower frequency of quality control testing for hardwood plywood producers (including laminators produced panels defined as hardwood plywood), how would such a requirement affect their decision about whether to perform quality control testing for formaldehyde emissions in-house or to send the panels to a third party for testing?

13. What data are available on the amount of work or leisure time patients typically miss as a result of treatment for nasopharyngeal cancer, including the time recovering from chemotherapy or radiation?

14. How should EPA quantify the benefits of avoiding respiratory effects related to formaldehyde exposure? Which symptoms should be valued? How should the results be presented to reflect the underlying uncertainty in such estimates?

15. How should EPA evaluate and quantify the benefits of improved fecundity due to reductions in formaldehyde exposure? How should the results be presented to reflect the underlying uncertainty in such estimates?

#### *B. Paperwork Reduction Act (PRA)*

The information collection requirements in this proposed rule have been submitted to OMB for review and approval under the PRA, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR number

2446.01, and the OMB Control No. 2070-[new] (Ref. 60).

The new information collection activities contained in this proposed rule are designed to assist the Agency in meeting the requirement in Section 601(d) of TSCA that EPA promulgate implementing regulations in a manner that ensures compliance with the TSCA Title VI emission standards. The new information collection requirements affect firms that sell, supply, offer for sale, or manufacture (including import) hardwood plywood, particleboard, MDF, or finished goods containing these materials in the United States. Although firms have the option of choosing to engage in the covered activities, once a firm chooses to do so, the information collection activities contained in this proposed rule become mandatory for that firm.

The ICR document provides a detailed presentation of the estimated burden and costs for 3 years of the program. Burden is defined at 5 CFR 1320.3(b). Since the proposed rule applies to products imported into the U.S., the certification, testing, recordkeeping, and reporting requirements also apply to entities outside the U.S. Therefore, the ICR document considers the burden and cost to both foreign and domestic entities. This is in contrast to the Economic Analysis for the proposed rule (Ref. 46), where the cost analysis is limited to domestic entities. The ICR document also accounts for the burdens of baseline reporting and recordkeeping activities in two ways. One estimates the incremental burden and cost excluding all the activities performed to comply with the CARB ATCM in the baseline, which is consistent with the cost estimates in the Economic Analysis. The other estimates the burden and cost of future activities even if those activities would be performed in the absence of the TSCA Title VI rule (*i.e.*, to comply with the CARB ATCM), which yields higher cost estimates than those in the Economic Analysis.

The ICR document estimates that more than 990,000 firms are subject to the rule's

reporting and recordkeeping requirements. Of these, nearly 925,000 are domestic firms and approximately 66,000 are foreign firms. Over the 3-year period covered by the ICR, the incremental burden of the rule (excluding burden for activities performed in the baseline) is estimated to average 5.8 million hours per year. The total annual burden (including burden for required activities performed in the baseline) is estimated to average 7.9 million hours per year. The total burden reflects nearly 1.7 million responses per year over the 3 years of the ICR, where the number of responses includes both responses that are submitted to EPA or a third party as well as recordkeeping activities conducted by firms that only maintain records. The total annual burden equates to an average of approximately 5 hours per response.

An agency may not conduct or sponsor, and a person is not required to respond to an ICR unless it displays a currently valid OMB control number, or is otherwise required to submit the specific information by a statute. The OMB control numbers for EPA's regulations codified in Title 40 of the Code of Federal Regulations, after appearing in the preamble of the final rule, are further displayed either by publication in the **Federal Register** or by other appropriate means, such as on the related collection instrument or form, if applicable. The display of OMB control numbers for certain EPA regulations is consolidated in a list at 40 CFR 9.1.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, EPA has established a public docket for this proposed rule, which includes the ICR, under Docket ID number EPA-HQ-OPPT-2012-0018. Submit any comments related to the ICR to EPA and OMB. See the **ADDRESSES** unit at the beginning of this document for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th St., NW., Washington, DC 20503,

Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 to 60 days after [*insert date of publication in the **Federal Register***], a comment to OMB is best assured of having its full effect if OMB receives it by [*insert date 30 days after publication in the **Federal Register***]. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

### *C. Regulatory Flexibility Act (RFA)*

The RFA, 5 U.S.C. 601 *et seq.*, generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.

Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of today's proposed rule on small entities, small entity is defined as:

1. A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201.
2. A small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000.
3. A small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

Pursuant to section 603 of the RFA, EPA prepared an initial regulatory flexibility analysis (IRFA) that examines the impact of the proposed rule on small entities along with regulatory alternatives that could reduce that impact (Ref. 49). The IRFA is available for review in the docket and is summarized below.

1. *Need for the rule.* TSCA section 601(d) directs EPA to promulgate regulations to implement the formaldehyde standards for composite wood products described in TSCA section 601(b)(2). EPA is issuing a proposed rule under TSCA Title VI to implement the statutory formaldehyde emission standards for hardwood plywood, medium-density fiberboard, and particleboard sold, supplied, offered for sale, or manufactured (including imported) in the United States. As directed by the statute, this proposal includes provisions relating to, among other things, laminated products, products made with ultra low-emitting formaldehyde resins, products made with no-added formaldehyde resins, testing requirements, product labeling, chain of custody documentation and other recordkeeping requirements, and product inventory sell-through provisions, including a product stockpiling prohibition.

2. *Objectives and legal basis for the rule.* The legal basis for the rule is TSCA section 601(d), which provides authority for the Administrator to “promulgate regulations to implement the standards required under subsection (b) in a manner that ensures compliance with the emission standards described in subsection (b)(2).” Therefore, the central objective of the regulatory provisions of this proposal is to ensure compliance with the TSCA Title VI formaldehyde emission standards.

3. *Description and number of small entities to which the rule will apply.* The small entities potentially affected by the rule are manufacturers (including importers), fabricators, distributors, and retailers of composite wood products. For purposes of assessing the impacts of the rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration’s (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise

which is independently owned and operated and is not dominant in its field. EPA estimates that the rule will affect approximately 879,000 small entities.

4. *Projected compliance requirements.* This proposal implements the statutory formaldehyde emission standards for hardwood plywood, medium-density fiberboard, and particleboard sold, supplied, offered for sale, or manufactured (including imported) in the United States. As directed by the statute, this proposal includes provisions relating to, among other things, laminated products, products made with ultra low-emitting formaldehyde resins, products made with no-added formaldehyde resins, testing requirements, product labeling, chain of custody documentation and other recordkeeping requirements, and product inventory sell-through provisions, including a product stockpiling prohibition. This proposal would establish requirements for manufacturers (including importers), fabricators, distributors, and retailers of composite wood products. The regulatory provisions in this proposal are designed to ensure compliance with the TSCA Title VI formaldehyde emission standards while aligning, where practical, with the regulatory requirements under the California Air Resources Board's (CARB) Airborne Toxic Control Measure (ATCM). By aligning itself with the existing CARB requirements, EPA seeks to avoid differing or duplicative regulatory requirements that would result in an increased burden on the regulated community.

5. *Classes of small entities subject to the compliance requirements.* Small entities include small businesses, small organizations, and small governmental jurisdictions. The small entities that are potentially directly regulated by this proposed rule are small businesses that are manufacturers (including importers), fabricators, distributors, or retailers of composite wood products. No small governments or small organizations are expected to be directly regulated by the rule.

6. *Professional skills needed to comply.* Each panel producer must designate a person as quality control manager with adequate experience and/or training to be responsible for formaldehyde emission quality control. EPA has not proposed criteria for determining whether an individual's experience or training are appropriate for this position, but experience in the wood products industry or a degree in chemistry or a related field might provide the skills need to comply with the requirements.

A panel producer must be able to follow sampling and handling procedures for the material that is to be tested. However, those procedures must be described in the panel producer's quality control manual, and specified skills should not be needed to follow the written procedures.

Each panel producer must also designate a quality control facility for conducting quality control formaldehyde testing, and the quality control facility must have quality control employees with adequate experience and/or training to conduct accurate chemical quantitative analytical tests. But instead of performing these functions themselves, panel producers have the option of hiring an accredited TPC or a contract laboratory to fulfill these requirements.

To obtain product certification, a panel producer must apply to an accredited TPC, and must provide information and notifications to the TPC. Finally, manufacturers, fabricators, distributors, or retailers of composite wood products must maintain records. None of these activities requires any special skills.

7. *Relevant Federal rules.* The U.S. Department of Housing and Urban Development (HUD) has regulations governing formaldehyde emission levels from plywood and particleboard materials installed in manufactured homes. (See 24 CFR 3280.308.) However, TSCA Title VI establishes specific formaldehyde emission standards for hardwood plywood, particleboard, and

medium-density fiberboard and does not provide EPA with the authority to modify these standards. Furthermore, the Formaldehyde Standards for Composite Wood Products Act, which includes TSCA Title VI, directs HUD to revise their regulations to ensure that they reflect the emission standards in TSCA Title VI. The HUD regulations do not deal with the other elements addressed in these implementing regulations (where EPA does have the authority to make determinations) such as laminated products, products made with ultra low-emitting formaldehyde resins, products made with no-added formaldehyde resins, testing requirements, chain of custody documentation, and product inventory sell-through provisions. Therefore, the regulatory provisions of this proposal for which EPA has flexibility in implementing the statute do not duplicate, overlap, or conflict with any other Federal rules.

8. *Potential economic impacts on small entities.* Of the 879,000 small firms affected by the proposal, over 851,000 (about 97%) are expected to have costs impacts that are less than 1% of their revenues, over 23,000 firms (about 3%) are expected to experience impacts at levels between 1% to 3% of their revenue, and over 4,000 firms (less than 1%) are expected to incur costs exceeding 3% of their revenues.

Many of the firms with cost impacts above 1% of their revenues are fabricators, wholesalers, and retailers with annualized costs less than \$250 (*i.e.*, they are firms with annual revenues below \$25,000). These firms account for 92% of the firms with cost impacts that are between 1% to 3% and 42% of the firms with cost impacts that exceed 3%.

