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49 CFR Parts 171, 172, 173, 175, and 178

Hazardous Materials Regulations: Transportation of Compressed Oxygen, Other Oxidizing Gases and Chemical Oxygen Generators on Aircraft; Proposed Rule

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 171, 172, 173, 175, and 178

[Docket No. RSPA–04–17664 (HM–224B)]

RIN 2137–AD33

Hazardous Materials Regulations: Transportation of Compressed Oxygen, Other Oxidizing Gases and Chemical Oxygen Generators on Aircraft

AGENCY: Research and Special Programs Administration (RSPA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: RSPA proposes to amend the Hazardous Materials Regulations to require that cylinders of compressed oxygen and packages of chemical oxygen generators be placed in an outer packaging that meets certain flame penetration and thermal resistance requirements when transported aboard an aircraft. RSPA is also proposing to: (1) Revise the pressure relief device setting limit on cylinders of compressed oxygen transported aboard aircraft; (2) limit the types of cylinders authorized to transport compressed oxygen aboard aircraft; (3) prohibit the transportation of all oxidizing gases, other than compressed oxygen aboard cargo and passenger aircraft; and (4) convert most of the provisions of an oxygen generator approval into the HMR. This proposal would increase the level of safety associated with transportation of these materials aboard aircraft. This proposal was developed jointly with the Federal Aviation Administration (FAA).

DATES: Submit your comments on or before August 13, 2004.

ADDRESSES: You may submit comments by any of the following methods:

- Web site: *http://dms.dot.gov*. Follow the instructions for submitting comments on the DOT electronic docket site.
- Fax: 1–202–493–2251.
- Web site: *http://regulations.gov*. Follow instructions for submitting comments.
- Mail: Docket Management System; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL–402, Washington, DC 20590–001.
- Hand Delivery: To the Docket Management System; Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC between 9 a.m. and 5 p.m., Monday through Friday, except Federal Holidays.

Instructions: You must include the agency name and docket number RSPA–04–17664 (HM–224B) or the Regulatory Identification Number (RIN) for this notice at the beginning of your comment. For detailed instructions on submitting comments and additional information on the rulemaking process, see the Public Participation section of this document. Note that all comments received will be posted without change to *http://dms.dot.gov* including any personal information provided. Please see the Privacy Act section of this document.

FOR FURTHER INFORMATION CONTACT: John A. Gale, Office of Hazardous Materials Standards, telephone (202) 366–8553, Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW., Washington, DC 20590–0001 or David Catey, Office of Flight Standards, (202) 267–3732, Federal Aviation Administration, U.S. Department of Transportation, 800 Independence Avenue, SW., Washington DC 20591.

SUPPLEMENTARY INFORMATION:

I. Background

The National Transportation Safety Board found that one of the probable causes of the May 11, 1996 crash of ValuJet Airlines flight No. 596 was a fire in the airplane's cargo compartment that was initiated and enhanced by the actuation of one or more chemical oxygen generators that were being improperly carried as cargo. Following that tragedy, in which 110 lives were lost, the Department of Transportation has:

—Prohibited the transportation of chemical oxygen generators (including personal-use chemical oxygen generators) on board passenger-carrying aircraft and the transportation of spent chemical oxygen generators on both passenger-carrying and cargo-only aircraft, 61 FR 26418 (May 24, 1996), 61 FR 68952 (Dec. 30, 1996), 64 FR 45388 (Aug. 19, 1999);

—Issued standards governing the transportation of chemical oxygen generators on cargo-only aircraft (and by motor vehicle, rail car and vessel), including the requirement for an approval issued by RSPA, 62 FR 30767 (June 5, 1997), 62 FR 34667 (June 27, 1997);

—Upgraded fire safety standards for Class D cargo compartments on aircraft to require a smoke or fire detection system and a means of suppressing a fire or minimizing the available oxygen, on certain transport-category aircraft, 63 FR 8033 (Feb. 17, 1998); and

—Imposed additional requirements on the transportation of cylinders of compressed oxygen by aircraft and prohibited the carriage of chemical oxidizers in inaccessible aircraft cargo compartments that do not have a fire or smoke detection and fire suppression system, 64 FR 45388 (Aug. 19, 1999).

In the August 19, 1999 final rule (in Docket No. HM–224A), we (RSPA) amended the HMR to: (1) Allow a limited number of cylinders containing medical-use oxygen to be carried in the cabin of a passenger-carrying aircraft, 49 CFR 175.10(b); (2) limit the number of oxygen cylinders that may be carried as cargo in compartments that lack a fire suppression system and require that cylinders be stowed horizontally on the floor or as close as practicable to the floor of the cargo compartment or unit load device, 49 CFR 175.85(h) & (i); and (3) require each cylinder of compressed oxygen (in the passenger cabin or a cargo compartment) to be placed in an overpack or outer packaging that meets the performance criteria of Air Transport Association Specification 300 for Type I (ATA 300) shipping containers, 49 CFR 172.102, special provision A52. Based on the comments submitted in that proceeding and our assessment of alternatives, RSPA did not adopt the proposal in the notice of proposed rulemaking in docket No. HM–224A to prohibit all transportation of compressed oxygen on passenger-carrying aircraft.

Rigid ATA 300 shipping containers are resilient, durable packaging that provides protection from shock and vibration and can be reused for at least 100 round trips. In the preamble to the August 19, 1999 final rule, we explained that testing conducted by FAA indicated that the ATA 300 container provides an ''incremental'' level of thermal protection for oxygen cylinders, by increasing the time before a cylinder exposed to a fire would release its contents. However, FAA's testing also indicated that the risk posed by a compressed oxygen cylinder in a cargo compartment can be further reduced, or even eliminated, if the cylinder is placed in an overpack or outer packaging that provides more thermal protection and flame resistence than the ATA 300 containers presently in use. Accordingly, we announced that we were ''considering a requirement that an oxygen cylinder may be carried in an inaccessible cargo compartment on an aircraft only when the cylinder is placed

in an outer packaging or overpack meeting certain flame penetration resistance, thermal protection, and integrity standards.'' 64 FR at 45393.

