

**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
RENTON, WASHINGTON 98057-3356**

In the matter of the petition of

**Greiner PURtec**

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

**Regulatory Docket No. FAA-2008-0209**

**PARTIAL GRANT OF EXEMPTION**

By letter dated February 19, 2008, and in an e-mail with two document attachments dated February 20, 2008, Mr. John W. Sparkman, Director of Quality & Certification, Greiner PURtec, 7621 Pebble Drive, Building 22, Fort Worth, TX, 76118, petitioned for exemption from vertical burn test requirements for water-based adhesives used in the manufacture of seat cushions. Water-based adhesives do not meet the vertical burn test requirement but they are the only viable alternatives to the solvent-based adhesives which do comply with these requirements. Available supplies of solvent-based adhesives are diminishing because of stricter environmental regulations.

Your request for relief from § 21.601(b)(2) is not addressed here because this office handles certification of transport airplanes, we will be making a decision only on your request for exemption from § 25.853(a).

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

**Section 25.853(a)**, which requires that materials in occupied compartments meet the applicable test criteria prescribed in Part I of Appendix F (12-second Bunsen burner vertical burn test for seat cushions).

**Related sections of the regulations:**

**Section 25.853(c)**, which requires that seat cushions, besides meeting the (vertical burn) test requirements of § 25.853(a), must also meet the (oil burner) test requirements of Part II of Appendix F.

**The petitioner's supportive information is summarized as follows.** The complete petition may be found in the Federal Document Management System, on the Internet at [www.regulations.gov](http://www.regulations.gov), in docket FAA-2008-0209.

Greiner PURtec requests an exemption from the vertical burn requirements of Title 14 Code of Federal Regulations (14 CFR) 25.853(a) for the water-based adhesive used in the aircraft cushions it produces. Some of these are flotation cushions capable of comprising part of TSO-C72( ) assemblies. Greiner PURtec also requests exemption from 14 CFR 21.601(b)(2) for TSO-C72( ) cushion assemblies containing this adhesive.

In January 2007, Greiner PURtec changed to a water-based adhesive (Simalfa 309) in its cushion manufacturing process. This was to comply with stricter environmental regulations imposed on solvent-based adhesives. Greiner PURtec performed multiple § 25.853(c) tests to qualify use of this adhesive, selecting it out of a field of similar products for producibility, potential effect on human health, and flammability compliance. The adhesive continues to pass tests for oil burn, which Greiner PURtec believes is a more critical test for cushion flammability performance. Greiner PURtec believes that passing a § 25.853(c) test for a cushion assembly can be used to show an equivalent or greater level of flammability compliance compared to a § 25.853(a) test of subassemblies or individual components of the cushion. Greiner PURtec states that results of oil burn tests performed on cushion assemblies using the water-based adhesive are not significantly different from results of tests on their previous solvent-based adhesive.

Greiner PURtec says that, with its current adhesive supplier, it is actively pursuing qualification of a water-based adhesive that can meet the vertical burn requirements. Based on recent testing, the product does not yet meet both the § 25.853 (a) and (c) criteria, and it cannot be finalized or implemented in a short amount of time. Since Greiner's goal is to find and use an adhesive which meets both criteria, it is asking for a time-limited exemption of three years for its current product.

**Public interest:**

Greiner states that approval of the requested exemption would be in the public interest for the following reasons.

- 1) Water-based adhesives are safe for both the people who work with them and the environment. Replacement of solvent-based adhesives is in the public's best interest because of potential adverse affects on people and on the environment.

2) There is no readily available water-based adhesive that meets § 25.853(a) requirements. Using the current water-based adhesive is the only alternative to stopping production until a compliant adhesive can be finalized. Stopping production would be a financial hardship to Greiner PURtec, its employees, and its customers.

3) The water-based adhesive currently in use shows performance in oil burn tests equal to or marginally better than that of the previously used solvent-based adhesive. The safety of the flying public is not affected.

Greiner PURtec requests that the FAA extend this exemption to its customers, either TSO organizations or owner/operators of Part 25 aircraft.

**Notice and public procedure provided:**

Even though not specifically requested by the petitioner, we have determined that good cause exists for waiving the requirement for Federal Register publication because this petition is similar to those granted in the past, and delay in acting on this petition would be detrimental to Greiner PURtec and the affected aircraft seat manufacturers, airplane manufacturers, and airlines.

**The FAA's analysis/summary is as follows:**

The FAA considers that the partial grant of an exemption would provide an acceptable level of safety. We have granted exemptions in the past for seat cushions manufactured with the same adhesive. Those seat cushions have been in service for over 10 years and the FAA is not aware of any adverse effect on public safety.