9. *Small Business Advocacy Review Panel.* As required here by section 609(b) of the RFA, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), EPA also conducted outreach to small entities and convened a Small Business Advocacy Review Panel on February 3, 2011, to obtain advice and recommendations of representatives of the small

entities that potentially would be subject to the proposed rule's requirements. The Panel solicited input on all aspects of these proposed regulations and on the framework for the third-party certification program under TSCA Title VI. Seventeen potentially-impacted small entities served as small-entity representatives (SERs) to the Panel, representing a broad range of small entities from diverse geographic locations, and five trade associations. The Panel concluded its deliberations on April 4, 2011.

Consistent with the RFA/SBREFEA requirements, the Panel evaluated the assembled materials and small-entity comments on issues related to elements of the IRFA. A copy of the Panel report is included in the docket for this proposed rule (Ref. 15). It is important to note that the Panel's findings and discussion were based on the information available at the time the final report was prepared. EPA has continued to conduct analyses relevant to the proposed rule, and additional information may be developed from public comment on the proposed rule.

The Panel's recommendations on the TPC framework were discussed in the TPC Proposal (Ref. 1). The Panel's most significant findings and recommendations on other aspects of the TSCA Title VI implementing regulations are summarized below.

a. *In general.* The Panel recommended that EPA adopt regulatory requirements that are consistent with the CARB ATCM wherever possible. EPA agrees with this recommendation and has tried throughout this proposal to remain consistent with CARB where it is practical to do so.

b. *Manufactured-by dates and stockpiling.* The Panel generally agreed with those SERs that recommended that EPA propose to establish the manufactured-by date at 180 days after promulgation of the final rule and make the reference period for determining whether stockpiling has occurred the 12-month period prior to promulgation of the final rule. The Panel also recommended that EPA request comments and data on alternative dates and reference periods.

EPA is proposing to establish the manufactured-by date at 1 year after promulgation of the final rule. This is primarily to allow for development of the third-party certification infrastructure and to give panel producers who are not already complying with the CARB ATCM adequate time before the manufactured-by date to select an accredited TPC, develop a quality control manual, and complete the initial testing to qualify for product certification.

EPA is proposing to establish the stockpiling reference period, or base period, as the calendar year 2009 because, under TSCA Title VI, the base period must end before the statute was enacted. EPA requests comments and data on both the proposed manufactured-by date and the proposed base period for determining whether stockpiling has occurred.

c. *Quality control and compliance testing.* The Panel recommended that EPA consider CARB's method of establishing equivalency and carefully evaluate any alternative test method permitted. After considering the options, EPA is proposing to use CARB's method of establishing equivalency between test methods and EPA is also proposing to recognize those alternative test methods that CARB has approved.

The Panel further recommended that EPA provide clear direction on product decertification and recertification procedures and the recall of noncompliant products. In response to these recommendations, EPA has proposed specific provisions on what actions are required and allowed in the event of a failed test result. EPA has also proposed to require panel producers to hold lots selected for testing until the test results are received.

d. *Labeling and recordkeeping.* The Panel generally recommended that labeling and recordkeeping provisions should be closely harmonized with CARB's requirements, including allowing panels to be labeled by bundle, rather than individually. The Panel did recognize that subtle differences between the TSCA Title VI implementing regulations and the CARB ATCM

may make identical labels impossible. EPA is proposing labeling requirements that are virtually identical to CARB's, except that the labels must say that the products are TSCA Title VI compliant instead of CARB compliant. For entities that are manufacturers under TSCA (i.e., they manufacture, produce, or import composite wood panels, component parts, or finished goods), EPA's proposed recordkeeping and chain of custody documentation requirements are also virtually identical to CARB's. For distributors and retailers that are not manufacturers under TSCA, EPA is proposing that the only records they be required to keep are invoices and bills of lading. This requirement is less burdensome than recordkeeping and chain of custody requirements similar to those in the CARB ATCM.

e. *Laminated products and engineered veneer.* The Panel recommended that EPA continue to seek available information, and exempt those laminated products that can be exempted consistent with the direction given in TSCA Title VI. The Panel further recommended that EPA work with small businesses, especially those laminating on a made-to-order basis, to design a testing scheme that is practical for those businesses, and at the same time, is calculated to ensure compliance with the emissions standards. The Panel also recommended that EPA consider basing the number and frequency of required quality control tests on production volume, thereby requiring fewer tests for smaller producers. EPA has incorporated all of these recommendations into this proposal, by proposing to exempt laminated products that are made with certified platforms and NAF resins, and by proposing to allow for quality control testing frequency based on production volume for hardwood plywood producers.

f. *Definitions.* The Panel recommended that EPA develop a definition of "hardboard" that takes the revised ANSI standard into account while ensuring that similar products are

similarly regulated under TSCA Title VI. EPA believes that its proposed definition takes into account both widespread industry usage of the term and the intent of the statute.

Recognizing that TSCA Title VI was not intended to apply to structural plywood, the Panel also recommended that EPA develop a clear definition for “interior use” in order to eliminate confusion in the regulated community. According to the Panel, the definition should be based on the intent of the statute and consider how the hardwood plywood is likely to be used and stored once incorporated into a finished good. EPA has proposed a definition of “intended for interior use” that includes these considerations and requests comments on the appropriateness of this definition.

While the SERs differed in their advice on the definition of the term “panel,” the SBAR Panel recommended that EPA reduce uncertainty in the regulated community by including in its regulation a clear definition of “panel” that is based on the intent of the statute, and considers trade usage and the limitations of current test methods. Again, EPA is proposing a definition that takes these factors into account, and EPA requests comment on all aspects of the proposed definition.

10. *Alternatives considered.* Over the course of this rulemaking, EPA considered alternatives for various provisions of the rule. Most of these alternatives would have applied to both small and large entities but, given the number of small entities in the affected industries, some of these alternatives could affect many small entities. EPA made a concerted effort to keep the costs and burdens associated with this rule as low as possible while still ensuring compliance with the TSCA Title VI emissions standards. In developing the proposed rule, EPA considered the statutory requirements and the benefits from protection of human health and the environment, as well as the compliance costs imposed by the rule, both in general and on small entities. EPA

took a number of steps to reduce the economic impacts of the rule where doing so was consistent with the statutory mandate. The steps where EPA was able to quantify the resulting cost reductions are:

- *Aligning with the CARB ATCM where practical.* This regulatory proposal is designed to ensure compliance with the TSCA Title VI formaldehyde emission standards while aligning, where practical, with the regulatory requirements in California. Some of the areas where EPA has aligned the proposal with the CARB ATCM are described below. Aligning the TSCA implementing regulations with California's requirements helps reduce costs for the nearly 100 composite wood product mills, the 32,000 fabricators, the 32,000 wholesalers, and the 101,000 retailers that are already complying with the CARB ATCM in the baseline. However, EPA deviated from the CARB ATCM where doing so would reduce burden while still ensuring compliance with the TSCA Title VI emissions standards. The proposed rule costs \$19 million to \$31 million per year less than an option that is fully consistent with the CARB ATCM.

- *Defining hardwood plywood to exclude laminated products in which a wood veneer is attached to a compliant and certified platform using a NAF resin, and defining laminated products without limiting applicability to the manufacturer or fabricator of the finished good in which the product is incorporated.* These definitions will result in 98% of laminated product producers being regulated as fabricators rather than panel producers. As a result, the rule will cost \$92 million to \$172 million per year less than if all laminated products were included in the definition of hardwood plywood.

- *Reducing recordkeeping for non-manufacturers.* The rule costs \$40 million per year less than if EPA had proposed recordkeeping requirements similar to the CARB ATCM's.

- *Reducing TPC oversight and testing requirements for NAF and ULEF products.* The

ULEF provisions alone reduce the total rule costs by \$0.5 million per year.

EPA also took a number of steps to reduce burden where it did not have sufficient information to quantify the resulting cost reductions. Some of these steps include:

- Not requiring retailers to relabel items that they divide or repackage.
- Reducing quality control testing for small hardwood plywood producers.
- Reducing quality control testing for particleboard and medium-density fiberboard producers that demonstrate consistent operations and low variability of test values.
- Allowing panel producers to group products and product types for testing.
- Adopting a definition of hardboard that exempts hardboard products (including those made with phenol-formaldehyde resin) from the statutory emission standards and the testing and certification requirements.
- Setting the manufactured-by date for the sell-through provisions at 1 year after promulgation of the final rule, instead of the statutory minimum of 180 days.
- Allowing alternate test methods to ASTM D-6007-02 and ASTM D-5582 for quality control testing, after demonstrating equivalence.
- Not requiring recordkeeping for exempt products.
- Allowing TPCs approved by CARB to certify products under TSCA Title VI until one year after the publication of the final rule, and allowing products currently certified by these TPCs to be considered certified for purposes of TSCA Title VI during that same period.

Allowing equivalence between ASTM E-1333-10 and any other approved test method to be demonstrated in a range of formaldehyde concentrations that is representative of the emissions of the products that a TPC certifies.

EPA also considered and rejected various alternatives to the rule that could affect the

economic impacts of the rule on small entities. For the reasons described below, these alternatives are not consistent with the statutory objectives of the rule and are not included in the proposed rule.

- *Exempting all laminated products from the definition of hardwood plywood.* EPA considered excluding all laminated products from the definition of hardwood plywood. Because eligibility for such an exemption would not be based on the type of resins used to attach a wood veneer to a platform, currently available information indicates that this would have allowed laminated products that exceed the formaldehyde emission standards to be exempted from the definition of hardwood plywood. Therefore, on the basis of information currently available to the Agency, EPA has concluded that exempting all laminated products from the definition of hardwood plywood is not consistent with TSCA Title VI's statutory mandate that EPA promulgate regulations in a manner that ensures compliance with the emission standards in TSCA section 601(b)(2).