II. Summary of This NPRM

This rulemaking proposes requirements for such an outer packaging for the transportation of compressed oxygen cylinders and chemical oxygen generators aboard an aircraft because additional testing by FAA indicates that additional protection is necessary for both. The proposed flame penetration standards for this outer packaging are those contained in Part III of Appendix F to 14 CFR part 25 (Test Method to Determine Flame Penetration Resistance of Cargo Compartment Liners). This flame penetration standard specifies that the test specimen be exposed to a flame temperature of 1,700 °F for five minutes. In order to pass the test there must be no flame penetration and the peak temperature 4 inches above the specimen must not exceed 400 °F. The proposed thermal protection standards, to be added in Appendix D to 49 CFR part 178, would specify that, when exposed to a temperature of at least 400 °F for three hours, a cylinder must remain below the temperature at which its pressure relief device (PRD) would activate, and a chemical oxygen generator must not actuate. If the requirements for improved outer packagings are adopted, we would remove the present limitation on the number of cylinders of compressed oxygen that may be transported in a cargo compartment that is not equipped with a fire suppression system, in 49 CFR 175.85(i)(1) and (3).

In addition, we are proposing to: (1) Revise the PRD setting on cylinders of compressed oxygen to better prevent a cylinder from releasing its contents when exposed to a fire; (2) limit the types of cylinders in which compressed oxygen may be transported aboard an aircraft to minimize the number of PRD settings; (3) prohibit the transportation of cylinders containing other oxidizing gases aboard passenger-carrying and cargo aircraft, because a fire in a cargo compartment could overcome a fire suppression system when intensified by these materials; and (4) incorporate into the HMR many of the current provisions RSPA includes in approvals authorizing the transportation of chemical oxygen generators aboard cargo-only aircraft.

III. Proposed Amendments to the HMR

A. Outer Packaging for Compressed Oxygen Cylinders and Oxygen Generators

When installed on an aircraft or provided during flight for the use of passengers or crew members, compressed oxygen in cylinders and oxygen generators are subject to requirements in FAA's regulations in title 14 of the Code of Federal Regulations, and are not subject to the HMR. When transported as cargo, cylinders of compressed oxygen and oxygen generators are subject to requirements in the HMR. Air carriers routinely transport their own oxygen cylinders and oxygen generators as replacement items for use on other aircraft. Some also transport cylinders for their passengers or other customers. Commenters to Docket HM–224A identified a continuing need for the transportation of oxygen cylinders as cargo on both passenger and cargo-only aircraft.

In testing conducted by FAA in 1999, cylinders of compressed oxygen released their contents at temperatures well below those that aircraft cargo compartment liners and structures are designed to withstand. When the surface temperature of a cylinder of compressed oxygen reaches approximately 300 °F, the increase in internal pressure causes the cylinder's pressure relief device to open and release oxygen. If oxygen vents directly into a fire, it can significantly increase the risks posed by the fire. FAA also found that use of an outer packaging may significantly lengthen the time that a cylinder will retain its contents when exposed to fire or heat. Some outer packagings meeting the ATA specification Category I extended the time by up to 60 minutes or more. However, the ATA standard does not specifically address thermal protection or flame penetration. An outer packaging that is designed to provide both thermal protection and flame penetration could provide even more protection. A copy of the test report is available for review in the public docket.

In additional tests conducted in 2002, FAA determined that a sodium chlorate oxygen generator will initiate and release oxygen at a minimum temperature of 600 °F. However, due to uncertainties with other designs and the physical properties of sodium chlorate, the FAA has recommended that oxygen generators not be exposed to temperatures above 400 F. A copy of this test report is also available in the public docket.

An unprotected oxygen cylinder or oxygen generator can quickly and violently release its contents when exposed to temperatures that can be expected from an aircraft cargo compartment fire. Thus, we are proposing to require that cylinders of compressed oxygen and chemical oxygen generators be transported in an outer packaging that: (1) Meets the same flame penetration resistance standards as required for cargo compartment sidewalls and ceiling panels in transport category airplanes; and (2) provides certain thermal protection capabilities so as to retain its contents during an otherwise controllable cargo compartment fire. The outer packaging standard that is being proposed addresses two safety concerns: (1) Protecting a cylinder and a oxygen generator that could be exposed directly to flames from a fire; and (2) protecting a cylinder and a oxygen generator that could be exposed indirectly to heat from a fire. These performance requirements must remain in effect for the entire service life of the outer packaging.

These regulations would require that an outer packaging for an oxygen cylinder and a package containing an oxygen generator meet the standards in Part III of Appendix F to 14 CFR Part 25, Test Method to Determine Flame Penetration Resistance of Cargo Compartment Liners. In order to comply with the requirements of the flame penetration resistance test, a flat 16 by 24 inch test specimen must be constructed that represents the outer package design. At least three specimens of outer packaging materials and each different design feature must be tested. Each specimen tested must simulate the outer packaging, including any design features, such as handles, latches, seams, hinges, etc., the failure of which would affect the capability of the outer packaging to prevent actuation of the oxygen cylinder pressure relief mechanisms or actuation of the oxygen generator. Each specimen must be placed in the horizontal ceiling position of the test apparatus, and must prevent flame penetration for a period of 5 minutes and the maximum allowable temperature at a point 4 inches above the test specimen, centered over the burner cone, may not exceed 400 °F. Typically, the outer packaging closure mechanism, seam or hinges are tested independently in a longitudinal fashion, centered over the burner flame. See ''Burnthrough Test Procedures for Cargo Liner Design Features,'' DOT/FAA/CT–TN 88/33. Thus, an outer packaging's materials of construction would be required to prevent penetration by a

flame of 1,700 °F for five minutes, in accordance with part III of appendix F paragraph (f)(5) of 14 CFR part 25.

