

# Benchmark International, LLC

EPA TSCA Title VI Laminated Products



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## WHO IS BENCHMARK?

- ISO/IEC 17065 Product Certification (IAS PCA-109)
- ISO/IEC 17025 Laboratory Test (IAS TL-280)
- ISO/IEC 17020 Third-Party Inspection (IAS AA-660)
- JAS Registered Overseas Certifying Body (ROCB)
- EPA & CARB-approved Third-Party Certifier (TPC-2)
- Accredited CANFER Third-Party Certifier
- NALFA-Recognized Test Laboratory
- Amazon SPN Preferred Provider for Compliance Services
- USGBC & CalEPA-Recognized Certification Agency: VOC Green
- KCMA-Recognized Composite Wood Sustainability Certification Program (CWSS)



## AGENDA:

1. TSCA Title VI Regulations – How did we get here?
2. What is the difference between composite wood panels and laminated products?
3. What does TSCA Title VI require of laminated product producers?
4. What is the Laminated Products Exemption and how do I qualify?
5. Does this requirement apply to my Supply Chain?
6. If I don't qualify for the Laminated Products Exemption, what are my options?
7. How do I get certified if need be?

# **PART 1: TSCA Title VI Regulations – How did we get here?**

## Benchmark PART 1: How did we get here?

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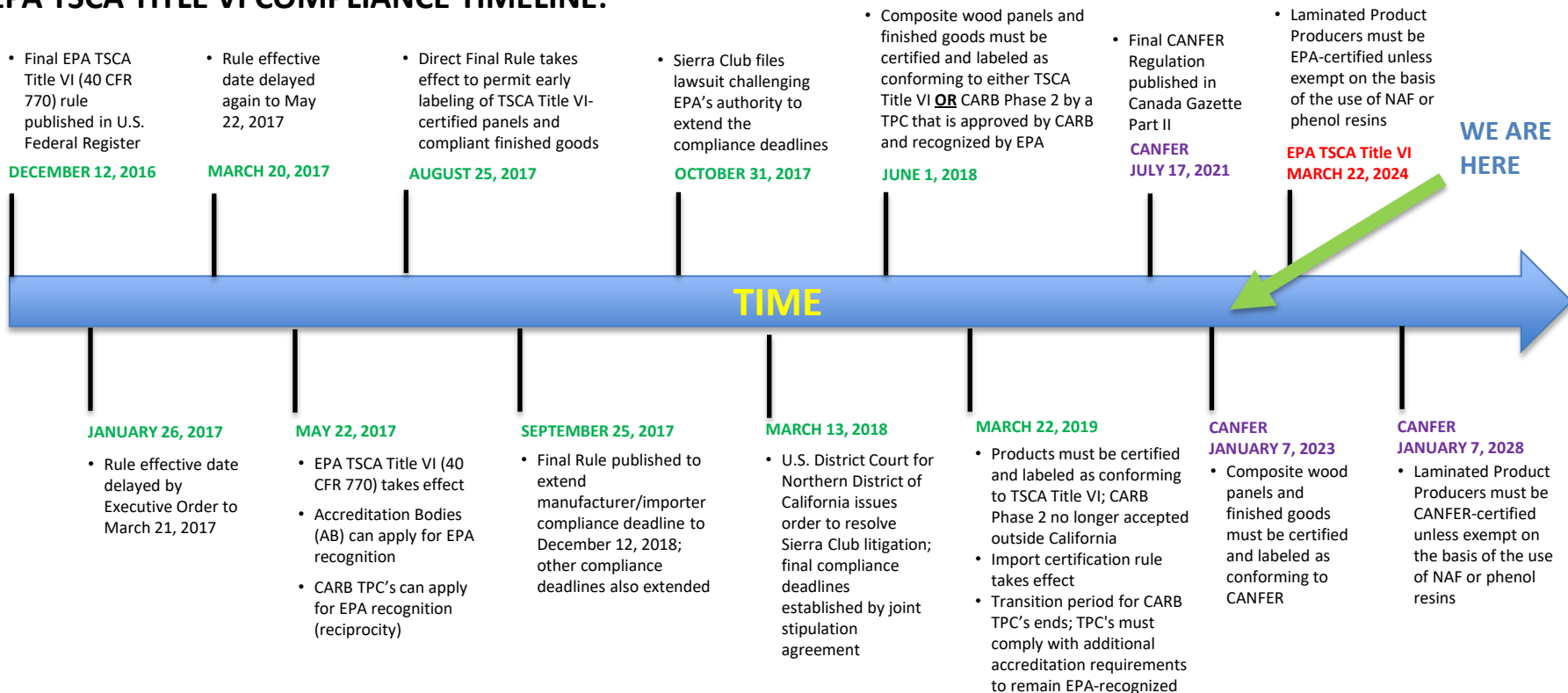


