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Air Bag Inflators and Modules for Passive Restraint Systems; Conversion of Individual Exemptions Into Regulations of General Applicability; Proposed Rule

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 172 and 173

[Docket No. HM-139H; Notice No. 90-3]

RIN 2137-AA44

Air Bag Inflators and Air Bag Modules for Passive Restraint Systems; Conversion of Individual Exemptions into Regulations of General Applicability

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

ACTION: Notice of proposed rulemaking.

SUMMARY: RSPA is proposing to amend the Hazardous Materials Regulations (HMR; 49 CFR parts 171–180) governing the transportation of air bag inflators and air bag modules, which are vehicular components in certain passive restraint systems. This proposal, based on a petition for rulemaking (P-1054) filed by the Motor Vehicle Manufacturers Association of the United States, Inc. (MVMA), would provide for transportation of these components under provisions contained in the HMR rather than under the exemption program. The intended effect of this action is to simplify transportation of these components by eliminating the need for exemptions, thus reducing processing costs, paperwork and time delays.

DATES: Comments must be received by April 12, 1990.

ADDRESSES: Address comments to Dockets Unit, Office of Hazardous Materials Transportation, Washington, DC 20590. Comments should be submitted, when possible, in five copies and should identify the docket. Persons wishing to receive confirmation of receipt of their comments should include a self-addressed stamped postcard. The Dockets Unit is located in room 8421 of the Nassif Building, 400 Seventh Street SW., Washington, DC 20590. Office hours are 8:30 a.m. to 5 p.m., Monday through Friday, except public holidays.

FOR FURTHER INFORMATION CONTACT: Charles Schultz, (202) 366–4545, Technical Division; or Hattie L. Mitchell, (202) 366–4488, Standards Division, Office of Hazardous Materials Transportation, Research and Special Programs Administration, U.S. Department of Transportation, Washington, DC 20590.

SUPPLEMENTARY INFORMATION:

I. Background

An air bag module is a complete assembly, consisting of an inflatable air bag and an inflator. This assembly is part of a passive restraint system mounted in the steering wheel or glove compartment of an automobile and is activated when the vehicle is subjected to a predetermined level of impact. The air bag inflator has three major components; namely, a main gas generant, a booster material and an igniter. The booster material and gas generant are typically class B propellant explosives. The igniter is typically a class C explosive.

Under the requirements in the HMR, an air bag inflator or an air bag module is described and classed as an explosive power device, class C or B, depending on its size. Except as specifically provided in § 173.86, the HMR require that all new explosives be examined and assigned a recommended shipping description and hazard class by the Department of the Interior's Bureau of Mines (BOM) or the Association of American Railroads' Bureau of Explosives (BOE), prior to their being classed and approved for transportation by the Director, Office of Hazardous Materials Transportation (OHMT). A "new explosive," as defined in § 173.86(a)(2), means an explosive compound, mixture or device, produced by a person who (1) has not previously produced that explosive compound, mixture or device; or (2) has previously produced the explosive compound, mixture or device but has made a change in the formulation, design, process or production equipment.

Under the terms of an exemption, air bag inflators and air bag modules may be classed as flammable solids for transportation in the United States when the complete package has been examined for that hazard class by the BOE or BOM and approved by the Director, OHMT. Exemption of these devices is based on extensive testing performed on air bag inflators and modules; i.e., bonfire test, initiation of the devices, etc. Since 1968, RSPA has issued five exemptions authorizing the transportation of air bag inflators and modules as flammable solids. These exemptions are DOT-E 8214, E 8236, E 8273, E 9066, and E 10086. All transportation of these devices as flammable solids in the United States are under exemption. RSPA issued another exemption, DOT-E 10103, which authorizes transportation of certain air bag modules, installed in automobile steering assemblies and packaged in accordance with the terms and conditions prescribed in the exemption, without being subject to the other requirements of the HMR. No incidents have been reported to RSPA involving transportation of these devices under the subject exemptions.

The MVMA has petitioned RSPA to amend the HMR to provide relief from the constraints of the DOT exemption process, and partial relief from the approval process for transportation of air bag inflators and modules. The MVMA petition requests that RSPA: (1) Add an entry of "Air bag module *or* air bag inflator assembly" in the Hazardous Materials Table, in § 172.101, with a corresponding hazard class of flammable solid; (2) Remove the requirement that sodium azide-based air bag modules and inflator assemblies must be examined by the BOE or BOM as a "new" explosive for each package modification, and; (3) Add requirements to allow air bag modules and inflators to be packaged in bulk quantities and be transported in all modes.