In addition, we propose to require that a cylinder of compressed oxygen remain below the temperature at which its pressure relief device would activate, and that an oxygen generator not actuate, when exposed to a temperature of at least 400 °F for three hours. The 400 °F temperature is the estimated mean temperature of a cargo compartment during a halon-suppressed fire.[1] Three hours and 27 minutes is the maximum estimated diversion time for an aircraft flying a southern or oceanic route. Data collected during the FAA tests indicates that, on average, a 3AA oxygen cylinder with a pressure relief device (PRD) set at cylinder test pressure will open when the cylinder reaches a temperature of approximately 300 °F. This result agrees with calculations performed by RSPA. In analyzing PRD function, RSPA calculated that a 3HT cylinder with a PRD set at 90% of cylinder test pressure will vent at temperatures greater than 220 °F. In order to assure an adequate safety margin for all authorized cylinders, including 3HT cylinders, we are proposing that cylinders of compressed oxygen contained in an outer packaging not reach an external temperature of 93 °C (199 °F) when exposed to a 400 °F temperature for three hours. A thermal resistance test for packagings for oxygen cylinders and oxygen generators would be added in appendix D to part 178.

In addition to meeting the flame penetration and thermal resistance protection requirements, we would continue to require that the outer packaging for compressed oxygen cylinders meet certain performance criteria. That requirement is currently based on ATA Specification 300. However, in order to provide greater flexibility in the design of these packagings, we are proposing to allow the outer packaging to be built either to the ATA Specification 300 standard or to a UN standard at the Packing Group II performance level. In addition, in order to clarify our original intent in adopting the ATA Specification 300, and in order to ensure an adequate level of safety, we are proposing to authorize only rigid outer packagings.

[1] The FAA is currently evaluating other non-ozone-depleting suppression agents that could eventually be used in cargo compartments. Some of these agents can maintain an adequate level of safety in the compartment, but the mean temperature may be slightly higher than 400 °F, which is the level found during typical halon-suppressed fires. If an alternate agent is used, the oven soak temperature level may need to be adjusted accordingly.

Because of the added safety margin associated with these improved outer packagings, we are proposing to remove the limits in § 175.85(i) on the number of oxygen cylinders that may be transported in cargo compartments that are not equipped with fire/smoke detection and fire suppression systems. In addition, to provide industry with sufficient time to retrofit or replace existing outer packagings we propose an effective date of one year after publication of the final rule as the mandatory date to comply with the new thermal resistance and flame penetration resistance standards for outer packagings for oxygen cylinders and oxygen generators transported on board aircraft.

Transport category airplane cargo compartments are classified under 14 CFR 25.857. Classifications vary based on accessibility to crewmembers during flight and methods implemented to mitigate fire hazards (cargo liner, fire/smoke detection, fire suppression, and control of air flow). These compartments must meet the requirements of §§ 25.855 and 25.858, as appropriate. There are no airworthiness standards pertaining to the classification of cargo compartments for other category airplanes certificated under 14 CFR.

B. Pressure Relief Device Settings and Authorized Cylinders for Compressed Oxygen

In this NPRM, we are proposing a new limit on the pressure relief device settings on cylinders containing compressed oxygen when transported aboard aircraft. These changes will help ensure that the cylinder contents are not released into an aircraft cargo compartment in the event of a fire. In order to accomplish this, we must limit the PRD to a setting that will prevent it from releasing at temperatures that the cylinder will experience while protected by the outer packaging. PRD requirements for DOT specification cylinders are found in the Compressed Gas Association (CGA) Pamphlet S–1.1. On high pressure oxygen cylinders, the authorized PRD's are CG–4 and CG–5 combination rupture disk/fusible plug devices, and CG–1 rupture disk devices. According to CGA Pamphlet S–1.1, the burst pressure of the disks must be no greater than the minimum cylinder test pressure. CGA Pamphlet S–1.1 does not set a lower burst limit on the disks; therefore, cylinders could be equipped with CG–1 rupture disks that could release product at any elevated temperature. RSPA believes the current CGA Pamphlet S–1.1 pamphlet requirements did not consider exposure of cylinders to aircraft cargo compartment fires. In this NPRM we propose that oxygen cylinders be equipped with PRD's that have a set pressure equal to cylinder test pressure with allowable tolerances of −10 to plus zero percent. This is the same tolerance required by the CGA S–1.1 pamphlet for all rupture disks.

Currently, in accordance with § 173.302a(a)(2), DOT 3HT cylinders must be equipped with rupture disks that have a rated bursting pressure which does not exceed 90 percent of the cylinder test pressure. Under the current rule, there is no lower limit on the required PRD setting. The rupture disks for DOT 3HT cylinders are set at a lower pressure than for other cylinders because the DOT 3HT cylinder has a lower safety factor (ratio of burst to service pressure) than other seamless cylinders. For oxygen transported in DOT 3HT specification cylinders, we propose that the PRD have a rated burst pressure of 90% of the cylinder test pressure with allowable tolerances of −10 to plus zero percent.

In a letter to RSPA, an industry representative states that for medical oxygen cylinders the common practice is for companies to use a PRD with the rated rupture disc burst pressure at the cylinder test pressure. The companies use the setting at test pressure rather than at a lower pressure in order to prevent losing product through an early release of the PRD. In most cases, the proposed PRD setting at 100% of test pressure will not impose a burden on the industry. RSPA understands that there may be circumstances for which the new requirement may result in a burden. Comments are requested from companies that may be affected by this proposal.