## What North American regulations/standards govern formaldehyde?

Location	Standard/Regulation	Acronym	Status	Agency	Jurisdiction
USA	CARB ATCM 93120	“CARB”	<b>Mandatory</b>	California Air Resources Board (CARB)	State of California
USA	EPA TSCA Title VI (40 CFR Part 770)	”EPA” or “TSCA”	<b>Mandatory</b>	U.S. Environmental Protection Agency (EPA)	All U.S. States and Territories
Canada	Canada Formaldehyde Emissions of Composite Wood Products Regulation (CANFER)	“CANFER”	<b>Mandatory</b>	Health Canada & Canada Minister of Environment (Minister)	All Canadian Provinces and Territories
Canada	Formaldehyde Emissions Standards of Composite Wood Products (CAN/CSA 0160-16)	“CAN/CSA”	Voluntary	Standards Council of Canada (SCC)	Superseded by CANFER

# Benchmark PART 1: How did we get here?

## EPA TSCA TITLE VI COMPLIANCE TIMELINE:





# **PART 2: Panels versus Laminated Products What's the Difference?**

### What is a Composite Wood Panel?

- A thin (usually less than 2" thick), flat, (usually rectangular) board made from pieces, chips, particles, veneers, or fibers of wood bonded together with a resin.
- Dimensions are irrelevant; panels can be any size or shape.
- For CARB, EPA, & CANFER purposes, composite wood panels include:
  - Medium Density Fiberboard (MDF)
  - Thin-Medium Density Fiberboard (Thin-MDF) - MDF with a total thickness  $\leq 8\text{mm}$
  - Particleboard (PB)
  - Hardwood and Decorative Plywood Veneer Core (HWPW-VC)
  - Hardwood and Decorative Plywood Composite Core (HWPW-CC)



## It is **STILL** a Composite Wood Panel when:

- Embossed or irregular pattern is applied to the panel surface by the original panel producer during pressing.
- A panel is cut into smaller pieces, without additional value-added fabrication to change the panel into a different type of product.
- Adding edge banding (without additional value-added processing such as finishing or painting)

## Benchmark PART 2: Panels vs. Laminated Products – What’s the Difference?

MANUFACTURER REQUIREMENT	TSCA Title VI		CANFER	
<b>Formaldehyde Emission Limits:</b>				
Hardwood Plywood – Veneer Core (HWPW-VC)	✓	≤0.05ppm	✓	≤0.05ppm
Hardwood Plywood – Composite Core (HWPW-CC)	✓	≤0.05ppm	✓	≤0.05ppm
Particleboard (PB)	✓	≤0.09ppm	✓	≤0.09ppm
Medium Density Fiberboard (MDF) >8mm thick	✓	≤0.11ppm	✓	≤0.11ppm
Thin-Medium Density Fiberboard (Thin-MDF) ≤8mm thick	✓	≤0.13ppm	✓	≤0.13ppm

## What is a Laminated Product?

### (The practical) EPA TSCA Title VI Definition:

1. A composite wood product that is;
2. produced by a Fabricator of component parts or finished goods;
3. in which a wood or woody-grass (e.g., bamboo) veneer;
4. is adhered to a TSCA Title VI-certified HWPW, MDF, or PB core or platform;
5. using a formaldehyde-containing resin;
6. and that is converted to a component part or finished good through subsequent value-added processing;
7. generally, in the same facility that completed the veneer lamination step.