- *Providing additional de minimis exceptions.* EPA has decided not to propose an exception from any of the regulatory requirements for products containing small amounts of composite wood products, other than implementing the statutory exceptions for certain windows and doors. EPA does not have the authority to promulgate a *de minimis* exception to the statutory requirements (*e.g.*, emissions standards, or quarterly testing); rather EPA has the authority to promulgate a *de minimis* exception for the other regulatory provisions (*e.g.*, record keeping, chain-of-custody, quality control testing, and labeling). EPA does not know of any information that suggests that products with a *de minimis* amount of composite wood products would necessarily be made from panels that meet the statutory emissions standards, as required by the statute. Thus, EPA believes it is necessary to make these products subject to the already

reduced regulatory requirements. EPA has concluded that, on the basis of information currently available to the Agency, exempting such products would not be consistent with TSCA Title VI's statutory mandate that EPA promulgate regulations in a manner that ensures compliance with the emission standards in TSCA section 601(b)(2).

- *Not requiring retention of tested lots.* EPA is proposing to require that panel producers retain lots of composite wood products from which quality control or quarterly samples have been selected until the samples have been tested and the results received. Without this requirement, panel producers could inadvertently sell products exceeding the emission standards in TSCA section 601(b)(2). Furthermore, EPA believes that the proposed approach may be less burdensome overall and offer better protection to importers, distributors, wholesalers, retailers, and consumers than an approach relying on after-the-fact enforcement actions and customer notifications.

Additional information on the alternatives that EPA considered is presented elsewhere in this proposal, and in the IRFA (Ref. 61).

EPA invites comments on all aspects of the proposal and its impacts on small entities.

#### *D. Unfunded Mandates Reform Act (UMRA)*

Title II of UMRA, 2 U.S.C. 1531-1538, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. This rule contains a Federal mandate that may result in expenditures exceeding the inflation-adjusted UMRA threshold of \$100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. Accordingly, EPA has prepared under section 202 of the UMRA a written statement which is summarized below (Ref. 62).

1. *Authorizing legislation.* This proposed rule is issued under the authority of section 601 of TSCA, 15 U.S.C. 2697.

2. *Cost-benefit analysis.* EPA has prepared an analysis of the costs and benefits associated with this rulemaking, a copy of which is available in the docket for this rulemaking (Ref. 46). The Economic Analysis presents the costs of the rule as well as various regulatory options and is summarized in Unit V.A. EPA has estimated that this proposal will result in a total cost of \$434 million to \$447 million in the first year. The cost is estimated to drop to \$56 million to \$65 million in the second year. The total annualized cost of this proposal is \$72 million to \$81 million per year when using a 3% discount rate and \$80 million to \$89 million per year using a 7% discount rate. When adjusted for inflation, the \$100 million UMRA threshold is equivalent to approximately \$143 million in 2010 dollars. Thus, the cost of the rule to the private sector and State, local, and Tribal governments in the aggregate exceeds the inflation-adjusted UMRA threshold in the first year.

This proposed rule will reduce exposures to formaldehyde, resulting in benefits from avoided adverse health effects. For the subset of health effects where the results were quantified, the estimated annualized benefits (due to avoided incidence of nasopharyngeal cancer and eye irritation) are \$20 million to \$48 million per year using a 3% discount rate, and \$9 million to \$23 million per year using a 7% discount rate. There are additional unquantified benefits due to other avoided health effects.

Net benefits are the difference between benefits and costs. The proposal is estimated to result in quantified net benefits of -\$24 million to -\$60 million per year using a 3% discount rate, and -\$57 million to -\$79 million per year using a 7% discount rate. EPA considers the additional unquantified health benefits from avoided cases of respiratory related and other effects to be

potentially important non-monetized impacts that contribute to the overall net benefits of this proposed rule.

3. *State, local, and Tribal government input.* Consistent with the intergovernmental consultation provisions of section 204 of the UMRA EPA has initiated consultations with governmental entities affected by this proposed rule. EPA has met with officials from the state of California on numerous occasions to discuss aspects of the CARB ATCM and its implementation. With the assistance of the National Conference of State Legislatures, EPA has also initiated consultations with state environmental health directors.

4. *Least burdensome option.* Consistent with section 205, EPA has identified and considered a reasonable number of regulatory alternatives. TSCA Title VI establishes specific formaldehyde emission standards for hardwood plywood, particleboard, and medium-density fiberboard and does not provide EPA with the authority to modify these standards. The statute further directs EPA to promulgate implementing regulations that address elements such as laminated products, products made with ultra low-emitting formaldehyde resins, products made with no-added formaldehyde resins, testing requirements, product labeling, chain of custody documentation and other recordkeeping requirements, and product inventory sell-through provisions. Section 601(d) of TSCA requires EPA to promulgate implementing regulations in a manner that ensures compliance with the TSCA Title VI emission standards. Within those constraints, EPA has considered a number of regulatory alternatives for regulating laminated products, as described in Unit III. and elsewhere in this unit, as well as in the Economic Analysis (Ref. 46). One of the alternative options that EPA considered, which would have exempted all laminated products from the definition of hardwood plywood, had lower costs than the proposed rule. But as explained elsewhere in this proposal, currently available information indicates that

laminated products can exceed the formaldehyde emission standards. Therefore, on the basis of information currently available to the Agency, EPA has concluded that exempting all laminated products from the definition of hardwood plywood is not consistent with TSCA Title VI's statutory mandate that EPA promulgate regulations in a manner that ensures compliance with the emission standards in TSCA section 601(b)(2). EPA has determined that the proposed rule is the least burdensome option that is consistent with TSCA Title VI's statutory mandate that EPA promulgate regulations in a manner that ensures compliance with the emission standards in TSCA section 601(b)(2).

This rule does not contain a significant Federal intergovernmental mandate as described by section 203 of UMRA, because it neither imposes enforceable duties on State, local, or tribal governments nor reduces an authorized amount of Federal financial assistance provided to State, local, or tribal governments. And this proposed rule contains no regulatory requirements that might significantly or uniquely affect small governments. The proposed rule would regulate entities that manufacture (including import), fabricate, distribute, or sell composite wood products. Governments do not typically engage in these activities, so government entities are not expected to be subject to the rule's requirements.

*E. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999). The proposed rule would not regulate governments directly, it would regulate entities that manufacture (including import), fabricate, distribute, or sell composite wood products. Governments do not typically engage in

these activities. Thus, Executive Order 13132 does not apply to this action.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA has met with officials from the state of California on numerous occasions to discuss aspects of the CARB ATCM and its implementation. With the assistance of the National Conference of State Legislatures, EPA has also initiated consultations with state environmental health directors. EPA specifically solicits comment on this proposed action from State and local officials.

*F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments*

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). The proposed rule would not regulate tribal governments directly, it would regulate entities that manufacture (including import), fabricate, distribute, or sell composite wood products. Tribal governments do not typically engage in these activities. Thus, Executive Order 13175 does not apply to this action.

EPA specifically solicits additional comment on this proposed action from tribal officials.

*G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks*

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not an economically significant regulatory action as defined by Executive Order 12866. Nevertheless, EPA has evaluated the environmental health effects of formaldehyde emissions from composite wood products on children. The results of this evaluation are described in the Economic Analysis (Ref. 46). The analysis shows that children aged 0 through 1 represent 3% of the individuals affected by the rule and are estimated to accrue about 2% to 10% of the proposed rule's total quantified benefits. Children aged 2 through 15 represent 20% of the individuals affected by the proposed rule and are estimated to accrue about 16% to 22%

of the proposed rule's total quantified benefits. Given these results, EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on children. These proposed standards would reduce emissions of formaldehyde from composite wood products for individuals of all ages that are exposed and children may accrue higher benefits from the exposure reductions compared to adults.

The public is invited to submit comments or identify peer-reviewed studies and data that assess effects of early life exposure to formaldehyde.

*H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*

This proposed rule is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355, May 22, 2001), because it is not likely to have any adverse effect on the supply, distribution, or use of energy.

*I. National Technology Transfer and Advancement Act (NTTAA)*

Section 12(d) of NTTAA, 15 U.S.C. 272 note, directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking involves numerous technical standards, many of which EPA is directed to use by TSCA Title VI. Technical standards identified in the statute include the two quarterly test methods, ASTM E-1333-96 and ASTM D-6007-02, a quality control test method, ASTM D-5582-00, and various standards that define specific composite wood products, such as

ASTM D-5456-06 (Structural Composite Lumber Products), ASTM D-5055-05 (Prefabricated Wood I-Joists), ANSI A190.1 (Structural Glued Laminated Timber), ANSI/HPVA HP-1-2009 (Hardwood and Decorative Plywood), ANSI A208.2-2 2009 (Medium Density Fiberboard), ANSI A208.1-2009 (Particleboard), PS-1-07 (Structural Plywood), and PS-2-04 (Wood-Based Structural-Use Panels).

In addition, EPA has identified other voluntary consensus standards that EPA is proposing to incorporate into this regulation. These include the revised quarterly test method, ASTM E-1333-10, and standards that define hardboard, ANSI A135.4, ANSI A135.5, and ANSI A135.6. EPA is also proposing to allow three alternative quality control test methods that are incorporated in voluntary consensus standards, EN 717-2 (gas analysis), EN 120 (perforator), and JIS A 1460 (24-hour desiccator).

EPA is proposing the use of voluntary consensus standards issued by the International Organization for Standardization, ASTM International, the American National Standards Institute, the National Institute of Standards and Technology, the European Committee for Standardization, Georgia Pacific Chemicals LLC, and the Japanese Standards Association. Copies of the standards referenced in the proposed regulatory text at §§ 770.1, 770.3, 770.10, 770.15, 770.17, and 770.20 have been placed in the docket for this proposed rule. You may also obtain copies of these standards from:

(1) International Organization for Standardization, Case postale 56, CH-1211, Geneva 20, Switzerland, telephone +41-22-749-01-11, <http://www.iso.org>.

