

December 13, 2018

Jihan Kim
Foresco Co., Ltd.
212 Bongsu-Daero, Soe-Gu
Incheon, Korea

Dear Jihan Kim:

This letter is in response to a written request from Foresco Co., Ltd. (Foresco) received on November 30, 2018, for California Air Resources Board (CARB) re-approval to be an ultra-low-emitting formaldehyde (ULEF) based resin manufacturer of composite wood products destined for sale, supply, or use in California. Your application includes a request to manufacture medium density fiberboard (MDF) and thin medium density fiberboard (tMDF) using a ULEF-based resin system. Pursuant to the Composite Wood Airborne Toxic Control Measure (ATCM), title 17, California Code of Regulations, sections 93120-93120.12, your request to renew your Executive Order as a ULEF manufacturer has been approved.

The enclosed Executive Order N-18-180 specifies ongoing conditions that must be met by Foresco as a manufacturer of ULEF products for sale, supply, or use in California. Section 93120.3(d)(5) specifies that the Executive Order issued to ULEF manufacturers has a duration of two years, and the manufacturer may apply for re-approval as provided in the section. At the appropriate time, you may address your application for re-approval to me at the address noted in the letterhead.

Please note that approval of your Executive Order is contingent upon the use of the resin specified by you or your resin supplier, and CARB must be notified in advance of any changes in resin supply that Foresco decides to make for its ULEF products.

For more information about CARB's no-added formaldehyde (NAF) and ULEF program, please visit us at:
http://www.arb.ca.gov/toxics/compwood/naf_ulef/naf_ulef.htm.

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If you have any questions regarding this matter, please contact us via email at compwood@arb.ca.gov. You may also contact Maria Vacaru, Air Resources Engineer, at (916) 322-7433 or via email at maria.vacaru@arb.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Richard Boyd".

Richard Boyd, Chief
Risk Reduction Branch
Transportation and Toxics Division

Enclosure

cc: (via email)

Maria Vacaru
Air Resources Engineer
Toxics Control Section
Risk Reduction Branch

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER N-18-180

Relating to CARB-Approval to conduct primary/secondary method and routine quality control testing at a less frequent rate by Composite Wood Product Manufacturers that use Ultra-low-emitting Formaldehyde Resins under section 93120.3, title 17, California Code of Regulations

Foresco Co., Ltd.

WHEREAS, the California Air Resources Board (CARB) has adopted the "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" (the "ATCM"; title 17, California Code of Regulations, sections 93120-93120.12), which establishes formaldehyde emission standards for composite wood products;

WHEREAS, section 93120.1(a)(42) of the ATCM defines "ultra-low-emitting formaldehyde (ULEF) based resins" to mean "resins formulated such that average formaldehyde emissions are consistently below the Phase 2 emission standards in section 93120.2," for making hardwood plywood (HWPW), particleboard (PB), medium density fiberboard (MDF), or thin medium density fiberboard (tMDF);

WHEREAS, section 93120.3(d) of the ATCM allows manufacturers of HWPW, PB, MDF, and tMDF who use ULEF-based resins to apply for written approval from the Executive Officer for an approval to conduct primary/secondary method and routine quality control testing at a less frequent rate than specified in sections 93120.3(b) and 93120.12, Appendix 2, of the ATCM;

WHEREAS, section 93120.3(d) of the ATCM allows manufacturers of HWPW, PB, MDF, and tMDF who use ULEF resins to submit an application for approval to test their products at a less frequent rate than specified in sections 93120.3(b) and 93120.12, Appendix 2 of the ATCM to the Executive Officer, which includes: (A) a statement indicating which product types will be manufactured using ULEF-based resins for sale in California; (B) the chemical formulation of the candidate ULEF-based resin(s), including base resins, scavenger resins, scavenger additives, catalysts, and other additives as used in manufacturing; (C) the name of their CARB-approved third-party certifier (TPC); and (D) data on the emissions performance of the candidate ULEF-based resin(s);