Paper on MDF



Melamine on particleboard

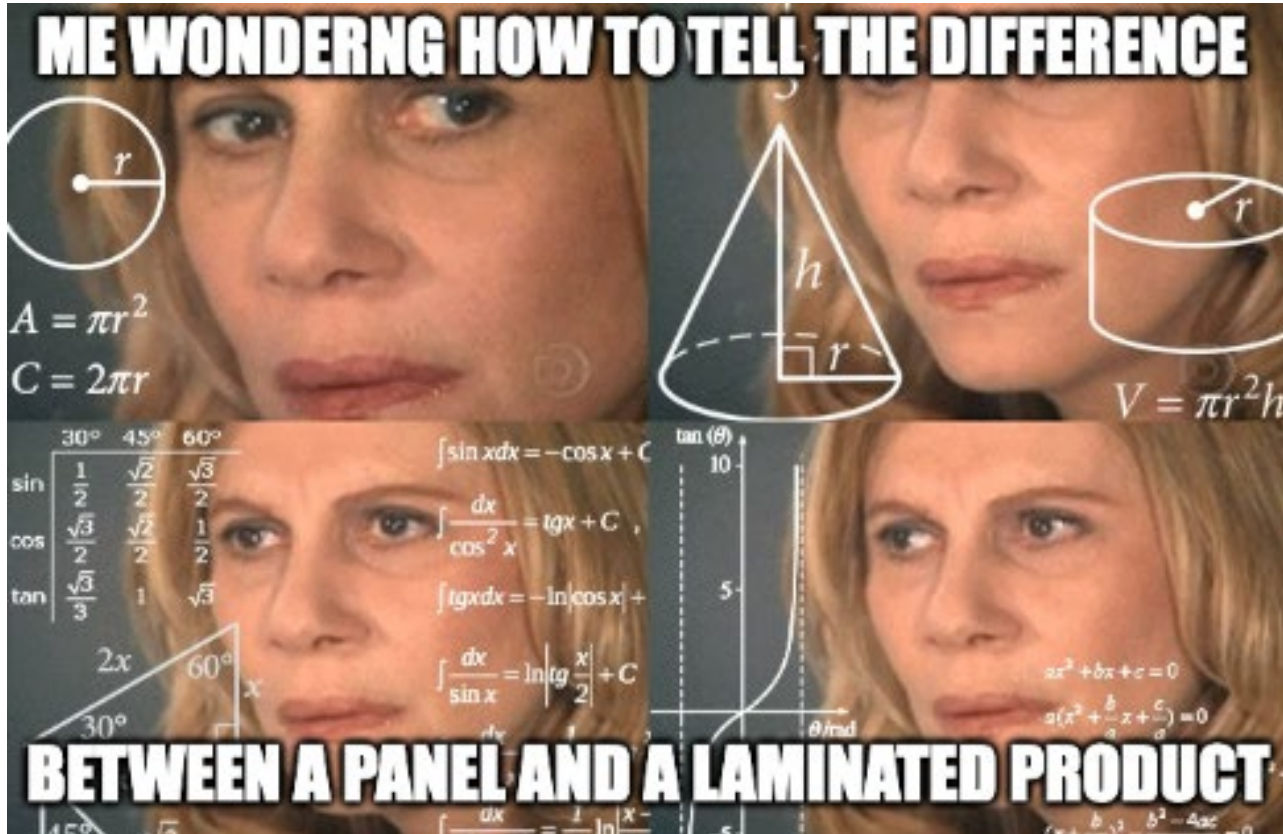


Wood veneer on MDF



Bamboo veneer on HWPW

# Benchmark PART 2: Panels vs. Laminated Products – What's the Difference?



## Benchmark PART 2: Panels vs. Laminated Products – What's the Difference?

### What is a Laminated Product?

- Veneers can be added to either one or both sides of the underlying HWPW, MDF, or PB platform.
- Subject to 0.05ppm emission standard (subset of HWPW).
- Product does not have to be flat.
- Must be converted to component part/finished good in same production facility that laminated the veneers.



Veneer-raised panels on particleboard core (cabinet doors)



Wood veneer-wrapped  
MDF core crown molding



Wood veneer-wrapped  
MDF core crown molding



MDF base cap  
molding wrapped  
with bubinga veneer

## Benchmark PART 2: Panels vs. Laminated Products – What’s the Difference?

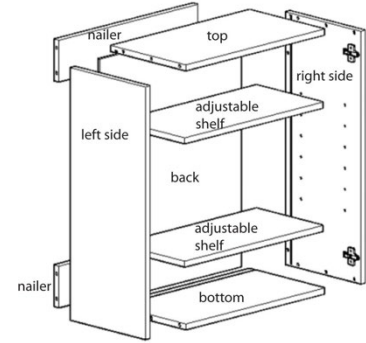
MANUFACTURER REQUIREMENT	TSCA Title VI		CANFER	
<b>Formaldehyde Emission Limits:</b>				
Hardwood Plywood – Veneer Core (HWPW-VC)	✓	≤0.05ppm	✓	≤0.05ppm
Hardwood Plywood – Composite Core (HWPW-CC)	✓	≤0.05ppm	✓	≤0.05ppm
Particleboard (PB)	✓	≤0.09ppm	✓	≤0.09ppm
Medium Density Fiberboard (MDF) >8mm thick	✓	≤0.11ppm	✓	≤0.11ppm
Thin-Medium Density Fiberboard (Thin-MDF) ≤8mm thick	✓	≤0.13ppm	✓	≤0.13ppm
Laminated Products (wood/woody grass veneer adhered to a certified platform)	✓	<ul style="list-style-type: none"> <li>• ≤0.05ppm</li> <li>• underlying platform must be TSCA Title VI-certified</li> <li>• Veneer-laminated product must be certified by Mar. 22, 2024 unless using NAF or phenolic resin</li> </ul>	✓	<ul style="list-style-type: none"> <li>• ≤0.05ppm (EPA)</li> <li>• underlying platform must be either TSCA Title VI or CANFER-certified</li> </ul>
Component Parts/Finished Goods	✗	Not applicable; emission standards apply only to the HWPW, MDF, PB, or laminated product components contained in the finished good	✗	Not applicable; emission standards apply only to the HWPW, MDF, PB, or laminated product components contained in the finished good