(2) ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA, telephone (877) 909-ASTM, <http://www.astm.org>.

(3) ANSI, American National Standards Institute, 1899 L Street, NW, 11<sup>th</sup> Floor, Washington, DC 200036, telephone (202) 293-9287, <http://ansi.org/>.

(4) National Institute of Standards and Technology, Technology Administration, U.S. Department of Commerce, 100 Bureau Drive, MS 2150, Gaithersburg, MD 20899-2150; <http://ts.nist.gov/docvps>.

(5) CEN, European Committee for Standardization, CEN-CENELEC Management Centre, 4<sup>th</sup> Floor, Avenue Marnix 17, B-1000 Brussels, telephone +32-3-550-08-11, <http://www.cen.eu/cen/pages/default.aspx>.

(6) Georgia-Pacific Chemicals LLC, 133 Peachtree Street, Atlanta, GA 30303, telephone (877) 377-2737, <http://www.gp-dmc.com/default.aspx>.

(7) Japanese Standards Association, Japanese Industrial Standards, 1-24, Akasaka 4, Minatoku, Tokyo 107-8440, Japan, telephone +81-3-3583-8000, <http://www.jsa.or.jp/>.

In the final rule, EPA intends to seek approval from the Director of the Federal Register for the incorporation by reference of the standards referenced in the final rule in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

EPA welcomes comments on this aspect of the proposed rulemaking and specifically invites the public to identify additional potentially applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

*J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or

environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. These proposed standards would reduce emissions of formaldehyde from composite wood products for all populations that are exposed, with slightly larger benefits for individuals from minority or low-income affected populations.

This proposed rule establishes standards that reduce emissions of formaldehyde from composite wood products. Formaldehyde exposure may cause a range of health effects including nasopharyngeal cancer, sensory irritation, respiratory related and other effects.

The Economic Analysis (Ref. 46), described in Unit V.A., monetizes the benefits from reducing the number of cases of nasopharyngeal cancer and sensory irritation. Benefits valuation is done for formaldehyde exposure in five climate zones from nine different housing types (five types of new housing and four types of renovated housing), allowing for off-gassing of up to 10 years, as well as occupational, school, and outside formaldehyde exposure. The population in these climate zones and housing types is broken down into broad age and employment categories to assess exposure.

The Economic Analysis (Ref. 46) includes an environmental justice analysis that expands on the primary benefits analysis by analyzing the monetized impacts specifically for minority and low-income populations. Results indicate that disaggregation of total benefits by population groups leads to variation in the range of individual benefits, by minority population. Benefits estimates are reported in 2010 dollars, annualized at a 3% rate. The population of all individuals affected by the proposed rule shows the same estimates reported in the total benefits analysis;

quantified benefits for the proposed rule range from \$20 million to \$48 million, and average \$0.19 to \$0.45 per individual. The affected Non-Hispanic White population account for 65% of the total affected population, accrue 60% to 61% of the quantified benefits, and experience average annualized quantified benefits ranging from \$0.18 to \$0.42 per individual. In comparison, benefits for minority populations are higher. Minority populations represent about 35% of the individuals affected by the rule and are estimated to accrue about 40% of the proposed rule's quantified benefits. The affected Non-Hispanic Black population account for 12% of the total affected population, accrue 13% of the quantified benefits, and experience average annualized quantified benefits ranging from \$0.21 to \$0.49 per individual. The affected Hispanic population account for 15% of the total affected population, accrue 18% of the quantified benefits, and experience average annualized quantified benefits ranging from \$0.22 to \$0.51 per individual. The affected Non-Hispanic Native American or Alaskan Indian population account for 0.6% of the total affected population, accrue 0.6% of the quantified benefits, and experience average annualized quantified benefits ranging from \$0.19 to \$0.43 per individual. The affected low-income population account for 12% of the total affected population, accrue 14% to 15% of the quantified benefits, and experience average annualized quantified benefits ranging from \$0.22 to \$0.53 per individual.

To further improve the analysis for the final rule, the public is invited to submit comments or identify peer-reviewed studies and data that assess the exposures of minority or low-income populations to formaldehyde emissions from composite wood products, and the health effects of those exposures.

**List of Subjects in 40 CFR Part 770**

Environmental protection, Formaldehyde, Reporting and recordkeeping requirements,  
Toxic substances, Wood.

Dated: 5/23/2013

Bob Perciasepe

Bob Perciasepe, Acting Administrator.

Therefore, 40 CFR part 770 as proposed on [insert date of TPC proposal] (77 FR ?????), is proposed to be amended to read as follows

1. The authority citation for part 770 continues to read as follows:

**Authority:** 15 U.S.C. 2697(d).

2. Section 770.1 is amended by adding paragraphs (b) through (e) to read as follows.

**§ 770.1 Scope and applicability.**

\* \* \* \* \*

(b) This subpart applies to any hardwood plywood, particleboard, or medium-density fiberboard, or finished goods containing these materials, that are sold, supplied, offered for sale, or manufactured (including imported) in the United States.

(c) This subpart does not apply to the following:

(1) Any finished good that has previously been sold or supplied to an individual or entity that purchased or acquired the finished good in good faith for purposes other than resale, *e.g.*, an antique or secondhand furniture.

(2) Hardboard, unless the hardboard is used as a core for hardwood plywood.

(3) Structural plywood, as specified in PS-1-07, Voluntary Product Standard—Structural Plywood.

(4) Structural panels, as specified in PS-2-04, Voluntary Product Standard—Performance Standard for Wood-Based Structural-Use Panels.

(5) Structural composite lumber, as specified in ASTM D5456-06, Standard Specification for Evaluation of Structural Composite Lumber Products.

(6) Oriented strand board.

(7) Glued laminated lumber, as specified in ANSI A190.1-2002, Structural Glued Laminated Timber.

(8) Prefabricated wood I-joists, as specified in ASTM D5055-05, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.

(9) Finger-jointed lumber.

(10) Wood packaging, including pallets, crates, spools, and dunnage.

(11) Composite wood products used inside the following:

(i) New vehicles (other than recreational vehicles) that are constructed entirely from new parts and that have never been the subject of a retail sale or registered with the applicable State or other governmental agency.

(ii) New rail cars.

(iii) New boats.

(iv) New aerospace craft.

(v) New aircraft.

(d) The emission standards in § 770.10 do not apply to windows that contain composite wood products, if the windows contain less than 5% by volume of hardwood plywood, particleboard, or medium-density fiberboard, combined, in relation to the total volume of the finished window.

(e) The emission standards in § 770.10 do not apply to exterior doors and garage doors that contain composite wood products, if:

(1) The doors are made from composite wood products manufactured with no-added formaldehyde-based resins or ultra low-emitting formaldehyde resins; or

(2) The doors contain less than 3% by volume of hardwood plywood, particleboard, or medium-density fiberboard, combined, in relation to the total volume of the finished exterior door or garage door.

3. Section 770.2 is amended by adding paragraphs (d) and (e) to read as follows:

**§ 770.2 Effective dates.**

\* \* \* \* \*

(d) After [*date 1 year after publication of the final rule in the **Federal Register***], all hardwood plywood, particleboard, and medium-density fiberboard, and finished goods containing these materials, sold, supplied, offered for sale, or manufactured (including imported) in the United States must comply with this subpart. Except: Hardwood plywood, particleboard, and medium-density fiberboard manufactured (including imported) before [*date 1 year after publication of the final regulations in the **Federal Register***] may be sold, supplied, offered for sale, or used to fabricate component parts or finished goods at any time.

(e) After [*date 1 year after publication of the final rule in the **Federal Register***], all manufacturers (including importers), fabricators, suppliers, distributors, and retailers of hardwood plywood, particleboard, and medium-density fiberboard, and finished goods containing these materials, must comply with this subpart.

4. Section 770.3 is amended by revising the definition for “Panel producer” and alphabetically adding the following definitions to read as follows:

**§ 770.3 Definitions.**

\* \* \* \* \*

*Article* means a manufactured item which:

(i) Is formed to a specific shape or design during manufacture.

(ii) Has end use functions dependent in whole or in part upon its shape or design during the end use.

(iii) Has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the article and that may occur as described in 19 CFR 12.120(a)(2); except that fluids and particles are not considered articles regardless of shape or design.

*Bundle* means more than one composite wood product panel, component part, or finished good fastened together for transportation or sale.

*Component part* means a part that contains one or more composite wood products and is used in the assembly of finished goods.

\* \* \* \* \*

*Distributor* means an entity that supplies composite wood products, component parts, or finished goods to others.

\* \* \* \* \*

*Fabricator* means an entity that incorporates composite wood products into component parts or into finished goods.

*Finished good* means any good or product, other than a panel, that contains hardwood plywood, particleboard, or medium-density fiberboard and that is not a component part or other part used in the assembly of a finished good.

*Hardboard* means a panel composed of cellulosic fibers made by dry or wet forming and hot pressing of a fiber mat, either without resins, or with a phenolic resin (*e.g.*, a phenol-formaldehyde resin) or a resin system in which there is no added formaldehyde as part of the resin cross-linking structure, as determined under one of the following ANSI standards: ANSI

A135.4 (Basic Hardboard), ANSI A135.5 (Prefinished Hardboard Paneling), or ANSI A135.6 (Hardboard Siding).

*Hardwood plywood* means a hardwood or decorative panel that is intended for interior use and composed of (as determined under ANSI/HPVA HP-1-2009) an assembly of layers or plies of veneer, joined by an adhesive with a lumber core, a particleboard core, a medium-density fiberboard core, a hardboard core, a veneer core, or any other special core or special back material. Hardwood plywood does not include military-specified plywood, curved plywood, or any plywood specified in PS-1-07, Voluntary Product Standard – Structural Plywood, or PS-2-04, Voluntary Product Standard – Performance Standard for Wood-Based Structural-Use Panels. In addition, hardwood plywood does not include laminated products that are made by attaching a wood or woody grass veneer with a no-added formaldehyde-based resin to a core that has been manufactured in compliance with this subpart and that is either certified in accordance with § 770.15, manufactured with no-added formaldehyde-based resins under § 770.17, or manufactured with ultra low-emitting formaldehyde-based resins under § 770.18(d).