WHEREAS, the data on emissions performance of the candidate ULEF-based resin required in section 93120.3(d) of the ATCM must be obtained by working with an CARB-approved TPC, and must include six months of routine quality control testing data, the correlation of the routine quality control testing data to primary or secondary method testing data, and the results of two primary or secondary method tests, as required in Appendix 2 of section 93120.12 of the ATCM;

WHEREAS, section 93120.3(d)(1) of the ATCM requires that 90 percent of the six months of routine quality control testing data and the results of two primary/secondary method tests be no greater than 0.08 parts per million (ppm), and all data must be shown to be no higher than 0.11 ppm for ULEF manufacturers of tMDF to gain approval to conduct their emission testing at a less frequent rate than specified in sections 93120.3(b) and 93120.12, Appendix 2;

WHEREAS, section 93120.3(d)(5) of the ATCM provides that the Executive Officer shall approve the application and issue an Executive Order if the evidence submitted by the applicant is sufficient to demonstrate that the applicant has met the requirements specified in sections 93120.3(d)(1) and 93120.3(d)(2) of the ATCM;

WHEREAS, Foresco Co., Ltd. (Foresco or the “applicant”) submitted an original application dated February 10, 2014;

WHEREAS, the original application from Foresco specified the range in product manufacturing parameters, applicable post-press product treatments, base resin trade name(s) and base resin manufacturer(s)/supplier(s), and other ingredients added to the base resin by the applicant to manufacture ULEF MDF and tMDF products;

WHEREAS, CARB was provided base resin/adhesive information specifying the base resin polymer type and minimum and maximum values of all major and any minor ingredients in the base resin on a percent weight of solids basis;

WHEREAS, the Executive Officer found that the evidence submitted by the applicant meets the criteria specified in sections 93120.3(d)(1), 93120.3(d)(2), and 93120.3(d)(5) of the ATCM for an ULEF manufacturer to test their products at a less frequent rate;

WHEREAS, the base resins/adhesive supplier, commercial name, and resin type are set forth in Confidential Attachment A;

WHEREAS, the original application from Foresco was deemed complete on December 11, 2014, and Foresco was issued Executive Order N-14-180, signed on December 18, 2014;

WHEREAS, section 93120.3(d) of the ATCM allows ULEF product manufacturers to apply for re-approval by CARB by submitting an updated application;

WHEREAS, Foresco submitted an updated application for re-approval to CARB on November 29, 2016;

WHEREAS, the updated application for re-approval from Foresco was deemed complete on December 15, 2016, and Foresco was issued Executive Order N-16-180, signed on December 30, 2016;

WHEREAS, Foresco submitted an updated application for re-approval to CARB on November 26, 2018;

WHEREAS, the updated application for re-approval from Foresco was deemed complete on December 5, 2018;

WHEREAS, the Executive Officer finds that the completed, updated application demonstrated the ULEF manufacturer's ability to continue to comply with section 93120.3(d) of the ATCM; and

WHEREAS, the Executive Officer approved Foresco's request for re-approval, and it is appropriate that Executive Order N-16-180 be superseded by this Executive Order N-18-180.

NOW, THEREFORE, IT IS ORDERED that Foresco is hereby an approved ULEF MDF and tMDF manufacturer and qualified to test their MDF and tMDF products less frequently, as specified by the requirements of section 93120.12, Appendix 2, subsections (f) and (g) of the ATCM, provided that the following terms and conditions are met for products sold, supplied, offered for sale, or manufactured for sale in California:

1. Foresco must use the commercial resins listed and suppliers listed in Section A of Confidential Attachment A of this Executive Order for the manufacture of ULEF MDF and tMDF products.
2. The chemical formulation of the base resins used for the manufacture of ULEF composite wood products by Foresco must be within the ranges specified in Section B of Confidential Attachment A of this Executive Order.
3. As specified in Section B of Confidential Attachment A, Foresco is legally responsible for ensuring that the base resin is within the ranges specified in Section B.
4. The application rate of the base resins used for the manufacture of ULEF composite wood products by Foresco must be within the ranges specified in Section C of Confidential Attachment A of this Executive Order.
5. Other chemical components of the base resins (such as sizing wax and release wax) used for the manufacture of ULEF MDF and tMDF products by Foresco must be within the ranges specified in Section D of Confidential Attachment A of this Executive Order.
6. The allowable operating parameters for press temperature and press time for the base resins used to manufacture the ULEF MDF and tMDF products by Foresco must be within the ranges specified in Section E of Confidential Attachment A of this Executive Order.