In this NPRM, we are also proposing that the cylinders authorized for the transportation of compressed oxygen aboard aircraft be limited to DOT specifications 3A, 3AA, 3AL, and 3HT. According to the information available to RSPA at this time, these are the most commonly used cylinders for this service. In some cases, such as the DOT specification 39 cylinder, the PRD setting requirements are different than for the most commonly used cylinders. To avoid a situation where there are numerous PRD setting requirements for oxygen cylinders aboard aircraft, we propose to limit the authorized cylinders to the four specifications listed above.

C. Other Oxidizing Gases Aboard Aircraft

We are also proposing to prohibit the transportation of all oxidizing gases,

except compressed oxygen, aboard cargo and passenger aircraft. These affected materials are covered under the shipping descriptions ''Air, refrigerated liquid, (cryogenic liquid),'' ''Carbon dioxide and oxygen mixtures, compressed,'' ''Nitrous oxide,'' ''Nitrogen *trifluoride*, compressed'', ''Compressed gas, oxidizing, n.o.s.,'' and ''Liquified gas, oxidizing, n.o.s.'' We believe that cylinders of these oxidizing gases could also, if exposed to a fire, intensify a fire to the extent that the fire could overcome the compartment's halon fire suppression system and cause severe damage to the aircraft. However, unlike compressed oxygen, we have no information to support the need to allow these materials to continue to be transported aboard aircraft.

D. Chemical Oxygen Generator Approval

The June 5, 1997, final rule under Docket HM–224A amended the HMR by (1) adding a specific shipping description to the Hazardous Materials Table for chemical oxygen generators; and (2) requiring approval of a chemical oxygen generator, and its packaging, when the chemical oxygen generator is to be transported, by any mode, with its means of initiation attached. There are currently over 180 holders of the chemical oxygen generator approval. (62 FR 30767) We now believe that those aspects of the approval that deal with safety controls, packaging and marking can be incorporated into the HMR, thus eliminating the need for many persons to be holders of the approval. We will still require approval of a chemical oxygen generator; however, this approval process would be limited to those persons who manufacture oxygen generators and not distributors or persons who re-ship them. Therefore, we are proposing to add a new § 173.168 that would specify: (1) The number and type of means that must be incorporated into an oxygen generator design in order to prevent actuation; (2) that the oxygen generator must be capable of withstanding a 1.8 meter drop with no loss of contents or actuation; (3) packaging requirements; (4) shipping paper requirements; and (5) marking requirements for those oxygen generators that are installed in a piece of equipment which is sealed or otherwise difficult to determine if an oxygen generator is present. In addition, we are proposing to specify in the HMR that a chemical oxygen generator that has past the manufacturer's expiration date is forbidden for transportation by aircraft. Through the approval process, RSPA had not allowed the transportation of expired oxygen generators aboard aircraft. With the elimination of the approval, for other than oxygen generator manufactures, we believe it is now necessary to specify this restriction in the HMR.

IV. Effects on Individuals With Disabilities

Under separate RSPA and FAA rules [49 CFR 175.10(a)(7), and 14 CFR 121.574 and 135.91, respectively], which this proposal would not amend, passengers may not carry their own oxygen aboard aircraft for use during flight. Air carriers are permitted to provide oxygen for passenger use in accordance with specified requirements in the aforementioned rules, although some air carriers may choose not to provide this service for their passengers. RSPA seeks comment on whether the new proposed provisions placed on carriage of air carriers' own oxygen cylinders will significantly interfere with carriers' ability to provide this service, or increase the costs of this service, to passengers.

The Office of the Secretary, RSPA and FAA have initiated a project separate from this rulemaking action to explore whether safe alternatives exist for accommodating passenger needs in regard to use of medical oxygen. This project may result in proposals to amend the relevant portions of the HMR and FAA regulations, as well as those of the Office of the Secretary implementing the Air Carrier Access Act of 1986 (49 U.S.C. 41705), which prohibits discrimination in regard to air traveler access on the basis of disability.

V. Request for Comments

We ask you to address the following questions, to the extent you are able, in your comments on the proposals in this NPRM:

1. How well do the test protocols followed by FAA approximate the conditions of real-life incidents?
2. How many different types of outer packagings meeting the proposed thermal resistance and flame penetration resistance requirements would be needed for oxygen service and/or oxygen generator service? How many outer packagings of each type would be needed?
3. Are the cylinders in service sufficiently uniform to permit development of a limited number of standardized outer packagings?
4. Is it practical to retrofit existing outer packagings and what would be the costs of the retrofit?
5. What would be the estimated cost for an outer packaging that meets the proposed thermal and flame penetration resistance requirements? What is the average cost of currently used outer packagings?
6. Are there other means of providing an equivalent level of safety that RSPA should consider in formulating a final rule?
7. Will the one-year implementation date provide sufficient time for development, manufacture, and staging of the proposed outer packagings? Can the proposed regulation be implemented over a shorter time period?
8. Should the HMR incorporate different outer packaging standards based on the type of cargo compartment in which the cylinder will be transported? What should those standards be?
9. Should the HMR incorporate different outer packaging standards based on whether transport is on passenger or cargo aircraft? What should the exposure temperature capability be?
10. Should an exposure temperature greater than 400 °F be used for the thermal resistance test to accommodate variance in fire suppression agents? What should the temperature be?
11. How many cylinders would be affected by the proposal to require pressure relief devices to have a rated burst pressure of the cylinder test pressure minus 10%, plus 0%? What would be the cost of this requirement?
12. Should the flame penetration standard, currently contained in 14 CFR part 25 be incorporated by reference into the HMR or should it be duplicated in the HMR?
13. Is there a need for other oxidizing gases to be transported aboard an aircraft? Which gases? What performance standards should apply to outer packagings for such gases?
14. Will the costs imposed by this rulemaking cause you, an airline operator, to discontinue providing oxygen service to persons with disabilities?
15. Will this proposal increase the current charges that are imposed on persons needing supplemental oxygen during flight? If so, what will be the increase in the fee?