*Importer* means an entity that imports composite wood products, component parts that contain composite wood products, or finished goods that contain composite wood products into the customs territory of the United States (as defined in general note 2 of the Harmonized Tariff Schedules of the United States). Importer includes:

- (1) The entity primarily liable for the payment of any duties on the products, or
- (2) An authorized agent acting on the entity's behalf.

*Intended for interior use* means intended for use or storage inside a building or recreational vehicle, or constructed in such a way that it is not suitable for long term use in a location exposed to the elements.

\* \* \* \* \*

*Laminated product* means a product in which a wood or woody grass veneer is affixed to a particleboard platform, a medium-density fiberboard platform, or a veneer core platform. A laminated product is a component part used in the construction or assembly of a finished good.

*Laminated product producer* means a manufacturing plant or other facility that manufactures (excluding facilities that solely import products) laminated products on the premises.

*Lot* means the particular batch of a product type made during a single production run.

*Medium-density fiberboard* means a panel composed of cellulosic fibers made by dry forming and pressing a resinated fiber mat (as determined under ANSI A208.2–2009).

*No-added formaldehyde-based resin* means a resin formulated with no added formaldehyde as part of the resin cross-linking structure in a composite wood product that meets the emission standards in § 770.17(c).

*Non-complying lot* means any lot or batch of composite wood product represented by a quarterly or quality control test value that exceeds the applicable standard for the particular composite wood product. In the case of a quarterly test value, only the particular lot or batch from which the sample was taken would be considered a non-complying lot. However, future production of the product type(s) represented by a failed quarterly test are not considered certified and must be treated as a non-complying lot until the product type(s) are re-qualified through a successful quarterly test.

*Panel* means a flat or raised piece of composite wood product.

*Panel producer* means a manufacturing plant or other facility that manufactures (excluding facilities that solely import products) composite wood products on the premises. This includes laminated products not excluded from the definition of hardwood plywood.

*Particleboard* means a panel composed of cellulosic material in the form of discrete particles (as distinguished from fibers, flakes, or strands) that are pressed together with resin (as determined under ANSI A208.1–2009). Particleboard does not include any product specified in PS-2-04, Performance Standard for Wood-Based Structural-Use Panels.

\* \* \* \* \*

*Product type* means a type of composite wood product that differs from another, made by the same panel producer, based on wood type, composition, thickness, number of plies (if hardwood plywood), or resin used. Products with similar emissions made with the same resin system may be considered to be the same product type. Factors to consider in determining whether products belong to the same product type include those factors likely to affect emissions, such as wood type, resin type, core type, veneer type, and press time.

*Production line* means a set of operations and physical industrial or mechanical equipment used to produce a composite wood product.

*Purchaser* means an entity that acquires composite wood products in exchange for money or its equivalent.

*Quality control limit* means the quality control method test formaldehyde value that is the correlative equivalent to the applicable emission standard based on the ASTM E1333-10 method.

*Recreational vehicle* means a vehicle which is:

- (1) Built on a single chassis.
- (2) Four hundred square feet or less when measured at the largest horizontal projections.

(3) Self-propelled or permanently towable by a light duty truck.

(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

*Retailer* means an entity that generally sells smaller quantities of composite wood products directly to consumers.

*Scavenger* means a chemical or chemicals that can be applied to resins or composite wood products to reduce the amount of formaldehyde that can be emitted from composite wood products.

*Stockpiling* means manufacturing or purchasing composite wood products, whether in the form of panels or incorporated into finished goods, between July 7, 2010 and [date 180 days after publication of the final rule in the **Federal Register**] at an average rate at least 20% greater than the average rate of manufacture or purchase during the 2009 calendar year for the purpose of circumventing the emission standards and other requirements of this subpart.

*Thin medium-density fiberboard* means medium-density fiberboard that has a thickness less than or equal to 8 millimeters or 0.315 inches.

\* \* \* \* \*

*Ultra low-emitting formaldehyde resin* means a resin in a composite wood product that meets the emission standards in 770.18(c).

*Veneer* means a thin sheet of wood or woody grass that is rotary cut, sliced, or sawed from a log, bolt, flitch, block, or culm.

*Woody grass* means a plant of the family *Poaceae* (formerly *Gramineae*) with hard lignified tissues or woody parts.

5. Subpart C is added to read as follows:

## **Subpart C--Composite Wood Products**

### **Sec.**

- 770.10 Formaldehyde emission standards.
- 770.12 Stockpiling.
- 770.15 Composite wood product certification.
- 770.17 No-added formaldehyde-based resins.
- 770.18 Ultra low-emitting formaldehyde resins.
- 770.20 Testing requirements.
- 770.22 Non-complying lots.
- 770.24 Samples for testing.
- 770.30 Importers, fabricators, laminated product producers, distributors, and retailers.
- 770.40 Reporting and recordkeeping.
- 770.45 Labeling.
- 770.55 Prohibited acts.

## **Subpart C--Composite Wood Products**

### **§ 770.10 Formaldehyde emission standards.**

(a) Except as provided in §§ 770.1 and 770.17, the emission standards in this section apply to composite wood products sold, supplied, offered for sale, or manufactured (including imported) in the United States. These emission standards apply regardless of whether the composite wood product is in the form of a panel, a component part, or incorporated into a finished good.

(b) The emission standards are based on test method ASTM E1333-10, and are as follows:

- (1) For hardwood plywood, 0.05 parts per million (ppm) of formaldehyde.

- (2) For medium-density fiberboard, 0.11 ppm of formaldehyde.
- (3) For thin medium-density fiberboard, 0.13 ppm of formaldehyde.
- (4) For particleboard, 0.09 ppm of formaldehyde.

**§ 770.12 Stockpiling.**

(a) The sale of stockpiled inventory of composite wood products, whether in the form of panels or incorporated into finished goods, is prohibited after [*date 1 year after publication of the final rule in the **Federal Register***].

(b) To determine whether stockpiling has occurred, the rate of manufacture or purchase is measured as follows:

(1) For composite wood products in the form of panels, the rate is measured in terms of square footage of panels produced.

(2) For composite wood products incorporated into component parts or finished goods, the rate is measured in terms of the square footage of composite wood product panels purchased for the purpose of incorporating them into component parts or finished goods.

(c) Manufacturers or purchasers who can demonstrate that they have a greater than 20% increase in manufacturing or purchasing composite wood products for some reason other than circumventing the emissions standards would not be in violation of this section. Such reasons may include, but are not limited to:

- (1) A quantifiable immediate increase in customer demand or sales.
- (2) A documented and planned business expansion.
- (3) The manufacturer or purchaser was not in business at the beginning of calendar year 2009.

(4) An increase in production to meet increased demand resulting from an emergency event or natural disaster.

**§ 770.15 Composite wood product certification.**

(a) Only certified composite wood products, whether in the form of panels or incorporated into component parts or finished goods, are permitted to be sold, supplied, offered for sale, or manufactured (including imported) in the United States, unless the product is specifically exempted by this subpart.

(b) Certified composite wood products are those that are produced or fabricated in accordance with all of the provisions of this subpart.

(c) To obtain product certification, a panel producer must apply to a TSCA Title VI Accredited TPC. The application must contain the following:

(1) The panel producer's name, address, telephone number, and other contact information.

(2) A copy of the panel producer's quality control manual as required by § 770.20(e)(1).

(3) Name and contact information for the panel producer's quality control manager.

(4) An identification of the specific products for which certification is requested, and the chemical formulation of the resins, including base resins, catalysts, and other additives used in panel production.

(5) At least one test conducted in accordance with § 770.20(c).

(6) Three months of routine quality control tests conducted in accordance with § 770.20(b).

(d) The TSCA Title VI Accredited TPC must act on a panel producer's complete application within 90 days of receipt.

(1) If the application demonstrates that the candidate product achieves the applicable emission standards described in § 770.10, the TSCA Title VI Accredited TPC will approve the application.

(2) If the application does not demonstrate that the candidate product achieves the applicable emission standards described in § 770.10, the TSCA Title VI Accredited TPC will disapprove the application. A new application may be submitted for the candidate product at any time.

(e) If a panel producer fails a quarterly test, certification for any product types represented by the sample is suspended until a compliant quarterly test result is obtained.

**§ 770.17 No-added formaldehyde-based resins.**

(a) Producers of composite wood product panels made with no-added formaldehyde-based resins may apply to a TSCA Title VI Accredited TPC for a 2-year exemption from the testing and certification requirements in § 770.20. A copy of the application must be sent to EPA. The application must contain the following:

(1) The panel producer's name, address, telephone number, and other contact information.

(2) An identification of the specific product and the chemical formulation of the resins, including base resins, catalysts, and other additives as used in manufacturing.

(3) At least one test conducted under the supervision of a TSCA Title VI Accredited TPC pursuant to test method ASTM E1333-10 or ASTM D6007-02. Test results obtained by ASTM D6007-02 must include a showing of equivalence in accordance with § 770.20(d)(1).

(4) Three months of routine quality control tests under § 770.20, including a showing of equivalence in accordance with § 770.20(d)(2).

(b) The TSCA Title VI Accredited TPC will approve a panel producer's application within 90 days of receipt if the application is complete and demonstrates that the candidate product achieves the emission standards described in paragraph (c) of this section.

(c) As measured according to paragraphs (a)(3) and (a)(4) of this section, the emission standards for composite wood products made with no-added formaldehyde-based resins are as follows:

(1) No test result higher than 0.05 parts per million (ppm) of formaldehyde for hardwood plywood and 0.06 ppm for particleboard, medium-density fiberboard, and thin medium-density fiberboard.

