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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)











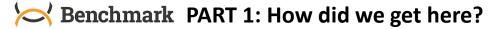


AGENDA:

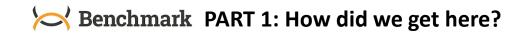
- 1. TSCA Title VI Regulations How did we get here?
- 2. What is the difference between composite wood panels and laminated products?
- 3. What does TSCA Title VI require of laminated product producers?
- 4. What is the Laminated Products Exemption and how do I qualify?
- 5. If I don't qualify for the Laminated Products Exemption, what are my options?
- 8. How do I get certified if need be?
- Oh!, and don't forget about CANFER!



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







What North American regulations/standards govern formaldehyde?

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Emissions Standards of Composite Wood Products (CAN/CSA 0160-16)	"CAN/CSA"	Voluntary	Standards Council of Canada (SCC)	Superseded by CANFER

对 Benchmark PART 1: How did we get here?

EPA TSCA TITLE VI COMPLIANCE TIMELINE:

 Final EPA TSCA Title VI (40 CFR 770) rule published in U.S. Federal Register

DECEMBER 12, 2016

 Rule effective date delayed again to May 22, 2017

MARCH 20, 2017

· Direct Final Rule takes effect to permit early labeling of TSCA Title VIcertified panels and compliant finished goods

AUGUST 25, 2017

 Sierra Club files lawsuit challenging EPA's authority to extend the compliance deadlines

OCTOBER 31, 2017

· Composite wood panels and finished goods must be certified and labeled as conforming to either TSCA Title VI OR CARB Phase 2 by a TPC that is approved by CARB and recognized by EPA

JUNE 1, 2018

 Laminated Product Final CANFER Regulation published in Canada Gazette

CANFER JULY 17, 2021

Part II

Producers must be **EPA-certified unless** exempt on the basis of the use of NAF or phenol resins

EPA TSCA Title VI MARCH 22, 2024

WE ARE HERE

TIME

JANUARY 26, 2017

 Rule effective date delayed by **Executive Order to** March 21, 2017

MAY 22, 2017

- EPA TSCA Title VI (40 CFR 770) takes effect
- Accreditation Bodies (AB) can apply for EPA recognition
- CARB TPC's can apply for EPA recognition (reciprocity)

SEPTEMBER 25. 2017

· Final Rule published to extend manufacturer/importer compliance deadline to December 12, 2018; other compliance deadlines also extended

MARCH 13, 2018

. U.S. District Court for Northern District of California issues order to resolve Sierra Club litigation; final compliance deadlines established by joint stipulation agreement

MARCH 22, 2019

- · Products must be certified and labeled as conforming to TSCA Title VI: CARB Phase 2 no longer accepted outside California
- Import certification rule takes effect
- · Transition period for CARB TPC's ends: TPC's must comply with additional accreditation requirements to remain EPA-recognized

CANFER

JANUARY 7, 2023

 Composite wood panels and finished goods must be certified and labeled as conforming to CANFER

CANFER JANUARY 7, 2028

 Laminated Product Producers must be CANFER-certified unless exempt on the basis of the use of NAF or phenol resins



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 ≦8mm
 - 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)



MANUFACTURER REQUIREMENT		TSCA Title VI	CANFER		
Formaldehyde Emission Limits:					
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:

- A **composite wood product** that is;
- produced by a **Fabricator** of component parts or finished goods;
- 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;
- using a **formaldehyde-containing resin**;
- and that is converted to a component part or finished **good** through subsequent value-added processing;
- **generally, in the same facility** that completed the veneer lamination step.



Paper on MDF



Melamine on particleboard

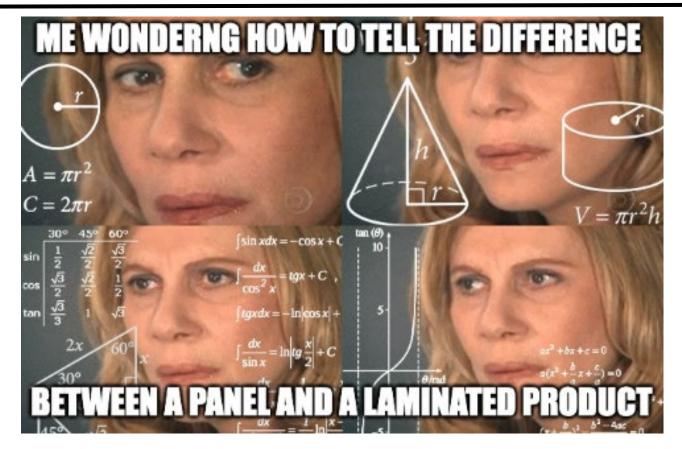






Bamboo veneer on **HWPW**







What is a Laminated Product?

- Veneers can be added to <u>either one or both sides</u> of the underlying HWPW, MDF, or PB platform.
- Product does not have to be flat.
- Subject to 0.05ppm emission standard (subset of HWPW).





