

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER H4-26-003

Variance from Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-Conditioning, and Other End-Uses

**The Boeing Company
Rigid Polyurethane High-Pressure Two-Component Spray Foam**

WHEREAS, pursuant to California Health and Safety Code sections 39730, 39730.5, and 39734, the California Air Resources Board (CARB) has established prohibitions on the use of certain hydrofluorocarbons (HFCs) in refrigeration, air-conditioning, and other end-uses, including foam end-uses, as described in California Code of Regulations, title 17, section 95371 et. seq. (HFC Regulation);

WHEREAS, under California Code of Regulations, title 17, sections 95374 subsection (b) and 95375 subsection (b) no person shall sell, install, use or otherwise enter into commerce in California HFC-245fa and blends thereof in rigid polyurethane high-pressure two-component spray foam as of January 1, 2025, for space- and aeronautics-related applications;

WHEREAS, California Code of Regulations, title 17, section 95378 allows an Applicant to submit a request for a variance from the requirements of sections 95374 and 95375;

WHEREAS, the Executive Officer may grant a variance if the Executive Officer determines that the Applicant has proven by clear and convincing evidence that the criteria for a variance specified in section 95378, subsection (b) has been met and that the Applicant has complied with all application requirements specified in section 95378, subsection (c);

WHEREAS, under section 95378, subsection (b)(1), the Executive Officer may grant a variance for impossibility if the Applicant cannot comply with the regulatory requirements, and the Applicant can demonstrate all of the following criteria: (1) A lower-risk substitute is not currently or potentially available; (2) An exemption will not increase the overall risk to human health or the environment; and (3) The Applicant has used best efforts to anticipate and address the impossibility and any potential noncompliance;

WHEREAS, on March 25, 2026, The Boeing Company (Boeing) applied for a variance from the requirements under sections 95374 and 95375 of the HFC Regulation for rigid polyurethane high-pressure two-component spray foam until January 1, 2040;

WHEREAS, on April 20, 2026, a delegee of the Executive Officer determined that the Boeing variance application was complete;

WHEREAS, a delegee of the Executive Officer posted the Boeing variance application for public comment beginning May 14, 2026, and ending June 13, 2026, during which time public comment was invited, and one comment was received;

WHEREAS, a delegee of the Executive Officer considered all the submitted public comments in the context of the section 95378 variance criteria;

WHEREAS, Boeing presented evidence that HFC-245fa is the only approved HFC by the National Aeronautics and Space Administration (NASA) Space Launch System (SLS) program for specialized aeronautical applications, a NASA-approved substitute for HFC-245fa currently does not exist, and the timeline for certifying alternative materials takes close to 8 years;

WHEREAS, Boeing has provided documentation demonstrating that Boeing is contractually obligated with NASA to use qualified rigid polyurethane high-pressure two-component spray foam containing HFC-245fa, and that NASA has not yet identified or approved a technologically viable alternative to HFC-245fa for this application;

WHEREAS, Boeing stated that without a variance, it would experience extraordinary economic loss due to the immediate cessation of manufacturing operations in California;

WHEREAS, a delegee of the Executive Officer did not dispute Boeing's quantification of economic losses if a variance was not granted;

WHEREAS, Boeing proposed in its variance application to purchase and use 2,912 pounds of NASA-approved, i.e., qualified, HFC-245fa in rigid polyurethane high-pressure two-component spray foam to fulfill its NASA contract requirements, and to reduce excess greenhouse gas (GHG) emissions that will result from the granting of this variance through the purchase of equivalent carbon emission offsets;

WHEREAS, Boeing has demonstrated that in the absence of a variance it cannot comply with the HFC Regulation;

WHEREAS, Boeing has demonstrated that a lower-risk substitute is not currently or potentially available because Boeing is contractually obligated with NASA to use rigid polyurethane high-pressure two-component spray foam containing qualified HFC-245fa, and that NASA has not yet identified or approved a technologically viable alternative to HFC-245fa for this application;