VI. Regulatory Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This proposed rule, if adopted, would be considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, was reviewed by the Office of Management and Budget. This rule would also be significant under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034). A copy of the preliminary regulatory evaluation is

available for review in the public docket.

B. Executive Order 13132

This proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132 (''Federalism''). This proposed rule would preempt State, local and Indian tribe requirements, but does not propose any regulation that has direct effects on the States, the relationship between the national government and the States, or the distribution of power and responsibilities among the various levels of government. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

The Federal hazardous materials transportation law, 49 U.S.C. 5101–5127, contains an express preemption provision (49 U.S.C. 5125(b)) that preempts State, local, and Indian tribe requirements on certain covered subjects. Covered subjects are:

(1) The designation, description, and classification of hazardous materials;

(2) The packing, repacking, handling, labeling, marking, and placarding of hazardous materials;

(3) The preparation, execution, and use of shipping documents related to hazardous materials and requirements related to the number, contents, and placement of those documents;

(4) The written notification, recording, and reporting of the unintentional release in transportation of hazardous material; and

(5) The design, manufacture, fabrication, marking, maintenance, recondition, repair, or testing of a packaging or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

This proposed rule addresses item 5 above and would preempt any State, local, or Indian tribe requirements not meeting the ''substantially the same'' standard.

Federal hazardous materials transportation law provides at § 5125(b)(2) that, if DOT issues a regulation concerning any of the covered subjects, DOT must determine and publish in the **Federal Register** the effective date of Federal preemption. The effective date may not be earlier than the 90th day following the date of issuance of the final rule and not later than two years after the date of issuance. RSPA proposes that the effective date of Federal preemption will be 90 days from publication of a final rule in this matter in the **Federal Register**.

C. Executive Order 13175

This proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13175 (''Consultation and Coordination with Indian Tribal Governments''). Because this proposed rule, if adopted, would not have tribal implications and does not impose direct compliance costs, the funding and consultation requirements of Executive Order 13175 do not apply.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation.'' To achieve that principal, the Act requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The Act covers a wide-range of small entities, including small businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis (RFA) as described in the Act.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 Act provides that the head of the agency may so certify and an RFA is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

The Small Business Administration recommends that ''small'' represent the impacted entities with 1,500 or fewer employees. For this proposed rule, small entities are part 121 and part 135 air carriers with 1,500 or fewer employees that are approved to carry hazardous materials. DOT identified 729 air carriers that meet this definition. DOT contacted several of these entities to estimate the number of containers that each small air carrier uses to transport oxygen cylinders aboard aircraft in other than the passenger cabin. From conversations with container manufacturers, DOT learned that approximately ten small air carriers transport compressed oxygen cylinders. DOT also believes that each of the ten small air carriers would need approximately 5 compressed oxygen containers to comply with the proposed rule. DOT also estimates that each of ten small carriers would need approximately 5 oxygen generator containers to comply with the proposed rule.

TABLE 2.—INCREMENTAL COSTS PER SMALL ENTITY

Cost per small entity	NPV of costs over 15 years	Capital recovery factor	Annualized costs
Baseline Costs	$2,937	0.10979	$322
Proposed Costs	10,104	0.10979	1,109
Incremental Costs	7,167	0.10979	787

After calculating the prorated annualized costs per entity using the same assumptions that were used in the cost section, the DOT has determined that the incremental cost impact per small entity would be $787 (Table 2), which RSPA considers is ''de minimus'' for a small business (See the regulatory evaluation in the public docket). The baseline costs per small entity shown in Table 2 are generated from appendix C by adding the baseline discounted costs of oxygen cylinders and chemical oxygen generator overpacks. Similarly, proposed costs in Table 2 are generated by adding discounted costs of the proposed rule for oxygen cylinder and chemical oxygen generator overpacks in Table 2. Annualized costs are calculated by applying a capital recovery factor to total incremental costs.

Besides small airlines, there may also be small entities that are distributors or other types of companies that transport oxygen cylinders and/or chemical oxygen generators on aircraft. DOT does not believe that any other small entities transport oxygen cylinders. However

there may be small entities besides airlines that distribute on airlines chemical oxygen generators and will be affected by this rule. RSPA welcomes cost information from these small entities.

Thus, RSPA has determined that this proposed rule would not have a significant impact on a substantial number of small entities. RSPA calls for comments on this analysis.

E. Unfunded Mandates Reform Act of 1995

This proposed rule, if adopted, would not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It would not result in costs of $100 million or more, in the aggregate, to any of the following: State, local, or Native American tribal governments, or the private sector. This NPRM is the least burdensome alternative that achieves the objective of the rule.

F. Paperwork Reduction Act

This proposed rule may result in an information collection and recordkeeping burden increase under OMB Control Number 2137–0572, due to proposed changes in package design and testing requirements for compressed oxygen and oxygen generators. There will be an editorial change with no change in burden under OMB Control Number 2137–0557, due to proposed changes in section designations regarding approval requirements for oxygen generators. RSPA currently has an approved information collection under OMB Control Number 2137–0557, ''Approvals for Hazardous Materials'' with 25,605 burden hours which expires on December 31, 2005, and OMB Control Number 2137–0572, ''Testing Requirements for Non-Bulk Packaging'' with 30,000 burden hours which expires on September 30, 2004.

Section 1320.8(d), title 5, Code of Federal Regulations requires that RSPA provide interested members of the public and affected agencies an opportunity to comment on information collection and recordkeeping requests. This notice identifies a new information collection request that RSPA will submit to OMB for approval based on the requirements in this proposed rule.