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

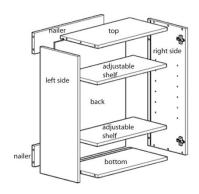


MANUFACTURER REQUIREMENT		TSCA Title VI	CANFER		
Formaldehyde Emission Limits:					
Hardwood Plywood – Veneer Core (HWPW-VC)	✓	≤0.05ppm	✓	≤0.05ppm	
Hardwood Plywood – Composite Core (HWPW-CC)	✓	≤0.05ppm	√	≤0.05ppm	
Particleboard (PB)	√	≤0.09ppm	√	≤0.09ppm	
Medium Density Fiberboard (MDF) >8mm thick	√	≤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)	✓	 ≤0.05ppm underlying platform must be TSCA Title VI-certified Veneer-laminated product must be certified by Mar. 22, 2024 unless using NAF or phenolic resin 	✓	 ≤0.05ppm (EPA) underlying platform must be either TSCA Title VI or CANFER-certified 	
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	



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 <u>UNLESS</u>:
 - > Purchase and use only No-Added Formaldehyde (NAF) or Phenolic Formaldehyde (PF) resins
 - 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 See Note 1	Fabricator	Importer	Distributor	Retailer
Emission Standards:	✓	✓	✓	✓	✓	✓
Written Quality System:	✓	✓	×	×	×	×
Third Party Certification: (or Qualified NAF/ULEF Exemption)	✓	FPA: Compliance by 3/22/2024	×	×	×	×
Product Testing:	✓	✓	×	×	×	×
Labeling:	✓	✓	✓	<u>!!</u>	<u>!!</u>	<u>!!</u>
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.



→ Benchmark PART 4: Laminated Products Exemption

What types of resins qualify for the Laminated Products Exemption?

- Types of No-Added Formaldehyde (NAF) resins:
 - Polyvinyl acetate (PVA)
 - Ethylene vinyl acetate (EVA)
 - Polyurethane Reactive Hotmelt (PUR)
 - Methylene Diphenyl Diisocyanate (MDI)
 - Emulsion Polymer Isocyanate (EPI)
 - **Epoxy resins**
 - Soy-based resins

- Types of Phenolic Formaldehyde resins:
 - Novolac require a cross-linking additive to harden
 - Resol do not require a hardener



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

- Records demonstrating eligibility for exemption:
 - 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



Benchmark PART 4: Laminated Products Exemption

What are the labeling requirements for Exempt Laminated Products?

- Required Label Content:
 - 1. 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".

- 2. Statement of TSCA Title VI Compliance
- 3. Production Date in mm/yyyy format
- **Optional Label Content:**
 - 1. 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.
 - 2. 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.
 - 3. Reference to NAF or ULEF on compliance statements is not allowed if using TPC-certified panels.





PART 5: I DON'T QUALIFY FOR THE LAMINATED PRODUCTS EXEMPTION, NOW WHAT?





Level Complianc		Compliance Path	Pros	Cons
Bronze		Third Party Certification	 Easiest/fastest to achieve (2-3 months) Flexible/easy to modify if business conditions change Least stringent emissions criteria compared to silver or gold levels 	 Weekly formaldehyde QC testing Quarterly audits Monthly Reporting to TPC Highest certification cost Highest administrative burden
Silver	Thy are	ULEF-Reduced Certification	 Reduced administrative burden Moderate certification costs Semi-annual audits (every 6 months) Semi-annual TPC verification testing Ability to reference "ULEF" on product labels. 	 Longer timeframe to achieve (6-8 months) Weekly formaldehyde QC testing Monthly Reporting to TPC Moderately flexible
Gold		ULEF-Exempt Certification	 Minimal administrative burden Lowest certification cost Biennial audits (every 2 years) Biennial TPC verification testing No weekly QC testing No monthly reporting Ability to reference "ULEF" on product labels. 	 Longer timeframe to achieve (6-8 months) Most stringent emissions criteria Least flexible/changes may require additional qualification activities



Level	Requirement		Description
Bronze W	Completed application including name, address, other contact info	✓	Submit to TPC
380077	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)
TPC	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)
Certification	Test results per Manufacturer's QC Test Method	√	Minimum 5 manufacturer QC tests per product group Can be done in conjunction with test method correlation
	Results of initial site audit/inspection	√	Per EPA requirements



Level		Requirement		Description
Silver		Completed application including name, address, other contact info	✓	Submit to TPC
		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)	×	 Not required per TSCA Title VI Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products
		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	✓	 Minimum 2 qualification tests per product group No test result greater than: HWPW: 0.05 ppm max PB: 0.08 ppm max MDF: 0.09 ppm max Thin-MDF: 0.11 ppm max



Level	Requirement		Description
Silver	Six (6) months routine QC test data	√	 Minimum of 26 quality control tests required No test result greater than: HWPW: 0.05 ppm max PB: 0.08 ppm max (90% ≤0.05 ppm) MDF: 0.09 ppm max (90% ≤0.06 ppm) Thin-MDF: 0.11 ppm max (90% ≤0.08 ppm)
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