(2) No higher than 0.04 ppm of formaldehyde for 90% of the 3 months of routine quality control testing data required under paragraph (a)(4) of this section.

(d) After the initial 2-year period, and every 2 years thereafter, in order to continue to qualify for the exemption from the testing and certification requirements, the panel producer must reapply to a TSCA Title VI Accredited TPC and obtain at least one test result in accordance with paragraph (a)(3) of this section that complies with the emission standards in paragraph (c)(1) of this section.

(e) Any change in the resin formulation, the core material, or any other part of the manufacturing process that may affect formaldehyde emission rates invalidates the exemption for any product produced after such a change.

**§ 770.18 Ultra low-emitting formaldehyde resins.**

(a) Producers of composite wood product panels made with ultra low-emitting formaldehyde resins may apply to a TSCA Title VI Accredited TPC for approval either to conduct less frequent testing than is specified in § 770.20 or approval for a 2-year exemption

from the testing and certification requirements in § 770.20. A copy of the application must be sent to EPA. The application must contain the following:

(1) The panel producer's name, address, telephone number, and other contact information.

(2) An identification of the specific product and the chemical formulation of the resins, including base resins, scavenger resins, scavenger additives, catalysts, and other additives as used in manufacturing.

(3) At least two tests conducted under the supervision of a TSCA Title VI Accredited TPC pursuant to test method ASTM E1333-10 or ASTM D6007-02. Test results obtained by ASTM D6007-02 must include a showing of equivalence in accordance with § 770.20(d)(1).

(4) Six months of routine quality control tests under § 770.20, including a showing of equivalence in accordance with § 770.20(d)(2).

(b) The TSCA Title VI Accredited TPC will approve a panel producer's application within 90 days of receipt if the application is complete and demonstrates that the candidate product achieves the emission standards required for reduced testing as described in paragraph (c) of this section or the emission standards required for a 2-year exemption as described in paragraph (d) of this section.

(c) As measured according to paragraphs (a)(3) and (a)(4) of this section, the emission standards for reduced testing for composite wood products made with ultra low-emitting formaldehyde resins are as follows:

(1) No test result higher than 0.05 parts per million (ppm) of formaldehyde for hardwood plywood, 0.08 ppm for particleboard, 0.09 ppm for medium-density fiberboard, and 0.11 ppm for thin medium-density fiberboard.

(2) For 90% of the 6 months of routine quality control testing data required under paragraph (a)(4) of this section, no higher than 0.05 ppm of formaldehyde for particleboard, no higher than 0.06 ppm of formaldehyde for medium-density fiberboard, and no higher than 0.08 ppm of formaldehyde for thin medium-density fiberboard.

(d) As measured according to paragraphs (a)(3) and (a)(4) of this section, the emission standards for an exemption from the testing and certification requirements of § 770.20 for composite wood products made with ultra low-emitting formaldehyde resins are as follows:

(1) No test result higher than 0.05 ppm of formaldehyde for hardwood plywood or 0.06 ppm of formaldehyde for particleboard, medium-density fiberboard, and thin medium-density fiberboard.

(2) For 90% of the 6 months of routine quality control testing data required under paragraph (a)(4) of this section, no higher than 0.04 parts per million of formaldehyde.

(e) After the initial 2-year period, and every 2 years thereafter, in order to continue to qualify for an exemption from the testing and certification requirements, the panel producer must reapply to a TSCA Title VI Accredited TPC and obtain at least one test result in accordance with paragraph (a)(3) of this section that complies with the emission standards in paragraph (c)(1) of this section.

(f) Any change in the resin formulation, the core material, or any other part of the manufacturing process that may affect formaldehyde emission rates invalidates the exemption from the testing and certification requirements for any product resulting from such a change and produced after such a change.

**§ 770.20 Testing requirements.**

(a) *General requirements*--(1) All panels must be tested in an unfinished condition, prior to the application of a finishing or topcoat.

(2) Facilities that conduct the formaldehyde testing required by this section must follow the procedures and specifications, such as testing conditions and loading ratios, of the test method being used.

(3) All equipment used in the formaldehyde testing required by this section must be calibrated and otherwise maintained and used in accordance with the equipment manufacturer's instructions.

(b) *Quality control testing*--(1) *Allowable methods*. Quality control testing may be performed using any of the following methods, with a showing of equivalence for each method pursuant to paragraph (d) of this section:

(i) ASTM D6007-02.

(ii) ASTM D5582.

(iii) EN 717-2 (Gas Analysis Method).

(iv) DMC (Dynamic Micro Chamber).

(v) EN 120 (Perforator Method).

(vi) JIS A 1460 (24-hr Desiccator Method).

(2) *Frequency of testing*--(i) Particleboard and medium-density fiberboard must be tested at least once per shift (8 or 12 hours, plus or minus 1 hour of production) for each production line for each product type. Quality control tests must also be conducted whenever:

(A) A product type production ends, even if 8 hours of production has not been reached.

(B) The resin formulation is changed so that the formaldehyde to urea ratio is increased.

(C) There is an increase by more than 10% in the amount of formaldehyde resin used, by square foot or by panel.

(D) There is a decrease in the designated press time by more than 20%.

(E) The quality control manager or quality control employee has reason to believe that the panel being produced may not meet the requirements of the applicable standards.

(ii) Particleboard and medium-density fiberboard panel producers are eligible for reduced quality control testing if they demonstrate consistent operations and low variability of test values. To qualify, panel producers must:

(A) Apply in writing to a TSCA Title VI Accredited TPC.

(B) Maintain a 30 panel running average.

(C) If the 30 panel running average remains 2 standard deviations below the designated quality control limit for 60 days or more, the TSCA Title VI Accredited TPC may approve a reduction to 1 quality control test per 24-hour production period.

(D) If the 30 panel running average remains 3 standard deviations below the designated quality control limit for 60 days or more, the TSCA Title VI Accredited TPC may approve a reduction to 1 quality control test per 48-hour production period.

(E) The TSCA Title VI Accredited TPC will approve a request for reduced quality control testing as long as the data submitted by the panel producer demonstrates compliance with the criteria and the TSCA Title VI Accredited TPC does not otherwise have reason to believe that the data are inaccurate or the panel producer's production processes are inadequate to ensure continued compliance with the emission standards.

(iii) Hardwood plywood must be tested as follows:

(A) At least one test per week per product type and production line if the weekly hardwood plywood production at the panel producer is more than 100,000 but less than 200,000 square feet.

(B) At least two tests per week per product type and production line if the weekly hardwood plywood production at the panel producer is 200,000 square feet or more, but less than 400,000 square feet.

(C) At least four times per week per product type and production line if the weekly hardwood plywood production at the panel producer is 400,000 square feet or more.

(D) If weekly production of hardwood plywood at the panel producer is 100,000 square feet or less, at least one test per 100,000 square feet for each product type produced; or, if less than 100,000 square feet of a particular product type in a single production run is produced, one quality control test of that product type per production run or lot produced.

(iv) Composite wood products that have been approved by TSCA Title VI Accredited TPC for reduced testing under § 770.18(b)-(c) must be tested at least once per week per product type and production line, except that hardwood plywood panel producers who qualify for less frequent testing under (b)(2)(iii)(D) of this section may continue to perform quality control testing under that provision.

(3) *Lots selected for sampling.* All lots from which samples are selected for quality control testing must be retained at the panel producer's facility until the quality control test results are received by the panel producer.

(i) Lots represented by passing quality control test results may be shipped as soon as the test results are received by the panel producer.

(ii) Lots represented by failing quality control test results must be handled as non-complying lots in accordance with § 770.22

(4) *Results.* Any sample that exceeds the quality control limit established pursuant to this section must be reported to the TSCA Title VI Accredited TPC in writing within 24 hours. Any lot or batch represented by a quality control sample that exceeds the quality control limit must be handled in accordance with § 770.22.

(c) *Quarterly testing.* Quarterly testing must be supervised by TSCA Title VI Accredited TPCs and performed by laboratories accredited under § 770.7.

(1) *Allowable methods.* Quarterly testing must be performed using ASTM E1333-10 or, with a showing of equivalence pursuant to paragraph (d) of this section, ASTM D6007-02.

(2) *Sample selection--*(i) Samples must be randomly chosen by a TSCA Title VI Accredited TPC from a single lot or group of lots that is ready for shipment by the panel producer.

(ii) Lots may be grouped for quarterly testing purposes. For hardwood plywood samples, the samples must be randomly selected from products that have the highest potential to emit formaldehyde.

(iii) Samples must not include the top or the bottom composite wood product of a bundle.

(iv) All lots from which samples are selected for quarterly testing must be retained at the panel producer's facility until the quarterly test results are received by the panel producer. This includes lots that are grouped for purposes of quarterly testing.

(A) Lots represented by passing quarterly test results may be shipped as soon as the test results are received by the panel producer.

(B) Lots represented by failing quarterly test results must be disposed of as non-complying lots in accordance with § 770.22

(3) *Sample handling.* Samples must be dead-stacked or air-tight wrapped between the time of sample selection and the start of test conditioning. Samples must be labeled as such, signed by the TSCA Title VI Accredited TPC, bundled air-tight, wrapped in polyethylene, protected by cover sheets, and promptly shipped to the laboratory testing facility. Conditioning must begin as soon as possible, but no later than 30 days after the samples were produced.

(4) *Results.* Any sample that exceeds the applicable formaldehyde emission standard in § 770.10 must be reported by the TSCA Title VI Accredited TPC to the panel producer and to EPA in writing within 24 hours. Any lot or batch represented by a sample result that exceeds the applicable formaldehyde emission standard must be disposed of in accordance with § 770.22. Where lots are grouped for testing, this includes all lots in the group represented by the sample.