Although it is beyond the scope of this exemption, it is apparent that the petitioner had not been carrying out required flammability tests on seat cushion adhesives even when certain of the adhesives available (solvent-based) could comply with those requirements. Now, however, solvent-based adhesives are not viable products because of Occupational Safety and Health Administration and Environmental Protection Agency regulations. Water-based adhesives, which do not so far comply with all of the FAA flammability requirements, are the only viable adhesive products available, and the petitioner properly seeks exemption to allow use of those adhesives.

We consider that some measure of relief is warranted, because of circumstances beyond the control of the petitioner. This response is intended to provide the needed amount of relief while limiting that relief to the degree the FAA considers absolutely necessary.

The granted relief to Greiner PURtec will expire after a period of time the FAA considers reasonable for developing or discovering a replacement, compliant

adhesive. The only exception to this, as indicated below, affects the owners of affected seat cushion assemblies—the operators. Seat cushion assemblies are inherently life-limited, and the FAA’s intent is to avoid creating unnecessary hardship on owners of affected seat cushion assemblies.

During the period of time covered by the exemption, besides searching for a compliant adhesive, the petitioner must also explore alternative methods of constructing seat cushion assemblies that would comply with both §§ 25.853(a) and 25.853(c). We add this provision so that alternatives to adhesives are addressed in case no compliant adhesives have been developed by the expiration date of this grant.

Affected, fully-assembled seat cushions continue to comply with the severe oil burner test requirements of § 25.853(c). This is true even when these cushions are assembled internally with adhesives that do not pass the less rigorous vertical burn flammability test requirements of § 25.853(a). The FAA has determined that this provides a justification for this limited grant of exemption. Fleet-wide surveys have indicated that in-service seat cushions generally maintain the integrity of fire-blocking sufficiently to ensure the degree of fire protection required. Therefore, the primary consideration here is to ensure that none of the non-compliant adhesive is exposed to the airplane cabin. We have made this a condition of this exemption.

Notwithstanding the above, however, we must consider the possibility that the integrity of an affected seat cushion may be breached in service to expose some noncompliant adhesive to the cabin environment. If that should happen and that same cushion is then subjected to a fire, we want to minimize the flammability risk of the adhesive used. We emphasize that this grant allows the use of Simalfa 309 only.

The FAA expects that the petitioner will exercise due diligence in the ongoing effort to find a solution to the problem of the noncompliant adhesive. Although the petitioner requested a 3-year time-limited exemption, we have determined that a 2-year time-limited exemption is justifiable. If any future extension is requested, we will require additional data from the petitioner to justify that extension. To monitor the petitioner's progress, we will require a report on the petitioner’s efforts. The FAA considers that the vertical burn test requirements of § 25.853(a) are still appropriate for determining acceptability of aircraft materials and a permanent exemption is not appropriate. We have included a requirement that affected aircraft seat manufacturers, airplane manufacturers, and airlines must be provided with a copy of this exemption.

## **The Partial Grant of Exemption**

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 USC 40113 and 44701, delegated to me by the Administrator (14 CFR 11.53), Greiner PURtec's petition for exemption from the vertical burn test requirements of 14 CFR 25.853(a) for seat cushion assemblies constructed with Simalfa 309 water-based adhesive is granted until March 30, 2010, under the conditions listed below. In addition, the FAA intends the effect of this exemption to be that other persons installing Greiner PURtec seat cushions manufactured in accordance with this exemption, or operating airplanes on which such cushions are installed, are allowed to engage in those activities, notwithstanding other regulations (e.g., 14 CFR 121.312(b)) which would otherwise require use of seat cushions complying with § 25.853(a). The FAA intends that Greiner PURtec seat cushions that are manufactured under this exemption, and manufactured prior to its expiration, may be installed into service after this exemption's expiration date and/or continue to be used in service for the service life of those cushions

- (1) Greiner PURtec must continue to work with adhesive suppliers to develop an adhesive which complies with both §§ 25.853(a) and 25.853(c). Concurrently, Greiner PURtec must pursue other means of construction which avoid adhesives.
- (2) This exemption is valid only for Greiner PURtec seat cushion assemblies constructed with Simalfa 309 in such a way that the adhesives are completely encased in a fire blocking material, without any exposure of these adhesives to the aircraft cabin.
- (3) Within 1 year after the date of issuance of this exemption, the petitioner must submit a progress report on its efforts to develop § 25.853(a) compliant adhesives. At a minimum, the report must include the complete extent of the petitioner's efforts, the adhesives manufacturers involved, and information on how the industry as a whole is addressing this problem. The report should be sent to the Manager, Cabin Safety Branch, ANM-115, Transport Airplane Directorate, 1601 Lind Avenue SW, Renton, WA 98057.
- (4) Greiner PURtec must provide a copy of this exemption to affected aircraft seat manufacturers, airplane manufacturers, and airlines.

Issued in Renton, Washington, on February 28, 2008.

/s/Ali Bahrami  
Ali Bahrami  
Manager  
Transport Airplane Directorate,  
Aircraft Certification Service