## Benchmark PART 2: Panels vs. Laminated Products – What's the Difference?

### Other terminology:

- Component Part:
  - An object, other than a panel, that contains HWPW, MDF, PB, or a Laminated Product and is used in the construction or assembly of finished goods
  - Component parts that are packaged and sold directly to consumers are considered finished goods
- Finished Good:
  - Any product, other than a panel, that contains HWPW, MDF, PB, or a Laminated Product and that is not a component part used in the assembly of a finished good.
  - Examples: Engineered wood flooring, laminate flooring, cabinetry, furniture, etc.



# **PART 3: Laminated Products – What is required?**

## What is the EPA “manufactured-by” date for Laminated Products?

The “manufactured-by” date for laminated product producers is **22 March 2024**

- Laminated product producers must achieve TSCA Title VI certification by 22 March 2024 **UNLESS** :
  - Purchase and use only No-Added Formaldehyde (NAF) or Phenolic Formaldehyde (PF) resins to adhere the wood veneer(s) to the underlying HWPW, MDF, or PB panel
  - Comply with the additional laminated product producer record-keeping requirements specified in 770.40(c)

### **IMPORTANT:**

1. The purchase and use of TSCA-certified or NAF/ULEF exempt HWPW, MDF, or PB panels is required. *This requirement applies even after third party certification is achieved!*
2. A producer who manufactures TSCA-certified HWPW, MDF, or PB panels internally, then laminates additional wood or bamboo veneers to these certified panels in a second pressing step must apply to their TPC to expand their scope of certification to include these laminated products!

## In general, which EPA requirements apply?

Requirement	Manufacturer/ Panel Producer	Laminated Product Producer <sup>See Note 1</sup>	Fabricator	Importer	Distributor	Retailer
Emission Standards:	✓	✓	✓	✓	✓	✓
Written Quality System:	✓	✓	✗	✗	✗	✗
Third Party Certification: (or Qualified NAF/ULEF Exemption)	✓	✓ EPA: Compliance by 3/22/2024	✗	✗	✗	✗
Product Testing:	✓	✓	✗	✗	✗	✗
Labeling:	✓	✓	✓	🚧	🚧	🚧
Reasonable Prudent Precautions:	✓ Required if purchasing HWPW, MDF, or PB for panel production	✓	✓	✓	✓	✓
Import Declaration: (EPA TSCA Title VI Only)	✓	✓	✓	✓	✓	✓
Invoice/Bill of Lading:	✓	✓	✓	✓	✓	✗
Record Keeping:	✓	✓	✓	✓	✓	✓
EPA/CARB Facility Inspections:	✓	✓	✓	✓	✓	✓

**NOTE 1:** Laminated Product Producers must comply with Fabricator requirements until the 3/22/2024 laminated product certification deadlines.

# **PART 4: What is the Laminated Products Exemption and how do I qualify?**

## What is the Laminated Products Exemption and how do I qualify?

- Laminated products are exempt from the March 2024 certification deadline if the Fabricator:
  1. purchases/uses TSCA Title VI-certified or NAF/ULEF-exempt HWPW, MDF, or PB panels.
  2. purchases/uses either No-Added Formaldehyde (NAF) or Phenolic Formaldehyde (PF) resins for the veneer lamination step.
  3. conforms to the additional record-keeping requirements for exempt laminated product producers.
  4. labels their products in accordance with TSCA Title VI regulations.