(5) *Reduced testing frequency.* Composite wood products that have been approved by TSCA Title VI Accredited TPC for reduced testing under § 770.18(b)-(c) need only undergo quarterly testing every six months.

(d) *Equivalence.* Equivalence between ASTM E1333-10 and any other test method used for quality control or quarterly testing must be demonstrated by TSCA Title VI Accredited TPCs at least once each year or whenever there is a significant change in equipment, procedure, or the qualifications of testing personnel.

(1) *Equivalence between ASTM E1333-10 and ASTM D6007-02.* Equivalence must be demonstrated for at least five comparison sample sets, which compare the results of the two methods.

(i) *Samples--(A)* For the ASTM E1333-10 method, each comparison sample must consist of the result of simultaneously testing panels, using the applicable loading ratios specified in the ASTM E1333-10 method, from the same batch of panels tested by the ASTM D6007-02 method.

(B) For the ASTM D6007-02 method, each comparison sample shall consist of testing specimens representing portions of panels tested in the ASTM E1333-10 method and matched to their respective ASTM E1333-10 method comparison sample result.

(C) The five comparison sample sets must consist of testing a minimum of five sample sets as measured by the ASTM E1333-10 method.

(ii) *Average and standard deviation.* The arithmetic mean,  $\bar{x}$ , and standard deviation,  $S$ , of the difference of all comparison sets must be calculated as follows:

$$\bar{X} = \sum_{i=1}^n D_i/n \quad S = \sqrt{\sum_{i=1}^n (D_i - \bar{X})^2 / (n - 1)}$$

Where  $\bar{x}$  = arithmetic mean;

$S$  = standard deviation;

$n$  = number of sets;

$D_i$  = difference between the ASTM E1333-10 and ASTM D6007-02 method values for the  $i$ th set; and

$i$  ranges from 1 to  $n$ .

(iii) *Equivalence determination.* The ASTM D6007-02 method is considered equivalent to the ASTM E1333-10 method if the following condition is met:

$$|\bar{X}| + 0.88S \leq C$$

where  $C$  is equal to 0.026.

(2) *Equivalence between ASTM E1333-10 and any quality control test method other than ASTM D6007-02.* Equivalence must be demonstrated by establishing an acceptable correlation coefficient (“r” value).

(i) *Correlation.* The correlation must be based on a minimum sample size of five data pairs and a simple linear regression where the dependent variable (Y-axis) is the quality control test value and the independent variable (X-axis) is the ASTM E1333-10 test value. Either composite wood products or formaldehyde emission reference materials can be used to establish the correlation.

(ii) *Minimum acceptable correlation coefficients (“r” values).* The minimum acceptable correlation coefficients for equivalency correlations are as follows, where “n” is equal to the number of data pairs, and “r” is the correlation coefficient:

<b>Degrees of Freedom (n-2)</b>	<b>r Value</b>
3	0.878
4	0.811
5	0.754
6	0.707
7	0.666
8	0.632
9	0.602
10 or more	0.576

(iii) *Variation from previous results.* If data from a TSCA Title VI Accredited TPC's quarterly test results and a panel producer's quality control test results do not fit the previously established correlation, the TSCA Title VI Accredited TPC must establish a new correlation, and new quality control limits.

(iv) *Failed quarterly tests.* If a panel producer fails two quarterly tests in a row for the same product type, the TSCA Title VI Accredited TPC must establish a new correlation curve.

(e) *Quality assurance and quality control requirements for panel producers.* Panel producers are responsible for product compliance with the applicable emission standards.

(1) *Quality control manual--* (i) Each panel producer must have a written quality control manual containing, at a minimum, the following:

(A) A description of the organizational structure of the quality control department, including the names of the quality control manager and quality control employees.

(B) A description of the sampling procedures to be followed.

(C) A description of the method of handling samples.

(D) A description of the frequency of quality control testing.

(E) A description of the procedures used to identify changes in formaldehyde emissions resulting from production changes (*e.g.*, increase in the percentage of resin, increase in formaldehyde/urea molar ratio in the resin, or decrease in press time).

(F) A description of provisions for additional testing.

(G) A description of recordkeeping procedures.

(H) The average percentage of resin and press time for each product type.

(I) A description of product grouping, if applicable.

(J) Procedures for reduced quality control testing, if applicable.

(ii) The quality control manual must be approved by a TSCA Title VI Accredited TPC.

(2) *Quality control facilities.* Each panel producer must designate a quality control facility for conducting quality control formaldehyde testing.

(i) The quality control facility must be a laboratory owned and operated by the panel producer, a TSCA Title VI Accredited TPC, or a contract laboratory.

(ii) Each quality control facility must have quality control employees with adequate experience and/or training to conduct accurate chemical quantitative analytical tests. The quality control manager must identify each person conducting formaldehyde quality control testing to the TSCA Title VI Accredited TPC.

(3) *Quality control manager.* Each panel producer must designate a person as quality control manager with adequate experience and/or training to be responsible for formaldehyde emission quality control. The quality control manager must:

(i) Have the authority to take actions necessary to ensure that applicable formaldehyde emission standards are being met on an ongoing basis.

(ii) Be identified to the TSCA Title VI Accredited TPC that will be overseeing the quality control testing. The panel producer must notify the TSCA Title VI Accredited TPC in writing within 10 days of any change in the identity of the quality control manager and provide the TSCA Title VI Accredited TPC with the new quality control manager's qualifications.

(iii) Review and approve all reports of quality control testing conducted on the production of the panel producer.

(iv) Ensure that the samples are collected, packaged, and shipped according to the procedures specified in the quality control manual.

(v) Immediately inform the TSCA Title VI Accredited TPC in writing of any significant changes in production that could affect formaldehyde emissions.

**§ 770.22 Non-complying lots.**

(a) Non-complying lots are not certified composite wood products and they may not be sold, supplied or offered for sale in the United States except in accordance with this section.

(b) Non-complying lots must be isolated from certified lots.

(c) Non-complying lots may be retested using the same test method if each panel is treated with a scavenger or handled by other means of reducing formaldehyde emissions, such as aging. Tests must be performed as follows:

(1) At least three test panels must be selected from three separate bundles. They must be selected so that they are representative of the entire lot. Test samples must not be selected from the top or bottom panels of a bundle.

(2) The average of all samples must test at or below the applicable emission standards in § 770.10.

(d) Information on the disposition of non-complying lots, including product type and amount of composite wood products affected, lot or batch numbers, mitigation measures used, results of retesting, and final disposition, must be provided to the TSCA Title VI Accredited TPC within 7 days of final disposition.

**§ 770.24 Samples for testing.**

(a) Composite wood product panels may be shipped into and transported across the United States for quality control or quarterly tests.

(1) Such panels may not be sold, offered for sale or supplied to any entity other than a TSCA Title VI Accredited TPC laboratory or a contract laboratory before testing in accordance with § 770.20.

(2) If test results for such panels demonstrate compliance with the emissions standards in this subpart, the panels may be relabeled in accordance with § 770.50 and sold, offered for sale, or supplied.

**§ 770.30 Importers, fabricators, laminated product producers, distributors, and retailers.**

(a) Importers, fabricators, laminated product producers whose products are exempt from the definition of hardwood plywood, distributors, and retailers must take reasonable precautions to ensure that they are purchasing composite wood products, whether in the form of panels, component parts, or finished goods, that comply with the emission standards and other requirements of this subpart.

(b) For importers, fabricators, and laminated product producers, taking reasonable precautions means specifying TSCA Title VI compliant products when ordering or purchasing from suppliers and obtaining the following records:

(1) Records identifying the panel producer and the date the composite wood products were produced.

(2) Records identifying the date the composite wood products were purchased.

(3) Bills of lading or invoices that include a written affirmation from the supplier that the composite wood products are compliant with this subpart.

(c) Importers of articles that are composite wood products, or articles that contain composite wood products, must comply with the import certification regulations for “Chemical Substances in Bulk and As Part of Mixtures and Articles,” as found at 19 CFR 12.118 through

12.127 or as later promulgated.

(d) Records required by this section must be maintained in accordance with § 770.40(d).

**§ 770.40 Reporting and recordkeeping.**

(a) Panel producers must maintain the following records for a period of 3 years. The following records must also be made available to the panel producers' TSCA Title VI Accredited TPCs. Records described in paragraph (a)(1) of this section must also be made available to purchasers of their composite wood products.

(1) Records of all quarterly emission testing and all ongoing quality control testing. These records must identify the TSCA Title VI Accredited TPC conducting or overseeing the testing and the laboratory or quality control facility actually performing the testing. These records must also include the date, the product type tested, the lot or batch number that the tested material represents, the test method used, and the test results.

(2) Production records, including a description of the composite wood product(s), the date of manufacture, lot or batch numbers, and tracking information allowing each product to be traced to a specific lot number or batch produced.

(3) Records of changes in production, including changes of more than 10% in the resin use percentage, changes in resin composition that result in a higher ratio of formaldehyde to other resin components, and changes in the process, such as changes in press time by more than 20%.

(4) Records demonstrating initial and continued eligibility for the reduced testing provisions in § 770.17 and § 770.18, if applicable. These records must include:

- (i) Approval for reduced testing from a TSCA Title VI Accredited TPC.
- (ii) Amount of resin use reported by volume and weight.

(iii) Production volume reported as square feet per product type.

(iv) Resin trade name, resin manufacturer contact information, and resin supplier contact information.

(v) Any changes in the formulation of the resin.

(5) Purchaser information for each composite wood product, if applicable, including the name, contact person, address, telephone number, e-mail address if available, purchase order or invoice number, and amount purchased.

(6) Transporter information for each composite wood product, if applicable, including name, contact person, address, telephone number, e-mail address if available, and shipping invoice number.

(7) Information on the disposition of non-complying lots, including product type and amount of composite wood products affected, lot or batch numbers, mitigation measures used, results of retesting, and final disposition.

