



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

**April 17, 2025**

1200 New Jersey Avenue, SE  
Washington, DC 20590

DOT-SP 21344  
(FIRST REVISION)

**EXPIRATION DATE: 2029-03-31**

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: ZF Dongfang Automotive Safety Technology (Xi'an) Co., Ltd.  
Xian, China

US AGENT: ZF Passive Safety Systems  
Washington, MI

2. PURPOSE AND LIMITATIONS:

- a. This special permit authorizes the manufacture, mark, sale, and use of non-DOT specification pressure vessels for use as components of automobile safety systems. The pressure vessels, charged with non-toxic, non-liquefied gases, are authorized for transportation in commerce subject to requirements and limitations specified herein. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.

- b. FIFTEEN YEAR TRANSPORTATION AUTHORIZATION: This special permit authorizes transportation of the pressure vessels identified herein for up to fifteen years from the date of manufacture. This limitation does not apply to non-specification pressure vessels when installed in air bag modules or when shipped to a metal recycler. This special permit provides no certification of safety for end use environments and life cycles.

- c. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, incorporation as a component of a vehicle or other device, or other uses not associated with transportation in commerce.

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- d. In accordance with 49 CFR 107.107(a), party status may not be granted to a manufacturing special permit. These packagings may be used in accordance with 49 CFR 173.22a.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.301(h) and 173.302(a)(1) in that non-DOT specification cylinders are not authorized, except as specified herein.
5. BASIS: This special permit is based on the application of ZF Dongfang Automotive Safety Technology (Xi'an) Co., Ltd. dated December 6, 2024, submitted in accordance with § 107.109.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Articles, pyrotechnic for technical purposes	1.4G	UN0431	N/A
Non-toxic, flammable non-liquefied gases and mixtures thereof/ Proper shipping name as specified in §172.101	2.1	As appropriate	N/A
Non-toxic, non-flammable non-liquefied gases and mixtures thereof/ Proper shipping name as specified in §172.101	2.2	As appropriate	N/A
Safety devices, electrically initiated	9	UN3268	N/A
Safety devices, pyrotechnic	1.4G	UN0503	N/A

Notes:

1. Under this special permit, the use of these proper shipping names is limited to devices used as air bag inflators or seatbelt pretensioners.
2. A component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in § 173.56 of the HMR. If the pyrotechnic material augments

the volume of the gas in the pressure vessel, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration as when shipped.

3. Safety devices, electrically initiated may be designated as Class 9 in accordance with § 173.166(b)(1).

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is a non-DOT specification pressure vessel meeting the following requirements:

(1) The maximum service pressure at 70 °F may not exceed 12,000 p.s.i. The minimum test pressure is the pressure of the contents at 200 °F. The rated service pressure may not exceed 80 percent of the test pressure and the water volume of each pressure vessel may not exceed one liter. The term “pressure of contents” as used in this special permit means the total pressure of all the materials to be shipped in the cylinder.

(2) Material of construction must conform to all requirements of § 178.65(b) except that aluminum is limited to Alloy 6061 of T6 temper.

(3) Manufacturing requirements must conform to all requirements of § 178.65(c), except that the welding of attachments to the cylinder sidewall after proof pressure testing is authorized. Welding must be performed in accordance with the Welding System Assessment Guidelines that are included in the Automotive Industry Action Group’s (AIAG) CQI-15 document on file with Office of Hazardous Materials Safety. The AIAG document must be available to the Independent Inspector to verify the welding parameters, quality assurance measures and test results.

(4) The minimum wall thickness must be such that the wall stress meets the requirements of § 178.65(d).

(5) Openings and attachments must conform to all requirements of § 178.65(e), except that:

(i) § 178.65(e)(1): Sidewall openings and attachments are authorized, provided the openings and attachments are not detrimental to the cylinder’s structural integrity. The burst performance of the cylinder shall not be less than 95% of the same cylinder design without attachments. In all cases, the burst pressure must meet the criteria of paragraph 7.b(4). This must be demonstrated through certification by the Independent Inspection Agency as provided in paragraph 8.d.

(ii) The diameter of the circle as referenced in § 178.65(e)(2) may not exceed 90%.

(6) Each pressure vessel must be equipped with a pressure relief device designed to meet all the requirements for a rupture disk prescribed in the Compressed Gas Association (CGA) Pamphlet S-1.1. The pressure relief device must be capable of preventing rupture of the pressure vessel when subjected to fire test conducted in accordance with CGA Pamphlet C-14.

b. TESTING:

(1) Each pressure vessel must be tested as required in § 178.65(f), except that:

(i) Each cylinder must be tested at an internal pressure of at least the test pressure and must be held at that pressure for at least 30 seconds. The hold time may be reduced to that which is adequate to ensure compliance with the requirements contained in § 178.65(f)(1)(i) through § 178.65(f)(1)(iii); and

(ii) The maximum duration of the shift specified in § 178.65(f)(3) may be extended beyond 10 hours at the discretion of the independent inspector.

(2) The flattening test specified in § 178.65(g) is not required.

c. SAFETY CONTROL MEASURES:

(1) A representative pressure vessel, packaged as it would be for shipment, must be activated and no materials other than non-toxic, non-flammable vapors or gases may be expelled from the package.

(2) A cylinder with an outside diameter less than 2 inches may burst at a location other than that specified in § 178.65(f)(2)(ii) and (iii).

d. MARKING: Each pressure vessel must be durably marked as follows:

DOT-SP 21344/12000<sup>1</sup>

Lot No. xxxxx<sup>2</sup>

Manufacturer's Name

This Pressure Vessel May Not Be Refilled

<sup>1</sup>Where 12000 represents the service pressure.

<sup>2</sup>Where xxxxx is the lot number as appropriate.

Note: Each line of these markings may be placed without regard to location or order on the pressure vessel. The serial number must be traceable to the production lot under which the cylinder was manufactured in accordance with the requirements specified in §§ 178.65(f)(3) and 178.65(i).

8. SPECIAL PROVISIONS:

a. The non-DOT specification pressure vessels are only authorized for use as components of automobile safety systems.

b. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

c. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the package and it is offered for transportation in conformance with this special permit and the HMR.

d. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

e. Each packaging manufactured under the authority of this special permit must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Safety for a specific manufacturing facility.

f. A current copy of this special permit must be maintained at each facility where the packaging is manufactured under this special permit. It must be made available to a DOT representative upon request.

g. This special permit authorizes transportation of the pressure vessels identified herein for up to fifteen years from the date of manufacture. This limitation does not apply to non-specification pressure vessels when installed in air bag modules or when shipped to a metal recycler.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, passenger-carrying aircraft, and cargo aircraft.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft, or motor vehicle used to transport packages covered by

this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
  - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
  - o Registration required by § 107.601 et seq., when applicable.

Each “Hazmat employee”, as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) — “The Hazardous Materials Safety and Security Reauthorization Act of 2005” (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term “exemption” to “special permit” and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in

writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:

A handwritten signature in blue ink, appearing to read "W. Schoonover", is written over a light blue circular stamp.

for William Schoonover  
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, East Building PHH-13, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at <https://www.phmsa.dot.gov/approvals-and-permits/hazmat/special-permits-search>. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: BrianMOORE/Casey Chambers