

UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
RENTON, WASHINGTON 98055-4056

In the matter of the petition of

**Franklin Products, Inc.**

For an exemption from §§ 25.853(a) of  
Title 14, Code of Federal Regulations.

**Regulatory Docket  
No. FAA-2000-8860**

**PARTIAL GRANT OF EXEMPTION**

By letter dated November 30, 2000, Ms. Janine Shailer, Documentation and Certification Manager, Franklin Products, Inc., 153 Water Street, P.O. Box 117, Torrington, Connecticut 06790-0117, petitioned the Federal Aviation Administration for a four-year extension to its existing partial grant of exemption No. 6634A. That partial grant of exemption, issued on May 28, 1999, provided an exemption for two years from the vertical burn test requirements of § 25.853(a) for Franklin Products' seat cushion subassemblies manufactured with water-based adhesives that do not meet the requirements of that section of the regulations.

The petitioner also requested an amendment to the existing exemption that would delete the provision requiring that seat cushion assemblies manufactured under the auspices of this grant of exemption include a label identifying them as not in compliance with certain requirements of § 25.853(a).

**The petitioner requests relief from the following regulation:**

Section 25.853(a), Amendment 25-83, requires that materials in occupied compartments must meet the applicable (i.e., 12-second vertical burn test for seat cushions) test criteria prescribed in Part I of Appendix F, part 25.

## **Related Sections of 14 CFR:**

Section 25.853(c) requires that seat cushions, in addition to meeting the (vertical burn) test requirements of § 25.853(a), must also meet the (oil burner) test requirements of Part II of Appendix F, part 25.

## **The petitioner provides the following supportive information:**

*“Franklin Products, Inc. (FPI) respectfully requests an extension of the “Partial Grant of Exemption No. 6634”. This grant provides partial exemption from the vertical burn test requirements of FAR 14 CFR § 25.852(a) Part I of Appendix F for FPI seat cushion sub assemblies constructed with adhesives that do not meet the requirements of the above referenced FAR.*

*“We request an extension of the Partial Grant of Exemption No. 6634 for a period of 4 years. This time is necessary to continue our work to find an appropriate adhesive. Additionally, we need to review the findings that we anticipate will be issued in the near future by the EPA, NIOSH, and HSIA regarding the safety issues related to the solvent based adhesives currently approved by the FAA. These findings will drive the direction of our future research.*

*“Per the requirement of the partial grant, we have continued to work to find an adhesive that is safe for the environment and our employees that also passes the 25.853(a) burn test. To date, we have not identified an adhesive that meets these requirements.*

*“Another provision of the exemption requires the inclusion of an exemption statement on our labeling. We ask that the FAA allow us to remove the exemption statement on our labeling to eliminate unwarranted negative perceptions regarding the quality of our product.*

### **“BACKGROUND - SOLVENT BASED ADHESIVES:**

*“We feel that the requirement of an exemption for the particular adhesive we use produces an unnecessary burden on us and discourages others from seeking or developing the sorely needed alternatives. We want to avoid the use of solvent-based adhesives because they contain Methylene Chloride 1,2 Epoxy Butane, or N-Propyl Bromide. These FAA approved solvent-based adhesives are under scrutiny for health and environmental reasons.*

*"1. Methylene Chloride is considered a potential carcinogen. OSHA issued a final rule, in 1997, requiring compliance with an 8-hour TWA PEL of 25ppm. It*

*will be difficult if not impossible to maintain this restricted exposure in our type of manufacturing.*

- "2. *1,2 Epoxy Butane presents a health hazard in that it has 'demonstrated clear evidence of carcinogenicity in male rats exposed to 200 to 400ppm.'*
- "3. *N-Propyl Bromide's toxicity information includes this chronic data: 'Long term exposure may cause lung, liver, kidney, central nervous system effects. Experiential reproductive effects are still being determined.'*

*"N-Propyl Bromide is still under review by the EPA and HSIA who are reviewing the available toxicological information and the environmental implications of the ozone depletion potential. Based on information collected the EPA Agency hopes to issue a final rulemaking sometime in 2001. It is our understanding that the possible outcome of the final rulemaking may be a ban on the use of this product. It is expected that results of the HSIA toxicological study to be published within the next 6 months will, at minimum, be used as support in reducing exposure limits from 100 to 25ppm. We are aware of two manufacturers who have been working with NIOSH to reduce exposures below the current recommended 50- 100ppm range. Exposures at these facilities range between 90 and 200ppm. It is important to note NIOSH has recommended that these companies replace the current adhesives with water-based adhesives. Additionally, Albemarle Corporation, who developed the recommended 100ppm exposure limit, has recently voluntarily revised the limit to 25ppm.*

*"We believe that OSHA and the EPA will eventually ban or severely restrict the use of bromide adhesives and push others to use water-based adhesives. FPI has been proactive in finding an alternative that effectively addresses employee and environmental concerns as well as the intent of the regulations governing aircraft cabin safety.*