RSPA has developed revised burden estimates to reflect changes in this proposed rule. RSPA estimates that, based on the proposals to in this rule, the current information collection burden for ''Testing Requirements for Non-Bulk Packaging'' will be as follows: ''Testing Requirements for Non-Bulk Packaging''

OMB Number: 2137–0572.

Total Annual Number of Respondents: 5,010.

Total Annual Responses: 15,500.

Total Annual Burden Hours: 32,500.

Total Annual Burden Cost: $812,500.00.

Requests for a copy of this information collection should be directed to Deborah Boothe or T. Glenn Foster, Office of Hazardous Materials Standards (DHM–10), Research and Special Programs Administration, Room 8422, 400 Seventh Street, SW., Washington, DC 20590–0001, Telephone (202) 366–8553.

Written comments should be addressed to the Dockets Unit as identified in the **ADDRESSES** section of this rulemaking. We must receive comments regarding information collection burdens prior to the close of the comment period identified in the DATES section of this rulemaking. Under the Paperwork Reduction Act of 1995, no person is required to respond to an information collection unless it displays a valid OMB control number.

G. Environmental Assessment

The National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321–4347) requires Federal agencies to consider the consequences of major Federal actions and prepare a detailed statement on actions significantly affecting the quality of the human environment. RSPA developed an assessment to consider the effects of these revisions on the environment and determine whether a more comprehensive environmental impact statement may be required. We have tentatively concluded that there are no significant environmental impacts associated with this proposed rule. Interested parties, however, are invited to review the Preliminary Environmental Assessment available in the docket and to comment on what environmental impact, if any, the proposed regulatory changes would have.

H. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

I. Privacy Act

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, *etc.*). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78) or you may visit *http://dms.dot.gov.*

J. International Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and where appropriate, that they be the basis for U.S. standards.

The proposed rule is not expected to affect trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States. Furthermore, the proposed rule is consistent with the terms of several trade agreements to which the United States is a signatory, such as the Trade Agreement Act of 1979 (19 U.S.C. 2501 *et seq.*), incorporating the Agreement on Trade in Civil Aircraft (31 U.S.T. 619) and the Agreement on Technical Barriers to Trade (Standards) (19 U.S.C. 2531). The proposed rule is also consistent with 49 U.S.C. 40105, formerly 1102 (a) of the Federal Aviation Act of 1958, as amended, which requires the RSPA to exercise and perform its powers and duties consistently with any obligation assumed by the United States in any agreement that may be in force between the United States and any foreign country or countries.

List of Subjects

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste, Imports, Reporting and recordkeeping requirements.

49 CFR Part 172

Education, Hazardous materials transportation, Hazardous waste, Labeling, Markings, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 173

Hazardous materials transportation, Packaging and containers, Radioactive materials, Reporting and recordkeeping requirements, Uranium.

49 CFR Part 175

Air Carriers, Hazardous materials transportation, Radioactive materials, Reporting and recordkeeping requirements.

49 CFR Part 178

Hazardous materials transportation, Motor vehicle safety, Packaging and containers, Reporting and recordkeeping requirements.

In consideration of the foregoing, we propose to amend 49 CFR chapter I as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. The authority citation for part 171 is revised to read as follows:

Authority: 49 U.S.C. 5101–5127; 44701; 49 CFR 1.53.

2. In § 171.11, paragraph (d)(16) is revised to read as follows:

§ 171.11 Use of ICAO Technical Instructions.

* * * * *

(d) * * *

(16) A package containing Oxygen, compressed, must be packaged as required by Parts 173 and 178 of this subchapter.

* * * * *

PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS, HAZARDOUS MATERIALS COMMUNICATIONS, EMERGENCY RESPONSE INFORMATION, AND TRAINING REQUIREMENTS

3. The authority citation for part 172 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

§ 172.101 [Amended]

4. In the Hazardous Materials Table in § 172.101, for the shipping name "Air, refrigerated liquid, (cryogenic liquid)," Column (9B) is revised to read "Forbidden."

5. In the Hazardous Materials Table in § 172.101, for the shipping names "Carbon dioxide and oxygen mixtures, compressed," "Compressed gas, oxidizing, n.o.s.," "Liquified gas, oxidizing, n.o.s.," "Nitrogen trifluoride," and "Nitrous Oxide," Columns (9A) and (9B) are revised to read "Forbidden,".

5a. In the Hazardous Materials Table in § 172.101, for the shipping name "Oxygen, compressed", in column (7), Special Provision "A52" is removed.

6. In the Hazardous Materials Table in § 172.101, for the shipping name "Oxygen generator, chemical," in Column (7), Special Provisions "60, A51" is removed and Column (8B) is revised to read "168."

§ 172.102 [Amended]

7. In § 172.102, in paragraph (c)(1), Special Provisions "60" is removed.

8. In § 172.102, in paragraph (c)(2), Special Provisions "A51" and "A52" are removed.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

9. The authority citation for part 173 continues to read as follows:

Authority: 49 U.S.C. 5101–5127, 44701; 49 CFR 1.45, 1.53.

10. Section 173.168 is added to read as follows:

§ 173.168 Chemical oxygen generators.

An oxygen generator, chemical (defined in § 171.8 of this subchapter) may be transported only under the following conditions:

(a) *Approval.* A chemical oxygen generator that is shipped with a means of initiation attached must be classed and approved by the Associate Administrator for Hazardous Materials Safety in accordance with the procedures specified in § 173.56 of this subchapter. The approval number must be placed on the shipping paper, in association with the basic description required by § 172.202(a) of this subchapter, required to accompany a chemical oxygen generator in transportation.

(b) *Impact resistance.* A chemical oxygen generator, without any packaging, must be capable of withstanding a 1.8 meter drop onto a rigid, non-resilient, flat and horizontal surface, in the position most likely to cause damage, actuation or loss of contents.