## What types of resins qualify for the Laminated Products Exemption?

- Types of No-Added Formaldehyde (NAF) resins:
  1. Polyvinyl acetate (PVA)
  2. Ethylene vinyl acetate (EVA)
  3. Polyurethane Reactive Hotmelt (PUR)
  4. Methylene Diphenyl Diisocyanate (MDI)
  5. Emulsion Polymer Isocyanate (EPI)
  6. Epoxy resins
  7. Soy-based resins
  8. Others
- Types of Phenolic Formaldehyde resins:
  1. Novolac – require a cross-linking additive to harden
  2. Resol – do not require a hardener

## What additional records do I need to keep to qualify for the LPE?

- Records demonstrating eligibility for exemption:
  1. Resin trade name, resin manufacturer contact information, resin supplier information (if different from manufacturer) and resin purchase records
  2. Panel producer contact information and panel purchase records;
    - Reasonable prudent precautions
    - Purchase orders/purchase contracts
    - Invoices/bills of lading
  3. For panels produced internally, records demonstrating the panels have been certified or have been granted NAF/ULEF exemption by an EPA-approved TPC;
  4. For resins produced in-house, records of the production of phenolic or NAF resins



## What are the labeling requirements for Exempt Laminated Products?

- Required Label Content:

- Fabricator name

**NOTE:** the name of a downstream importer/distributor/retailer can be substituted for the Fabricator name if there is written agreement to do so. For example: "Distributed by ABC Distributors".

- Statement of TSCA Title VI Compliance

- Production Date in mm/yyyy format

- Optional Label Content:

- If the underlying panels are NAF exempt, then reference to NAF can be made on the product labels if using only NAF resins for the veneer-lamination step.

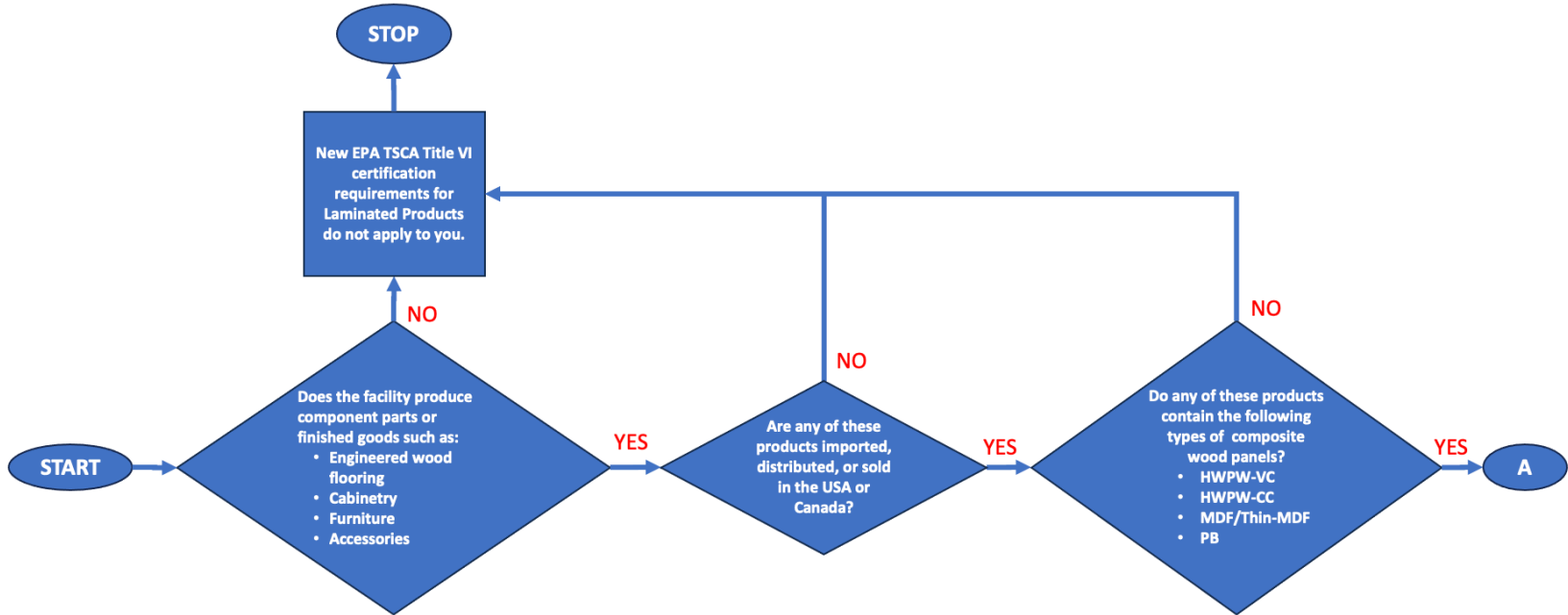
- If the underlying panels are ULEF-reduced or ULEF-exempt, then reference to ULEF can be made on the product labels if **EITHER** NAF or Phenolic resins are used for the veneer-lamination step.