In its petition, MVMA stated, in part:

> During the initial development of the sodium azide-based inflator technology, review by the BOE or BOM of each modification and assignment by DOT of a separate exemption to each manufacturer may have been necessary to ensure this new technology did not present a hazard during transportation. However, 20 years of experience with the technology has demonstrated the manufacturers' ability to construct modules and inflators with exceptional reliability in handling and shipping.
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> The sodium azide-based technology used today, is basically the same as that developed in the late 1960s and 1970s; however, enhancements have increased the safety and reliability of the inflators and modules. Improvements in the air bag systems have all but eliminated the potential of inadvertent deployment due to electromagnetic or radio frequency interference. When inflator housings began to be made of aluminum, an autoignition capability was added to improve safety in case of fire.
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> Since the earliest development programs, many tests have been conducted and documented to improve and ensure the safety of the inflators and air bag modules, both installed in vehicles and as unassembled devices being handled and transported. The inflator/module is required to undergo strict design and construction validation tests as specified by the individual motor vehicle manufacturers and/or inflator manufacturers. These tests include various combinations of high and low temperature conditioning; high humidity soaks; vibration and shock (drop) treatment and high altitude simulations. These are nondestructive tests, designed to provide extreme conditioning without deployment or loss of structural integrity. Upon subsequent deployment, the conditioned hardware is expected to demonstrate performance to clearly defined

standards. Other tests conducted on the inflator and components to safeguard against inadvertent deployment include electrostatic and radio frequency interference tests. Bonfire testing is required on the inflators and/or modules to demonstrate that gas generation occurs prior to loss of structural integrity of the housing.

Since initial development in the late 1960s, nearly one-half million modules or inflator assemblies have been shipped under exemptions and approvals issued by your office. To our knowledge, there have been no inadvertent deployments during handling or shipping of either inflator assemblies or modules.

Because of the superior safety record and the extensive industry testing program, MVMA believes the regulation in transport of sodium azide-based air bag modules and inflator assemblies can be greatly simplified while providing an equivalent level of public safety.

One reason for MVMA's concern that these devices be transported under regulations of general applicability is the automotive industry's projection that as many as 3 million U.S.-manufactured cars may be equipped with air bags in 1990. This figure represents a substantial increase from the approximately 400,000 air bags installed in 1989 model cars. Beginning in the 1990 model year, all passenger cars sold in the United States are required under regulations issued by DOT's National Highway Traffic Safety Administration to be equipped with automatic restraints, consisting of either an air bag combined with a manual seat belt or an automatic motorized seat belt.

Based on the satisfactory transportation safety record that air bag inflators and modules have had over the past 20 years, RSPA agrees with the MVMA that consideration should be given to simplifying the process for shipment of these devices. However, RSPA finds that conversion of the exemptions into regulations of general applicability, as suggested by the MVMA, poses certain regulatory problems. First, RSPA does not agree with MVMA's suggestion that any inflator containing no more than 2 grams of ignition material, 140 grams of boostering materials or enhancers, and 850 grams of sodium azide-based propellant as the primary gas generant be classed as a flammable solid without examination by the BOM or BOE. These devices would currently be classed for transportation by RSPA as class C or B explosives, depending on the size of the individual device. Generally, devices containing over 500 grams of sodium azide gas generant are class B explosives. Under the terms and conditions of an exemption, RSPA authorizes the transcrtation of these devices as flammable solids based on an examination and review of the test results on the complete package, thus allowing shippers to transport the devices under less restricitve provisions. RSPA relies heavily on the BOM or BOE examination report to reclassify the complete package as a flammable solid.

Second, MVMA based its case for amending the requirements pertaining to air bag inflators and air bag modules on the fact that sodium azide-based gas generators have undergone many documented tests to ensure their safety and reliability when installed in vehicles, and as unassembled devices being handled and transported. While this line of reasoning may be true for the presently approved sodium azide-based devices, RSPA believes that other types of propellants and configurations will be considered for use in the future. MVMA's petition contains no proposal to ensure the continued use of safe designs and contains no safety measures or criteria for evaluation and testing of other types of gas generating materials. Accordingly, RSPA is proposing in this notice to retain the requirement that air bag inflators or air bag modules be examined by the BOE or BOM and be classed and approved for transportation by the Director, OHMT. However, the need for an exemption to reclassify these devices as flammable solids will no longer be necessary. Under this proposal, procedures for obtaining approval of these devices would be as follows:

1. Under the explosive approval provisions in § 173.86, a manufacturer would have the inflator or the module examined by the BOM or BOE and then submit a written application for approval of the device to the Director, OHMT. If a manufacturer obtains approval for an inflator and later attaches it to an air bag, the module becomes a new device requiring a new approval. However, unlike the inflator, which must be examined by the BOM or BOE, the module may be approved by the Director, OHMT, without additional examination if an applicant submits a complete, written application to the Director, OHMT. Any written application for the module should contain a detailed description of the device, including size, design, chemical composition (including a list of formulas), a master drawing showing location of all components, test results, the EX-number approval letter on the original inflator or module, if applicable, and copies of all other relevant background data for processing the approval request. To facilitate variations in the design, without the need for a new approval, the application data should be based on the maximum parameters of each particular design type for which approval is sought. The manufacturer will be issued one EX-number approval for the inflator and another EX-number approval for the module, as they are considered two different explosive devices. The approval will be based on the maximum parameters for which approval was sought. This will allow manufacturers to make certain changes in their device, for example, changes in the weights of the components or changes in hardware not affecting the safety of the units. If a manufacturer finds it questionable whether a change in formula or packaging is within the parameters of the approved design, details on the change may be submitted to RSPA for a determination on whether the modified device must be re-examined by the BOM or BOE. Any change in formula or packaging not within the parameters of the approved design is subject to the examination and approval provisions in § 173.86.

2. An applicant may seek approval for classification of an air bag inflator or an air bag module as a flammable solid in accordance with the provisions of § 173.199(b). In addition to the information outlined in item 1 above, the application should contain detailed information on the packaging intended for use in shipping the devices or, if unpackaged, on the handling system. Except when transported by aircraft, no quantity or weight restrictions would be imposed on the transportation of these devices as flammable solids.

RSPA believes these proposed provisions are needed to ensure package integrity, and to ensure the continued safe handling and transportation of these devices. RSPA believes all devices currently being manufactured would qualify for transportation in the United States as flammable solids or class C explosives. However, RSPA solicits comments on the accuracy of these assumptions and on whether there is a need to provide for the transportation of some of these devices as class B explosives. In addition, it should be noted that, irrespective of DOT approvals classifying these devices as flammable solids, these devices continue to be classed as explosives under the provisions of the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerious Goods by Air (ICAO Technical Instructions) and the International Maritime Organization's International Maritime Dangerous Goods Code (IMDG Code).

II. Review by Section

Section 172.101. The Hazardous Materials Table would be amended by adding two entries, "Air bag inflators or Air bag modules (for passive restraint systems)." One would appear with an identification number "NA 1325" and a corresponding hazard class of flammable solid, and the other with a corresponding hazard class of class C explosive.

Section 173.102. This section would be revised to provide for the transportation of air bag inflators and air bag modules as class C explosives.

Section 173.199. A new § 173.199 would authorize air bag inflaters and modules to be classed as flammable solids after the complete package or handling system has been examined by the BCE or BOM and approved by the Director, OHMT. There would be no quantity or weight restrictions on the transportation of these devices, except when transported by aircraft.

III. Adminstrative Notices

A. Executive Order 12291

Based on information available concerning size and nature of entities likely to be affected, RSPA has determined that this rulemaking (1) is not "major" under Executive Order 12291; (2) is not "significant" under DOT Regulatory Policies and Procedures (44 FR 11034); (3) will not affect not-for-profit enterprises, or small governmental jurisdictions; and (4) does not require an environmental impact statement under the National Environmental Policy Act [42 U.S.C. 4321 *et seq.*]. A regulatory evaluation is available for review in the docket.

B. Executive Order 12612

I have reviewed this proposed rule in accordance with Executive Order 12612 ("Federalism") and have determined it has no substantial direct effects on the States, on the Federal-State relationship or on the distribution of power and responsibilities among levels of government. Thus, this proposed rule contains no policies that have Federalism implications, as defined in Executive Order 12612.

C. Impact on Small Entities

I certify that the proposed regulation will not have a significant economic impact on a substantial number of small entities under criteria of the Regulatory Flexibility Act.

D. Paperwork Reduction Act

Information collection requirements contained in current § 173.86 pertaining to new explosives have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 [44 U.S.C. 3504(h)] and assigned control number, OMB No. 2137-0557. The information requirement contained in proposed § 173.199 is being submitted to OMB for review. Comments on the collection of information should be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, Attention: Desk Officer for the Department of Transportation. All comments must reference the title for this notice, "Air Bag Inflators and Air Bag Modules for Passive Restraint Systems."