(c) *Protection against inadvertent activation.* A chemical oxygen generator must incorporate one of the following means of preventing inadvertent actuation:

(1) For a chemical oxygen generator that is not installed in protective breathing equipment (PBE):

(i) Mechanically actuated devices:

(A) Two pins, installed so that each is independently capable of preventing the actuator from striking the primer;

(B) One pin and one retaining ring, each installed so that each is independently capable of preventing the actuator from striking the primer; or

(C) A cover securely installed over the primer and a pin installed so as to prevent the actuator from striking the primer and cover.

(ii) Electrically actuated devices: The electrical leads must be mechanically shorted and the mechanical short must be shielded in metal foil.

(iii) Devices with a primer but no actuator: A chemical oxygen generator that has a primer but no actuating mechanism must have a protective cover over the primer to prevent actuation from external impact.

(2) A chemical oxygen generator installed in a PBE must contain a pin installed so as to prevent the actuator from striking the primer, and be placed in a protective bag, pouch, case or cover such that the protective breathing equipment is fully enclosed in such a manner that the protective bag, pouch, case or cover prevents unintentional actuation of the oxygen generator.

(d) *Packaging.* A chemical oxygen generator and a chemical oxygen generator installed in equipment, (*e.g.*, a PBE) must be placed in a rigid packaging that—

(1) Conforms to the requirements of either:

(i) Part 178, subparts L and M, of this subchapter at the Packing Group I or II performance level; or

(ii) The performance criteria in Air Transport Association (ATA) Specification No. 300 for a Category I Shipping Container.

(2) With its contents, is capable of meeting the following additional requirements when transported by cargo-only aircraft:

(i) The Flame Penetration Resistance Test in Part III of Appendix F to 14 CFR Part 25, modified as follows:

(A) At least three specimens of the outer packaging materials must be tested;

(B) Each test must be conducted on a flat 16 inch x 24 inch test specimen mounted in the horizontal ceiling position of the test apparatus to represent the outer packaging design;

(C) Testing must be conducted on all design features (latches, seams, hinges, *etc.*) affecting the ability of the overpack to safely prevent the passage of fire in the horizontal ceiling position; and

(D) There must be no flame penetration of any specimen within 5 minutes after application of the flame source and the maximum allowable temperature at a point 4 inches above the test specimen, centered over the burner cone must not exceed 205 °C (400 °F).

(ii) The Thermal Resistance Test specified in Appendix D to part 178 of this subchapter.

(iii) Prevents all of the following conditions from occurring when one generator in the package is actuated:

(A) Actuation of other generators in the package;

(B) Ignition of the packaging materials; and

(C) A temperature above 100 °C (212 °F) on the outside surface temperature of the package.

(iv) Has all its features in good condition, including all latches, hinges, seams, and other features, and is free from perforations, cracks, dents, or other abrasions that may negatively affect the flame penetration resistance and thermal resistance, verified by a visual inspection of the package before each shipment.

(e) *Equipment marking.* The outside surface of a chemical oxygen generator must be marked to indicate the presence of an oxygen generator (*e.g.*, ''oxygen generator, chemical''). The outside surface of equipment containing a chemical oxygen generator that is not readily apparent (*e.g.*, a sealed passenger service unit) must be clearly marked to indicate the presence of the oxygen generator (example: ''Oxygen Generator Inside'').

(f) *Items forbidden in air transportation.*

(1) A chemical oxygen generator is forbidden for transportation on board a passenger-carrying aircraft.

(2) A chemical oxygen generator is forbidden for transportation by both passenger-carrying and cargo-only aircraft after (i) the manufacturer's expiration date, or (ii) the contents of the generator have been expended.

11. In § 173.302a, paragraph (e) is added to read as follows:

§ 173.302a Additional requirements for shipment of nonliquefied (permanent) compressed gases in specification cylinders.

* * * * *

(e) *Oxygen, compressed.* A cylinder containing compressed oxygen is authorized for transportation by aircraft only when it meets the following requirements:

(1) Only DOT specification 3A, 3AA, 3AL, and 3HT cylinders are authorized.

(2) Cylinders must be equipped with a pressure relief device (PRD) in accordance with § 173.301(f) except that the rated burst pressure of a rupture disc for DOT 3A, 3AA, and 3AL cylinders must be 100% of the cylinder minimum test pressure and DOT 3HT cylinders must be equipped with a rupture disc type PRD only. The allowable tolerance of a PRD must be −10 to zero percent of the cylinder minimum test pressure.

(3) The cylinder must be placed in a rigid outer packaging that—

(i) Conforms to the requirements of part 178 of this subchapter at the Packing Group I or II performance level or to the performance criteria in Air Transport Association (ATA) Specification 300 for a Category I Shipping Container;

(ii) Is capable of passing, as demonstrated by design testing, the Flame Penetration Resistance Test in Part III of Appendix F to 14 CFR Part 25, modified as follows:

(A) At least three specimens of oxygen cylinder outer packaging materials must be tested;

(B) Each test must be conducted on a flat 16 inch x 24 inch test specimen mounted in the horizontal ceiling position of the test apparatus to represent the overpack design;

(C) Testing must be conducted on all design features (latches, seams, hinges, etc.) affecting the ability of the overpack to safely prevent the passage of fire in the horizontal ceiling position; and

(D) There must be no flame penetration of any specimen within 5 minutes after application of the flame source and the maximum allowable temperature at a point 4 inches above the test specimen, centered over the burner cone must not exceed 205 °C (400 °F); and

(iii) Prior to each shipment, passes a visual inspection that verifies that all features of the packaging are in good condition, including all latches, hinges, seams, and other features, and is free from perforations, cracks, dents, or other abrasions that may negatively affect the flame penetration resistance and thermal resistance performance characteristics of the container.