- Reference to NAF or ULEF on compliance statements is not allowed if using TPC-certified panels.



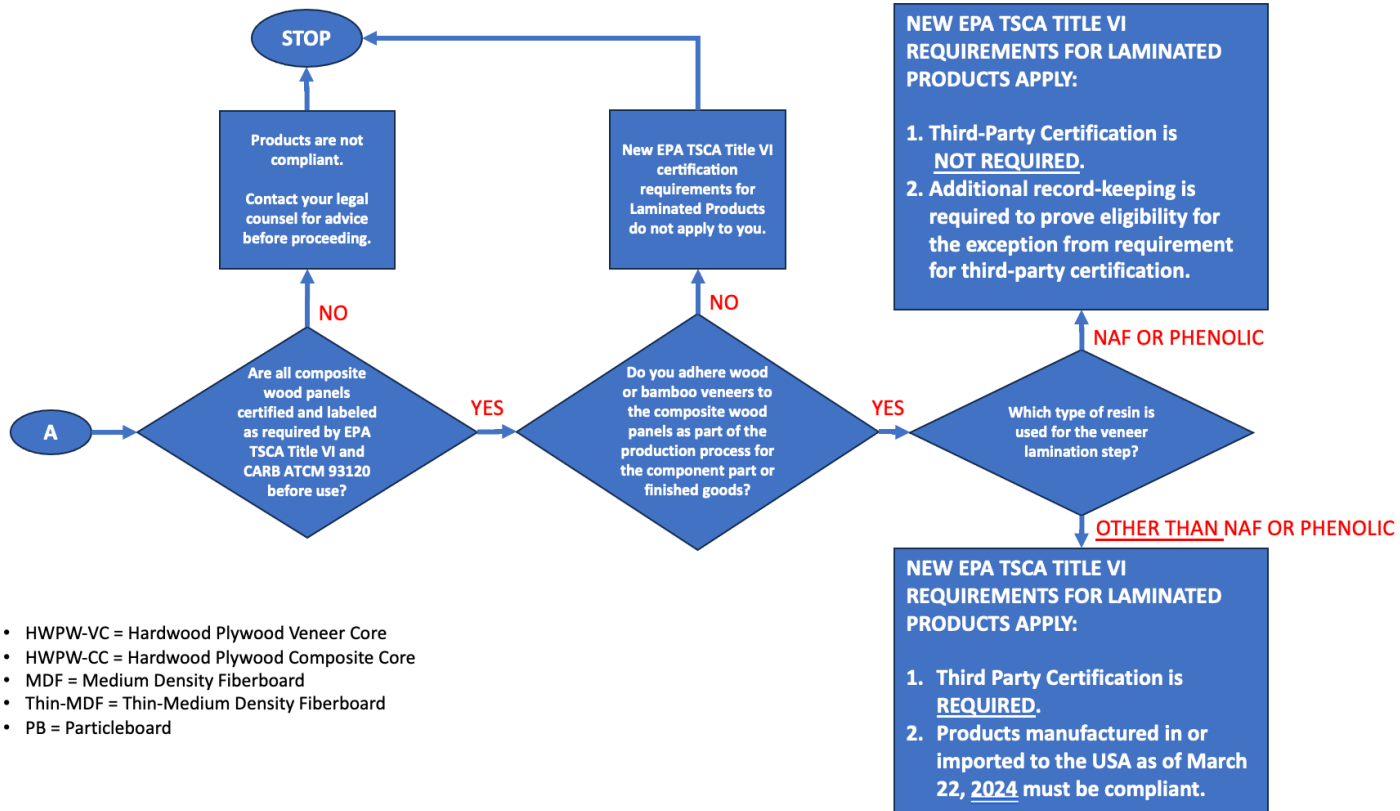
# **PART 5: How do I determine if the requirements apply to my Supply Chain?**

# Benchmark PART 5: Does it apply to me?



- HWPW-VC = Hardwood Plywood Vener Core
- HWPW-CC = Hardwood Plywood Composite Core
- MDF = Medium Density Fiberboard
- Thin-MDF = Thin-Medium Density Fiberboard
- PB = Particleboard

# Benchmark PART 5: Does it apply to me?






- HWPW-VC = Hardwood Plywood Veneer Core
- HWPW-CC = Hardwood Plywood Composite Core
- MDF = Medium Density Fiberboard
- Thin-MDF = Thin-Medium Density Fiberboard
- PB = Particleboard