WHEREAS, Boeing has demonstrated that an exemption will not increase the overall risk to human health or the environment because Boeing will reduce excess GHG emissions that may result from the granting of this variance through the purchase of equivalent carbon emission offsets;

WHEREAS, Boeing has demonstrated that it has used best efforts to anticipate and address the impossibility and any potential noncompliance;

NOW, THEREFORE, I, Michael FitzGibbon, based on materials submitted by Boeing, find that:

1. Boeing cannot meet the requirements of Table 2 in section 95374(b) of the HFC Regulation for reasons beyond its control;
2. Requiring Boeing to comply with the requirements of Table 2 in section 95374(b) of the HFC Regulation would result in extraordinary economic hardship;
3. Boeing will mitigate its HFC Regulation noncompliance to the maximum extent feasible by agreeing to purchase a quantity of carbon offsets equal to 217.56 metric tons of carbon dioxide equivalent (MTCO₂e) for the variance period from a reputable offset provider;
4. Boeing has committed to transition to using a lower risk substitute as part of its installation and use of rigid polyurethane high-pressure two-component spray foam as soon as a qualified substitute becomes available, which includes compliance with the HFC Regulation requirements by January 1, 2040; and

Based on the entire record, Boeing has proven by clear and convincing evidence that it has met the criteria for issuance of a variance, permitting the continued use of qualified HFC-245fa as part of its installation and use of rigid polyurethane high-pressure two-component spray foam through December 31, 2039, with the conditions specified below because: (a) A lower-risk substitute is not currently or potentially available; (b) An exemption will not increase the overall risk to human health or the environment; and (c) The Applicant has used best efforts to anticipate and address the impossibility and any potential noncompliance.

IT IS ORDERED AND RESOLVED that Boeing is granted a variance until December 31, 2039 to install and use HFC-245fa as part of its rigid polyurethane high-pressure two-component spray foam; using no more than one kit per year of the two-part spray foam containing qualified HFC-245fa (equivalent to a total of fourteen (14) two-part kits of NCFI 16-009 spray-on foam insulation, each containing 208 pounds of HFC-245fa) which does not otherwise comply with the HFC Regulation requirements for "rigid polyurethane high-pressure two-component spray foam" as described in California Code of Regulations, title 17, section 95734.

IT IS FURTHER ORDERED that this variance is granted subject to Boeing adherence with its plan to use a qualified lower-risk substitute by January 1, 2040. Boeing shall maintain records substantiating its adherence with this compliance plan. Records of the compliance plan shall be made available to the Executive Officer, or their delegee, upon request.

IT IS FURTHER ORDERED that Boeing will mitigate excess GHG emissions that may result from the granting of this variance by purchasing carbon offsets equal to 217.56 MTCO_{2e}. Boeing will complete this mitigation plan by December 1, 2026. Boeing shall maintain records substantiating adherence with this mitigation plan. Records of the mitigation plan must be made available to the Executive Officer, or their delegee, upon request.

IT IS FURTHER ORDERED that if Boeing is unable to transition the use of HFC-245fa in its installation and use of rigid polyurethane high-pressure two-component spray foam under this variance to a HFC Regulation compliant alternative by January 1, 2040, then such non-compliant installation and use must be discontinued in California and will be subject to all the prohibitions for "rigid polyurethane high-pressure two-component spray foam" in California Code of Regulations, title 17, sections 95734 and 95375.

IT IS FURTHER ORDERED that the final date for this variance from HFC Regulation compliance will be allowed for Boeing by this variance is December 31, 2039.

IT IS FURTHER ORDERED that this variance is granted solely to Boeing and is not transferrable.

Executed in Sacramento, California August 10, 2026.

Mike FitzGibbon

Michael FitzGibbon, Chief
Atmospheric Science and Climate Strategies Branch
Research Division
CALIFORNIA AIR RESOURCES BOARD