IV. List of Subjects

49 CFR Part 172

Hazardous materials transportation.

49 CFR Part 173

Hazardous materials transportation and Packagings.

In consideration of the foregoing, 49 CFR parts 172 and 173 would be amended as follows:

PART 172—HAZARDOUS MATERIALS TABLES, HAZARDOUS MATERIALS COMMUNICATIONS REQUIREMENTS AND EMERGENCY RESPONSE INFORMATION REQUIREMENTS

1. The authority citation for part 172 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1808; 49 CFR part 1.

2. In § 172.101, the Hazardous Materials Table would be amended by adding entries, in alphabetical sequence, to read as follows:

§ 172.101 Hazardous Material Table.

* * * * *

+ AW	Hazardous materials descriptions and proper shipping names	Hazard Class	Identification number	Label(s) required (if not excepted)	Packaging		Maximum net quantity in one package		Water Shipments		
					Exceptions	Specific requirements	Passenger carrying aircraft or railcar	Cargo only aircraft	Cargo vessel	Passenger vessel	Other requirements
(1)	(2)	(3)	(3A)	(4)	5(a)	5(b)	6(a)	6(b)	7(a)	7(b)	7(c)
	* * *										
	Air bag inflators *or* Air bag modules *(for passive restraint systems).*	Class C Explosive.		Explosive C.....	173.102	173.102	50 pounds.....	150 pounds...	1,3	5	
	Air bag inflators *or* Air bag modules *(for passive restraint systems).*	Flammable Solid.	NA 1325	Flammable Solid.	173.199	173.199	50 pounds.....	150 pounds...	1,2	1,2	
	* * *										

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

3. The authority citation for part 173 would continue to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1807, 1808; 49 CFR part 1.

4. In § 173.100, paragraph (jj) would be added to read as follows:

§ 173.100 Definition of Class C Explosives.

* * * * *

(jj) Air bag inflator (consisting of a casing containing a main gas generant, a booster material and an igniter) is a gas generator used to inflate an air bag in a passive restraint system in a motor vehicle. An air bag module is the inflator plus an inflatable bag.

5. Section 173.102 would be revised to read as follows:

§ 173.102 Explosive cable cutters, explosive power devices, explosive release devices, starter cartridges (jet engine), air bag inflators or air bag modules (for passive restraint systems); Class C explosives.

(a) *Packagings:* Class C explosives covered by this section must be securely packaged as follows:

(1) In specification 12H, 23F, or 23H (§§ 178.209, 178.214 or § 178.219 of this chapter) fiberboard boxes. The gross weight of each package may not exceed 65 pounds.

(2) In strong wooden or metal boxes.

(b) Electrical contacts for ignition and lead wires, when present, must be short-circuited.

(c) *Marking:* In addition to meeting the marking requirements in Subpart D of Part 172 of this chapter, each package must be plainly marked "HANDLE CAREFULLY—KEEP FIRE AWAY."

(d) *Exceptions:* Under the provisions of § 173.86(i), the Director, OHMT may revise the classification for a device or except the device from the requirements of this subchapter. See § 173.199 for an air inflator or air bag module which has been classed as a flammable solid.

6. A new § 173.199 would be added to read as follows:

§ 173.199 Air bag inflators or air bag modules (for passive restraint systems).

(a) *Definitions:* An air bag inflator (consisting of a casing containing a main gas generant, a booster material and an igniter) is a gas generator used to inflate an air bag in a passive restraint system in a motor vehicle. An air bag module is the inflator plus an inflatable bag.

(b) *Classification and packaging:* Under the provisions of § 173.86(i), an air bag inflator or air bag module may be classed as a flammable solid when the complete package or, if unpackaged, the handling system has been examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. The package or handling system used must conform with the terms and conditions prescribed in the approval. (NOTE: Notwithstanding classification of air bag inflators or air bag modules as flammable solids by the Director, OHMT, these devices are classed as explosives under the provisions of the ICAO Technical Instructions and the IMDG Code).

(c) *Exceptions:* (1) The Director, OHMT, may except certain air bag inflators or air bag modules from the requirements of this subchapter in the same manner as provided for explosives under § 173.86(i).

(2) An air bag module that has been approved by the Director, OHMT, and is installed in a motor vehicle is not subject to the requirements of this subchapter.

Issued in Washington, DC, on February 20, 1990, under authority delegated in 49 CFR part 106, Appendix A.

Alan I. Roberts,

Director, Office of Hazardous Materials Transportation.

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