# **PART 6: I Don't Qualify for the Laminated Products Exemption, now what?**


## I don't qualify for the Laminated Products Exemption, now what?



## I don't qualify for the Laminated Products Exemption, now what?


Level	Compliance Path	Pros	Cons
Bronze 	Third Party Certification	<ul style="list-style-type: none"> <li>• Easiest/fastest to achieve (2-3 months)</li> <li>• Flexible/easy to modify if business conditions change</li> <li>• Least stringent emissions criteria compared to silver or gold levels</li> </ul>	<ul style="list-style-type: none"> <li>• Weekly formaldehyde QC testing</li> <li>• Quarterly audits</li> <li>• Monthly Reporting to TPC</li> <li>• Highest certification cost</li> <li>• Highest administrative burden</li> </ul>
Silver 	ULEF-Reduced Certification	<ul style="list-style-type: none"> <li>• Reduced administrative burden</li> <li>• Moderate certification costs</li> <li>• Semi-annual audits (every 6 months)</li> <li>• Semi-annual TPC verification testing</li> <li>• Ability to reference “ULEF” on product labels.</li> </ul>	<ul style="list-style-type: none"> <li>• Longer timeframe to achieve (6-8 months)</li> <li>• Weekly formaldehyde QC testing</li> <li>• Monthly Reporting to TPC</li> <li>• Moderately flexible</li> </ul>
Gold 	ULEF-Exempt Certification	<ul style="list-style-type: none"> <li>• Minimal administrative burden</li> <li>• Lowest certification cost</li> <li>• Biennial audits (every 2 years)</li> <li>• Biennial TPC verification testing</li> <li>• No weekly QC testing</li> <li>• No monthly reporting</li> <li>• Ability to reference “ULEF” on product labels.</li> </ul>	<ul style="list-style-type: none"> <li>• Longer timeframe to achieve (6-8 months)</li> <li>• Most stringent emissions criteria</li> <li>• Least flexible/changes may require additional qualification activities</li> </ul>

## I don't qualify for the Laminated Products Exemption, now what?


Level	Requirement		Description
<b>Bronze</b>       <b>TPC Certification</b>		Completed application including name, address, other contact info	✓ Submit to TPC
		Approved Formaldehyde Emissions Quality Control Manual	✓ Required for all manufacturers including NAF/ULEF Exempt
		Types of Products to be Certified and Resin Systems Used	✓ Must specify each individual panel construction and the resin systems to be certified
		Initial Qualification Tests per ASTM E1333 or ASTM D6007	✓ Minimum 5 tests per product group (Laminated VC, Laminated CC and/or others)
		QC Test Method Correlation	✓ QC Test Method vs. either ASTM E1333 or ASTM D6007 (required only if conducting QC testing on-site or if using an unaccredited contract laboratory)
		Test results per Manufacturer's QC Test Method	✓ <ul style="list-style-type: none"> <li>• Minimum 5 manufacturer QC tests per product group</li> <li>• Can be done in conjunction with test method correlation</li> </ul>
		Results of initial site audit/inspection	✓ Per EPA requirements




## I don't qualify for the Laminated Products Exemption, now what?

Level	Requirement		Description
Silver 	Completed application including name, address, other contact info	✓	<ul style="list-style-type: none"> <li>• PRE-REQUISITE: THIRD PARTY CERTIFICATION (BRONZE LEVEL)</li> </ul>
	Types of Products to be Certified and Resin Systems Used	✓	Must specify each panel construction to be certified
	Chemical Formulation of the candidate resin system(s)	✗	<ul style="list-style-type: none"> <li>• Not required per TSCA Title VI</li> <li>• Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products</li> </ul>
	Name of Third-Party Certifier	✓	Must be reported to EPA at the time the ULEF-reduced testing approval is granted by TPC
ULEF-Reduced Certification	Initial Qualification Tests per ASTM E1333/ASTM D6007	✓	<ul style="list-style-type: none"> <li>• Minimum 2 qualification tests per product group</li> <li>• No test result greater than:                             <ul style="list-style-type: none"> <li>➤ <b>HWPW:</b> 0.05 ppm max</li> <li>➤ <b>PB:</b> 0.08 ppm max</li> <li>➤ <b>MDF:</b> 0.09 ppm max</li> <li>➤ <b>Thin-MDF:</b> 0.11 ppm max</li> </ul> </li> </ul>