(8) Copies of labels used.

(b) Panel producers must provide their TSCA Title VI Accredited TPC with monthly product data reports for each production facility, production line, and product type, maintain copies of the reports for a minimum of 3 years from the date that they are produced. Monthly product data reports must contain a data sheet for each specific product type with test and production information, and a quality control graph containing the following:

(1) Quality Control Limit (QCL).

(2) Shipping QCL (if applicable).

(3) Results of quality control tests.

(4) Retest values.

(c) Laminated product producers whose products are exempt from the definition of hardwood plywood must keep records demonstrating eligibility for the exemption. These records include:

(1) Resin trade name, resin manufacturer contact information, resin supplier contact information, and resin purchase records.

(2) Panel producer contact information and panel purchase records.

(3) For panels produced in-house, records demonstrating that the panels have been certified by an accredited TPC.

(4) For resins produced in-house, records demonstrating the production of NAF resins.

(d) Importers, fabricators, and laminated product producers whose products are exempt from the definition of hardwood plywood must maintain the records described in § 770.30 and copies of labels used. These records must be maintained for a minimum of 3 years from the date that they are produced.

(e) Distributors and retailers must retain invoices and bills of lading and copies of labels used. These records must be maintained for a minimum of 3 years from the date that they are produced.

**§ 770.45 Labeling.**

(a) Panels or bundles of panels that are sold, supplied, or offered for sale in the United States must be labeled with the panel producer's name, the lot or batch number, the number of the TSCA Title VI Accredited TPC, and a statement that the products are TSCA Title VI certified.

(1) A panel producer number may be used instead of a name to protect identity, so long as the identity of the panel producer can be determined at the request of EPA.

(2) Panels or bundles of panels manufactured in accordance with § 770.17 must also be labeled that they were made with no-added formaldehyde-based resins in addition to the other information required by this section.

(3) Panels or bundles of panels manufactured in accordance with § 770.18 must also be labeled that they were made with ultra low-emitting formaldehyde in addition to the other information required by this section.

(b) Panels imported into or transported across the United States for quarterly or quality control testing purposes in accordance with § 770.20 must be labeled “For TSCA Title VI testing only, not for sale in the United States.” The panels may be re-labeled if test results are below the applicable emissions standards in this subpart.

(c) Fabricators of finished goods containing composite wood products must label every finished good they produce, or every box containing finished goods.

(1) The label may be applied as a stamp, tag, sticker, or bar code.

(2) The label must include, at a minimum, the fabricator’s name, the date the finished good was produced, and a statement that the finished goods are TSCA Title VI compliant.

(d) Distributors and wholesalers who receive labeled bundles of regulated composite wood products and then divide and repackage them, whether in bundles or separately, must label each separate bundle or item with the same information as required on the original label. Labels on bundles that are not so repackaged must be kept intact by distributors, wholesalers, and retailers.

**§ 770.55 Prohibited acts.**

(a) The following are prohibited acts under TSCA section 15:

(1) Manufacturing (including import) non-certified composite wood products unless the products are specifically exempted by this subpart.

(2) Manufacturing (including import) composite wood products without complying with the testing provisions in § 770.20, unless the products are specifically exempted by this subpart.

(3) Selling, offering for sale, or supplying non-certified composite wood products unless the products are specifically exempted by this subpart.

(4) Selling, offering for sale, or supplying composite wood products belonging to non-complying lots without first complying with the provisions of § 770.22.

(5) Selling, offering for sale, or supplying certified composite wood products that are not labeled in accordance with § 770.45.

(6) Selling, offering for sale, or supplying composite wood products that exceed the applicable emission standards of § 770.10.

(7) Failing to comply with the recordkeeping requirements of § 770.40.

6. Section 770.99 is revised to read as follows:

**§ 770.99 Incorporation by reference.**

The materials listed in this section are incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, a document must be published in the **Federal Register** and the material must be available to the public. All approved materials are available for inspection at the OPPT Docket in the EPA Docket Center (EPA/DC) at Rm. 3334, EPA, West Bldg., 1301 Constitution Ave., NW., Washington, DC. The EPA/DC Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number of the EPA/DC Public Reading room is (202) 566-1744, and the

telephone number for the OPPT Docket is (202) 566-0280. In addition, these materials are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030 or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html). These materials may also be obtained from the sources listed in this section.

(a) *ANSI material*. Copies of these materials may be obtained from the American National Standards Institute, 1899 L Street, NW., 11<sup>th</sup> Floor, Washington, DC 20036, or by calling (202) 293-8020, or at <http://ansi.org/>.

(1) ANSI A135.4- 2004, American National Standard, Basic Hardboard, IBR approved for § 770.3.

(2) ANSI A135.5-2004, American National Standard, Prefinished Hardboard Paneling, IBR approved for § 770.3.

(3) ANSI A135.6-2006, American National Standard, Hardboard Siding, IBR approved for § 770.3.

(4) ANSI A190.1-2002, American National Standard for Wood Products, Structural Glued Laminated Timber, IBR approved for § 770.1.

(5) ANSI A208.1-2009, American National Standard, Particleboard, IBR approved for § 770.3.

(6) ANSI A208.2-2-2009, American National Standard, Medium Density Fiberboard (MDF) for Interior Applications, IBR approved for § 770.3.

(7) ANSI/HPVA HP-1-2009, American National Standard for Hardwood and Decorative Plywood, IBR approved for § 770.3.

(b) *ASTM material*. Copies of these materials may be obtained from ASTM International, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA, 19428-2959, or by calling (877) 909-ASTM, or at <http://www.astm.org>.

(1) ASTM D5055-05 (2005), Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists, IBR approved for § 770.1.

(2) ASTM D5456-06 (2006), Standard Specification for Evaluation of Structural Composite Lumber Products, IBR approved for § 770.1.

(3) ASTM D5582-00 (Reapproved 2006), October 1, 2006, Standard Test Method for Determining Formaldehyde Levels from Wood Products Using a Desiccator, IBR approved for §§ 770.7(a) through (c) and 770.20.

(4) ASTM D6007-02 (Reapproved 2008), October 1, 2008, Standard Test Method for Determining Formaldehyde Concentrations in Air from Wood Products Using a Small-Scale Chamber, IBR approved for §§ 770.7(a) through (c), 770.15, 770.17, and 770.20.

(5) ASTM E1333-10 (Approved 2010), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber, IBR approved for §§ 770.7(a) through (c), 770.10, 770.15, 770.17, and 770.20.

(c) *CEN materials*. Copies of these materials are not directly available from the European Committee for Standardization, but from one of CEN's National Members, Affiliates, or Partner Standardization Bodies. To purchase a standard, go to CEN's website, <http://www.cen.eu>, and select "Products" for more detailed information.

(1) EN 120:1992, Wood based panels. Determination of formaldehyde content-Extraction method called the perforator method, English Version, IBR approved for § 770.20.

(2) EN 717-2:1995, Wood-based panels. Determination of formaldehyde release-  
Formaldehyde release by the gas analysis method, English Version, IBR approved for § 770.20.

(d) *Georgia Pacific material*. Copies of this material may be obtained from Georgia-Pacific Chemicals LLC, 133 Peachtree Street, Atlanta, GA 30303, or by calling (877) 377-2737, or at <http://www.gp-dmc.com/default.aspx>.

(1) GP DMC (Dynamic Micro Chamber) Manual, 2011 Edition, IBR approved for § 770.20.

(2) [Reserved]

(e) *ISO material*. Copies of these materials may be obtained from the International Organization for Standardization, 1, ch. de la Voie-Creuse, CP 56, CH-1211, Geneve 20, Switzerland, or by calling +41-22-749-01-11, or at <http://www.iso.org>.

(1) ISO/IEC 17011:2004(E), Conformity Assessments--General Requirements for Accreditation Bodies Accrediting Conformity Assessments Bodies (First Edition), IBR approved for §§ 770.7(a) through (c).

(2) ISO/IEC 17020:1998(E), General Criteria for the Operation of Various Types of Bodies Performing Inspections (First Edition), IBR approved for §§ 770.7(a) through (c).

(3) ISO/IEC 17025:2005(E), General Requirements for the Competence of Testing and Calibration Laboratories (Second Edition), May 15, 2005, IBR approved for §§ 770.7(a) through (c).

(4) ISO/IEC Guide 65:1996(E), General Requirements for Bodies Operating Product Certification Systems (First Edition), 1996, IBR approved for §§ 770.7(a) through (c).

(f) *Japanese Standards Association*. Copies of this material may be obtained from Japanese Industrial Standards, 1-24, Akasaka 4, Minatoku, Tokyo 107-8440, Japan, or by calling +81-3-3583-8000, or at <http://www.jsa.or.jp/>.

(1) JIS A 1460:2001 Building boards Determination of formaldehyde emission-Desiccator method, English Version, IBR approved for § 770.20.

(2) [Reserved]

(g) *NIST material*. Copies of these materials may be obtained from the National Institute of Standards and Technology (NIST) by calling (800) 553-6847 or from the U.S. Government Printing Office (GPO). To purchase a NIST publication you must have the order number. Order numbers may be obtained from the Public Inquiries Unit at (301) 975-NIST. Mailing address: Public Inquiries Unit, NIST, 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070. If you have a GPO stock number, you can purchase printed copies of NIST publications from GPO. GPO orders may be mailed to: U.S. Government Printing Office, P.O. Box 979050, St. Louis, MO 63197-9000, placed by telephone at (866) 512-1800 (DC Area only: (202) 512-1800), or faxed to (202) 512-2104. Additional information is available online at: <http://www.nist.gov>.

(1) Voluntary Product Standard PS-1-07 (2007), Structural Plywood, IBR approved for §§ 770.1 and 770.3.

(2) Voluntary Product Standard PS-2-04 (2004), Performance Standard for Wood-Based Structural-Use Panels, IBR approved for §§ 770.1 and 770.3.