**"BACKGROUND - WATER-BASED ADHESIVE USED AT FPI:**

*"The adhesive we use does not have any known severe health hazard or environmental concern. It is the safest adhesive we have found to date that meets our manufacturing needs. It performs well when tested to FAR 14CFR § 25.853(c).*

*"In reviewing the document DOT/FAA/CT-83/43, we find that the executive summary states 'non-fire retardant urethane foam performed as well as the fire retarded type when encapsulated by fire-blocking material.' The document also indicates on page 3 '... that while the materials should be selected based on the results of small-scale tests, it is recognized that the small-scale tests do not reflect the behavior of the material in its end use ...'*

*“We understand that the requirement of 25.853(a) must be met for all major components and that adhesives were added to this requirement in 1972 per the AC25-17. We also believe that the DOT/FAA/CT-83/43 document issued in 1984 recognizes fire blocking as an appropriate method to provide the needed protection in the cabin. Indeed, this method addresses the performance of the typical fire-retardant foams that would fail the 25.853(c) test if they were not fire-blocked. Though AC-17 provides guidance on an acceptable method of demonstrating compliance to the FAR the later document should bare some weight in the judgment of compliance of the product in its end use.*

*“When you review our 25.853(c) burn test results for all the combinations we have tested since our last grant of exemption, which were all assembled with the water-based adhesive, you will find all the combinations passed without exception.*

*“Please note that the fire hard foams are not fire blocked because they pass the a-burn and c-burn requirements. The fire-retardant foams must be fire blocked regardless of the adhesive used because they cannot pass the c-burn.*

*“These results show similar or better results then previous tests that were assembled with solvent-based adhesives.*

*“In each case where foam components would fail the vertical burn when combined with our adhesive we have and will continue to encapsulate the product in fire blocking material. This should sufficiently demonstrate that we meet the intent of the rule governing cabin safety; that we effectively address the required performance standards of the final product placed in the aircraft. In doing so, we conclude that we should not be required to make any statement regarding the exemption on our labels.*

*“In support of this request for extension I have attached the following documentation:*

- "1. Results of our search for a compliant adhesive, which have been specifically directed toward locating a water-based adhesive that passes the 25.853(a) burn test.*
- "2. Four NIOSH letters to two companies that are struggling to meet current bromide exposure standards and will likely have difficulty in meeting the more stringent exposure limits expected to be set in the foreseeable future.*
- "3. MSDS data on an FAA approved Methylene Chloride adhesive including a statement regarding its hazards*

- "4. *MSDS data on an FAA approved 1,2 Epoxy Butane and N-Propyl Bromide adhesive including a statement regarding its hazards*
- "5. *MSDS data on the water-based adhesive we use as an alternative to the currently FAA approved adhesives.*
- "6. *A summary of all our 25.853(c) oil burn test results which employed water based adhesives and support our belief that there is no evidence of a compromise to passenger safety.*
- "7. *A proposal for rewording the statement of exemption on our labels if elimination of the statement is not an option.*
- "8. *Copies of the previous grants of exemption # 6634 and 6634A*

**"SUMMARY:**

*"We are trying to do what is in the best interests of our airline customers, our employees, the environment, and the FAA. By most measures, the easiest course of action for us would be to use the bromide-based adhesive. This would eliminate the need for an FAA exemption, eliminate ongoing research for other adhesives, allow us to remove a negative exemption statement from our product, and allow us to focus fully on the commercial aspects of our business. We are persistent in pursuing the exemption path however, as this course most effectively addresses the safety of our employees and the environment, and poses no risk to the flying public."*

**Notice and public procedure has been provided as follows:**

On March 15, 2001 (66 FR 15161), the FAA published a notice of the petition for exemption in the Federal Register and requested comments from the public. No comments were received in response to the notice.

**The FAA's analysis and summary of this petition is as follows:**

The FAA is satisfied that the petitioner is exercising due diligence in working with the adhesives manufacturers in a continuing effort to identify and develop an adhesive that complies with the pertinent FAA, Occupational Safety and Health Administration (OSHA), and Environmental Protection Agency (EPA) regulations.

In consideration of the foregoing, I find that a partial grant of exemption is in the public interest, and is determined to have no more than a negligible effect on the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, Franklin Products, Inc., is hereby granted a four-year extension of the exemption from the vertical burn test requirements of § 25.853(a) for

Franklin Products' seat cushion assemblies constructed with non-compliant water-based adhesives. This exemption is effective until May 30, 2005, unless otherwise superseded.

In addition, Provision 4 of Exemption No. 6634, which required labeling as "non-compliant" those seat cushion assemblies manufactured under the auspices of this exemption, is withdrawn. All other provisions of Exemption No. 6634, together with its conditions and limitations, remain the same and are applicable to this exemption.

This amendment is part of, and will remain attached to, Exemption No. 6634.

Issued in Renton Washington, on May 2, 2001.

*Original signed by:*

Ali Bahrami, Acting Manager  
Transport Airplane Directorate  
Aircraft Certification Service