(4) The cylinder and the outer packaging must be capable of passing, as demonstrated by design testing, the Thermal Resistance Test specified in Appendix D to part 178 of this subchapter.

(5) The cylinder and the outer packaging must both be marked and labeled in accordance with part 172, subparts D and E of this subchapter.

(6) A cylinder of compressed oxygen that has been furnished by an aircraft operator to a passenger in accordance with 14 CFR 121.574 is excepted from the outer packaging requirements of paragraph (e)(3).

PART 175—CARRIAGE BY AIRCRAFT

12. The authority citation for part 175 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

13. In § 175.10, paragraphs (b)(2), (b)(3) and (b)(5)(i) are revised to read as follows:

§ 175.10 Exceptions.

* * * * *

(b) * * *

(2) The rated capacity of each cylinder may not exceed 1,000 L (34 cubic feet);

(3) Each cylinder must conform to the provisions of this subchapter and be placed in:

(i) An outer packaging that conforms to the performance criteria of Air Transport Association (ATA) Specification 300 for a Category I Shipping Container; or

(ii) A metal, plastic or wood outer packaging that conforms to a UN standard at the Packing Group II performance level.

* * * * *

(5) * * *

(i) Section 173.302(e) of this subchapter, subpart C of part 172 of this subchapter, and, for passengers only, subpart H of part 172 of this subchapter.

* * * * *

14. In § 175.85, paragraph (h) is revised and paragraph (i) is removed to read as follows:

§ 175.85 Cargo location.

* * * * *

(h) Except for Oxygen, compressed, no person may load or transport a hazardous material for which an OXIDIZER label is required under this subchapter in an inaccessible cargo compartment that does not have a fire or smoke detection system and a fire suppression system.

PART 178—SPECIFICATIONS FOR PACKAGINGS

15. The authority citation for part 178 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

16. A new appendix D to part 178 is added to read as follows:

Appendix D to Part 178—Thermal Resistance Test

1. Scope. This test method evaluates the thermal resistance capabilities of an outer packaging for a cylinder of compressed oxygen and an oxygen generator. When exposed to a temperature of 205 °C (400 °F) for a period of not less than three hours, the outer surface of the enclosed cylinder may not exceed a temperature of 93 °C (199 °F) and the enclosed oxygen generator must not actuate.

2. Apparatus.

2.1 Test Oven. The oven must be large enough in size to fully house the test outer package without clearance problems. The test oven must be capable of reaching a minimum steady state temperature of 205 °C (400 °F) and must be capable of raising the temperature at a rate no less than 28 °C (50 °F) per minute.

2.2 Thermocouples. At least three thermocouples must be used to monitor the temperature inside the oven and an additional three thermocouples must be used to monitor the temperature of the cylinder. The thermocouples must be 1/16 inch, ceramic packed, metal sheathed, type K (Chromel-Alumel), grounded junction with a nominal 30 American wire gauge (AWG) size conductor. The thermocouples measuring the temperature inside the oven must be placed at varying heights to ensure even temperature and proper heat-soak conditions. For the thermocouples measuring the temperature of the cylinder: (1) two of them must be placed on the outer cylinder side wall at approximately 2 inches (5cm) from the top and bottom shoulders of the cylinder; and (2) one must be placed on the cylinder valve body near the pressure relief device.

2.3 Instrumentation. A calibrated recording device or a computerized data acquisition system with an appropriate range should be provided to measure and record the outputs of the thermocouples.

3. Test Specimen.

3.1 Specimen Configuration. Each outer package material type and design must be tested, including any features such as handles, latches, fastening systems, *etc.*, that may compromise the ability of the outer package to provide thermal protection.

3.2 Test Specimen Mounting. The tested outer package must be supported at the four corners using fire brick or other suitable means. The entire bottom surface of the outer package must be exposed to allow exposure to heat.

4. Preparation for Testing.

4.1 The cylinder must be empty of all gas and configured as when filled with a valve and pressure relief device. The oxygen generator must be filled and packaged in the manner that it will be transported.

4.2 Place the package onto supporting bricks or a stand inside the test oven, making certain that suitable clearance is available on all sides of the outer package.

4.3 Pass the thermocouple wires through an access port in the test oven to the appropriate data collection apparatus to continuously monitor the oven temperature.

5. Test Procedure.

5.1 Close oven door and check for proper reading on thermocouples.

5.2 Raise the temperature of the oven at a rate no less than 28 °C (50 °F) per minute to a minimum temperature of 205 °C (400 °F). Maintain a minimum oven temperature of 205 °C (400 °F) for at least three hours. Exposure time begins when the oven steady state temperature reaches a minimum of 205 °C (400 °F).

5.3 At the conclusion of the three-hour period, the outer package may be removed from the oven and allowed to cool naturally.

6. Report.

6.1 Report a complete description of the material being tested, including the manufacturer, size of cylinder, *etc.*

6.2 Record any observations regarding the behavior of the test specimen during exposure, such as smoke production, delamination, resin ignition, and time of occurrence of each event.

6.3 Report the temperature and time history of the cylinder temperature during the entire test for each thermocouple location. Temperature measurements must be recorded at intervals of not more than five (5) minutes. Report the maximum temperatures achieved at all three thermocouple locations and the corresponding time.

7. Requirements.

7.1 For a cylinder, the outer package must provide adequate protection such that the outer surface of the cylinder and valve does not exceed a temperature of 93°C (199°F) at any of the three points where the thermocouples are located.

7.2 For an oxygen generator, the outer packaging must provide adequate protection such that the oxygen generator does not actuate.

Issued in Washington, DC, on April 28, 2004, under authority delegated in 49 CFR part 106.

Robert A. McGuire,

Associate Administrator for Hazardous Materials Safety.

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