7. Only the composite wood products with the product names listed in Section F of Confidential Attachment A of this Executive Order are authorized under this Executive Order.

BE IT FURTHER ORDERED that Foresco is approved to conduct primary/secondary method tests at least once every six months, and routine quality control tests at least once per week on their ULEF MDF and tMDF product.

BE IT FURTHER ORDERED that this Executive Order N-18-180 supersedes Executive Order N-16-180, which was issued on December 30, 2016.

BE IT FURTHER ORDERED that Foresco may change the resin system supplier listed in section A of Confidential Attachment A of this Executive Order if the new resin supplier supplies the same resin type listed in Confidential Attachment A of this Executive Order, at least two primary or secondary method tests are performed on random samples selected by their CARB-approved TPC, and the Chief of the Risk Reduction Branch of the Transportation and Toxics Division is notified before Foresco uses the resin for production.

BE IT FURTHER ORDERED that Foresco must conduct confirmatory testing for a new resin supplier by demonstrating that the results of two primary or secondary method tests for the new resin system supplier are no higher than 0.08 ppm for the ULEF products authorized under this Executive Order.

BE IT FURTHER ORDERED that this Executive Order shall have a duration of two years from the date this Executive Order is signed; the applicant may apply for re-approval as provided in section 93120.3(d)(5) of the ATCM.

BE IT FURTHER ORDERED that the applicant must maintain records in electronic or hard copy form for two years, for review by CARB upon request, as specified in section 93120.3(g) of the ATCM.

BE IT FURTHER ORDERED that the applicant must notify the Executive Officer in writing within 30 days if there is any change in their product manufacturing parameters or base resin manufacturer(s) or supplier(s) that does not comply with any of the requirements, terms or conditions specified in the ATCM or this Executive Order.

Executed at Sacramento, California this 13th day of December, 2018.



Richard Boyd, Chief
Risk Reduction Branch
Transportation and Toxics Division

Confidential

Attachment A
Formulation Data and Operating Parameters
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State of California
AIR RESOURCES BOARD
Executive Order N-18-180

Foresco Co., Ltd.

Section A.

Resin Supplier:

Foresco Co., Ltd.

- Address:

212 Bongsu-Daero, Seo-Gu
Incheon, Korea

Commercial Resin Name:

MUF

- Resin Type:

Melamine Urea Formaldehyde (MUF)

Section B.

Base Resin Chemical Formulation (Percent by Weight):

Foresco Co., Ltd. remains legally responsible under this Executive Order for ensuring that the base resin specifications are within the ranges specified in the original application and any subsequent amendments to this Executive Order.

Section C.

Base Resin Application Rate (Kilograms per Cubic Meter):

- MDF and tMDF (min/max): 160 to 180

Confidential

Attachment A
Formulation Data and Operating Parameters
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Section D.

Other Ingredients Added by the Composite Wood Product Manufacturer (Amount Added per Pound of Base Resin on a 100 Percent Solids Basis):

Ingredient	(CAS Number)	Amount Added	
		Minimum	Maximum
Paraffin Wax	8002-74-2	6%	8%
Hardener	7783-20-2	6%	8%
Scavenger (Urea, Ammonia, Ammonium, Sulfate mix with water)	N/A	15%	20%

Section E.

Allowable Operating Parameters:

- Press Temperature (°C)
 - MDF and tMDF (min/max): 220 to 225
- Press Time (Minutes):
 - MDF and tMDF (min/max): 0.7 to 3.3

Section F.

Product Names & Types Authorized in Executive Order N-18-180:

- Forescolor MDF and tMDF, (thickness range = 0.1 to 0.7 inch)