Level	Requirement		Description
Gold W	Gold Completed application including name, address, other contact info		Submit to TPC
GÖID	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)	×	 Not required per TSCA Title VI Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products
ULEF-Exempt	Name of Third-Party Certifier	✓	Must be reported to EPA at the time the ULEF-reduced testing approval is granted by TPC
Certification	Initial Qualification Tests per ASTM E1333/ASTM D6007	✓	 Minimum 2 qualification tests per product group All test results must be ≤0.04 ppm regardless of product type



Level	Requirement		Description
Gold	Six (6) months routine QC test data	✓	 Minimum of 26 quality control tests required No test result greater than: HWPW: 0.05 ppm max (90% must be ≤0.04 ppm) PB: 0.06 ppm max (90% must be ≤0.04 ppm) MDF: 0.06 ppm max (90% must be ≤0.04 ppm) Thin-MDF: 0.06 ppm max (90% must be ≤0.04 ppm)
ULEF-Exempt Certification	CARB Executive Order for Exempt Approval	×	Only required if seeking exemption for panel production per CARB ATCM 93120; not applicable to laminated products







PART 6: 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/m² or lbs/ft²)
- 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

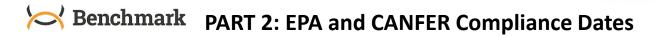


How do I Get Certified if Need Be?

- 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!



PART 7: AND DON'T FORGET CANFER!



What is the CANFER "coming into force" date for HWPW, MDF, & PB?

The CANFER "coming into force" date was 7 January 2023

- All composite wood panels, component parts and finished goods, that are manufactured in or imported to Canada must be CANFER compliant by either:
 - 1. EPA TSCA-Title VI certification (additional CANFER labeling, record-keeping, and reporting requirements apply)
 - 2. CANFER certification (in the case of no EPA TSCA Title VI certification)
- Composite wood panels or finished goods that are manufactured and imported to Canada before 7 January 2023 are not required to comply with CANFER:
 - Organizations must have records to prove the material was manufactured, labeled and imported <u>BEFORE</u> 7 January 2023.
 - ➤ If the products were not labeled as conforming to TSCA Title VI and/or records are not available from the original product manufacturer to prove the goods were made before 7 January 2023, then the goods cannot be distributed or sold in Canada after 7 January 2023.



What is the CANFER "coming into force" date for laminated products?

The CANFER "coming into force" date for laminated products is 7 January 2028

- Laminated product producers manufacturing or importing to Canada must achieve third party certification to CANFER by 7 January 2028 <u>UNLESS</u> they:
 - > Purchase and use only No-Added Formaldehyde (NAF) or Phenol Formaldehyde (PF) resins
 - ➤ Comply with the additional record-keeping requirements specified in CANFER § 27.

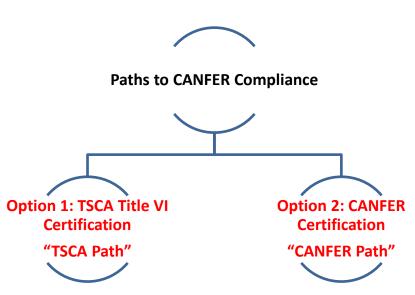
IMPORTANT NOTES:

- 1. Laminated product producers must purchase and use only EPA- or CANFER-certified HWPW, MDF, or PB panels. *This requirement applies even after third party certification is achieved!*
- A panel producer who manufactures EPA- or CANFER-certified HWPW, MDF, or PB panels internally, then laminates additional wood or bamboo veneers to these certified panels in a second production step must apply to their TPC to expand their scope of certification before 7 January 2028!



Benchmark PART 1: Regulatory Overview

What are the paths to CANFER compliance?



IMPORTANT: Must meet additional labeling, record-keeping, and Canada Minister of Environment reporting requirements specified in CANFER §20-31 as applicable to scope of TSCA Title VI certification.

- TSCA Title VI or CANFER-certified manufacturers of composite wood panels and laminated products must prepare a CANFER "Declaration of Certification"
- Declaration requirements defined in CANFER §19
- Declarations must be issued to every purchaser of composite wood products manufactured in or imported to Canada (does not replace EPA/CARB invoice/bill of lading requirements)
- Certified manufacturers and all purchasers must retain copies of all CANFER Declarations for at least 5 years.



How does CANFER compare to EPA?

- 1. CANFER regulations are modeled on EPA TSCA Title VI; many requirements align
- 2. Most differences occur in the areas of:
 - a) Compliance deadlines
 - b) Labeling requirements
 - c) CANFER Declaration of Certification
 - d) Self-Identification and Noncomplying Lot reporting requirements (Minister of Environment)
 - e) Record-keeping requirements (5-years)
- 3. Under CANFER, all entities who manufacture, import, distribute, sell, or offer for sale any composite wood products in Canada must register with the Canada Minister of Environment:
 - a) Within 60 days of the "coming into force" date or the date they first manufacture or sell products in Canada, whichever is later.
 - b) Within 30 days of any change in the entity's status.