## I don't qualify for the Laminated Products Exemption, now what?

Level	Requirement		Description
Silver 	Six (6) months routine QC test data	✓	<ul style="list-style-type: none"> <li>• Minimum of 26 quality control tests required</li> <li>• No test result greater than:                             <ul style="list-style-type: none"> <li>➤ <b>HWPW:</b> 0.05 ppm max</li> <li>➤ <b>PB:</b> 0.08 ppm max (90% ≤0.05 ppm)</li> <li>➤ <b>MDF:</b> 0.09 ppm max (90% ≤0.06 ppm)</li> <li>➤ <b>Thin-MDF:</b> 0.11 ppm max (90% ≤0.08 ppm)</li> </ul> </li> </ul>
ULEF- Reduced Certification	CARB Executive Order for ULEF- Reduced Approval	✗	Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products

## I don't qualify for the Laminated Products Exemption, now what?

Level	Requirement		Description
<p>Gold</p>  <p>ULEF-Exempt Certification</p>	Completed application including name, address, other contact info	✓	<ul style="list-style-type: none"> <li>• PRE-REQUISITE: THIRD PARTY CERTIFICATION (BRONZE LEVEL)</li> </ul>
	Types of Products to be Certified and Resin Systems Used	✓	Must specify each panel construction to be certified
	Chemical Formulation of the candidate resin system(s)	✗	<ul style="list-style-type: none"> <li>• Not required per TSCA Title VI</li> <li>• Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products</li> </ul>
	Name of Third-Party Certifier	✓	Must be reported to EPA at the time the ULEF-reduced testing approval is granted by TPC
	Initial Qualification Tests per ASTM E1333/ASTM D6007	✓	<ul style="list-style-type: none"> <li>• Minimum 2 qualification tests per product group</li> <li>• All test results must be <math>\leq 0.04</math> ppm regardless of product type</li> </ul>

## I don't qualify for the Laminated Products Exemption, now what?

Level	Requirement		Description
<p>Gold</p> 	Six (6) months routine QC test data	✓	<ul style="list-style-type: none"> <li>• Minimum of 26 quality control tests required</li> <li>• No test result greater than:               <ul style="list-style-type: none"> <li>➤ <b>HWPW:</b> 0.05 ppm max (90% must be ≤0.04 ppm)</li> <li>➤ <b>PB:</b> 0.06 ppm max (90% must be ≤0.04 ppm)</li> <li>➤ <b>MDF:</b> 0.06 ppm max (90% must be ≤0.04 ppm)</li> <li>➤ <b>Thin-MDF:</b> 0.06 ppm max (90% must be ≤0.04 ppm)</li> </ul> </li> </ul>
<p>ULEF-Exempt Certification</p>	CARB Executive Order for Exempt Approval	✗	Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products

# PART 7: How do I get certified, if need be?

## How do I Get Certified if Need Be?

1. Don't wait to get started – TPC and test chamber availability is limited worldwide
2. Contact an EPA-approved TPC to discuss your product types and resin systems to verify eligibility for the Laminated Products Exemption or to confirm the best path to certification.
3. Engage your resin supplier for assistance
4. Define your resin production/mixing recipes and procedures
5. Establish minimum/maximum resin application rates for each product type (g/m<sup>2</sup> or lbs/ft<sup>2</sup>)
6. Define minimum/maximum press operating conditions:
  - a) Cold Press:
    - Press Cycle Time
    - Pressure
  - b) Hot Press:
    - Press Cycle Time
    - Pressure
    - Temperature

## How do I Get Certified if Need Be?

7. Define/implement product changeover procedures as needed:
  - a) cleaning procedures for resin mixers/applicators
  - b) Resin application rate verification
  - c) Press setup/verification
8. Send preliminary samples to the TPC to verify emissions are likely to meet TSCA Title VI standards
9. Prepare your quality control manual and submit to TPC for approval
10. Setup quality control test laboratory or designate a qualified test laboratory to conduct quality control testing on your behalf

## How do I Get Certified if Need Be?

11. Get critical quality control instrumentation calibrated by a qualified provider:
  - a) Press monitoring equipment (manometers and temperature gauges)
  - b) Resin production equipment (viscometers, calorimeters, scales used to measure resin ingredients, etc.)
  - c) Scales used to verify resin application rates
  - d) Laboratory test equipment (if performance formaldehyde QC testing internally)
12. Prepare product labels and bills of lading/invoices with required compliance information
12. Work with TPC to complete initial site audit and qualification testing
13. Work with TPC to obtain QC test method correlation (if conducting QC testing internally or using an unaccredited test laboratory)
14. Corrective action, if needed.
15. **CERTIFICATION GRANTED!**



A scientist in a white lab coat is working in a laboratory biosafety cabinet. The scene is dimly lit with a blue tint. The scientist is leaning over the work surface, which is equipped with various pieces of laboratory equipment. The background shows the interior of the biosafety cabinet with shelves and equipment. The overall atmosphere is professional and focused.

# Question & Answer