



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

January 04, 2024

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 21501

EXPIRATION DATE: 2025-10-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Luxfer Inc.
Riverside, CA
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, mark, sale, and use of a non-DOT specification fully wrapped fiber reinforced composite gas cylinder with a non-metallic and non-load sharing plastic liner that meets the ISO 11119-3 standard, except as 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. 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, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
 - c. 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(f) in that a fire protection system is used in lieu of a pressure relief valve and § 173.302(a) in that the use of a non-DOT specification cylinder is authorized, as provided herein.
5. BASIS: This special permit is based on the application of Luxfer Inc. dated January 11, 2023, submitted in accordance with § 107.105 and the public proceeding thereon.

Tracking Number: 2023014637

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Argon, <i>compressed</i>	2.2	UN1006	N/A
Helium, compressed	2.2	UN1046	N/A
Hydrogen, compressed	2.1	UN1049	N/A
Nitrogen, compressed	2.2	UN1066	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is a non-DOT specification fully wrapped fiber reinforced composite gas cylinder with a non-metallic and non-load sharing plastic liner as described in the application on file with the Office of Hazardous Materials Safety (OHMS). Each cylinder must meet all the design and construction requirements for UN composite cylinders specified in § 178.71(l) and in ISO Standard 11119-3 (Gas Cylinders of Composite Construction-Specification and Test Methods – Part 3: Fully wrapped fiber reinforced composite gas cylinders with non-metallic and non-load-sharing metallic liners), except as follows:

(1) Scope § 1: Cylinders manufactured under this special permit are limited to a maximum service pressure of 350 bar (5,073 psi) with a maximum capacity of 1,100 liters.

(2) § 8.1 Type approval procedure, General requirements:

(i) A DOT Independent Inspection Agency (IIA) approved in writing by the Associate Administrator for Hazardous Materials Safety (AAHMS) in accordance with 49 CFR Part 107, Subpart I must review the results of design qualification testing that was submitted in the application for special permit. The IIA must either verify that the cylinder design meets the requirements of the special permit based on the testing and other documentation submitted in the application for special permit or the IIA may require additional testing and/or information from the manufacturer

to verify the cylinder design meets all requirements of the special permit. Prior to production of cylinders, the IIA's verification of the cylinder design must be submitted to and acknowledged in writing by the OHMS.

(ii) Prior to any manufacture of cylinders under this special permit, an IIA approved in writing by the AAHMS must provide inspections and verifications of all batch testing and all new design qualification testing in accordance with the requirements of this special permit.

(3) § 8.2 Prototype tests: Cylinders that are manufactured for prototype testing must be representative of production units. Subscale units are permitted as follows:

(i) Environmental cycle test: Test cylinders may be subscale; smaller in diameter and shorter in length.

(ii) Flaw test: Test cylinders shall be full diameter and may be shorter in length.

(iii) Permeability test: Test cylinders maybe subscale; same diameter and shorter in length. The data from subscale permeation test will be the base for extrapolation in determining total permeation of a full-scale tube.

(iv) Torque test: Test cylinder shall be full diameter and may be shorter in length.

(v) Drop test: Cylinders manufactured under this special permit are not authorized for use unless mounted in a frame and must be handled in accordance with the operational controls listed in this special permit; therefore, they are exempt from the drop test requirements of 8.5.9.

(4) § 8.4 Design Variants: Design variants from the approved prototype designs are to be approved to Table 1 of ISO 11119 except that the test procedures are as defined in paragraph 7.a.(3) (Prototype tests) and paragraph 7.a.(5) (Type approval test procedures and criteria).

(5) § 8.5 Type approval test procedures and criteria:

(i) § 8.5.1 Hydraulic proof pressure test: The test pressure shall be held for at least 30 seconds with the tube isolated from the pressure source, during which time there shall be no decrease in the recorded pressure or evidence of any leakage.

(ii) § 8.5.3 Cylinder burst test:

(A) Three representative cylinders shall be hydrostatically pressurized to failure. The rate of the pressurization shall not exceed 1400 kPa per second (200 psi/s) at pressures in excess of 150% of the nominal working pressure.

(B) Criteria: The minimum required burst pressure shall be at least 1.6 times test pressure p_h .

(iii) § 8.5.4 Ambient cycle test:

(A) Where a cylinder is intended for use only with one or more specific gases the design can be designated for dedicated gas use. The gases permitted in the cylinder shall be identified clearly on the cylinder label. In this case, the cylinders were cycled at 1.25 times service pressure to represent a maximum developed pressure for hydrogen at 85 °C.

(B) The test shall be carried out using a non-corrosive fluid under ambient conditions, subjecting the cylinders to successive reversals at an upper cyclic pressure that is equal to the hydraulic test pressure, p_h or maximum developed pressure at 85 °C, p_{max} , as appropriate.

(C) The value of the lower cyclic pressure shall not exceed 10 % of the upper cyclic pressure but shall have an absolute maximum of 30 bar. The frequency of reversals shall not exceed 0,25 Hz (15 cycles/min). The temperature on the outside surface of the cylinder shall not exceed 50 °C during the test.

(D) Criteria: Both cylinders shall withstand N pressurization cycles to test pressure, p_h , or N_d pressurization cycles to maximum developed pressure, p_{max} , without failure by burst or leakage, where:

$$N = y \times 250 \text{ cycles per year of design life;}$$

$$N_d = y \times 500 \text{ cycles per year of design life;}$$

y is the number of years of design life.

y shall be a whole number which is not less than 15 years.

The test shall continue for a further N, or Nd, cycles, or until the cylinder fails by leakage, whichever is the sooner. In either case the cylinder shall be deemed to have passed the test. However, if failure during this second part of the test is by burst, then the cylinder shall have failed the test.

(iv) § 8.5.6 Environmental cycle test:

(A) One representative cylinder shall be cycle tested, without leakage or rupture, as follows:

(1) Stabilize the cylinder at zero pressure and 85 °C (185 °F) degrees or higher.

(2) Hydraulically pressure cycle between 2 (±1) MPa and at least 125% of nominal working pressure for 4000 cycles. The temperature limits specified in paragraph 7.a.(5)(iv)(A)(1) shall be met on the cylinder skin and in the working fluid in the cylinder throughout the cycling.

(3) Stabilize the cylinder at zero pressure and ambient conditions.

(4) Stabilize the cylinder at zero pressure and -40 °C (-40 °F) degrees or lower.

(5) Hydraulically pressure cycle between 2 (±1) MPa and at least 80% of nominal working pressure for 4000 cycles. The temperature limits specified in paragraph 7.a.(5)(iv)(A)(4) shall be met on the cylinder skin and in the working fluid on the cylinder throughout cycling. The cycling rate shall not exceed 10 cycles/min.

(B) Criteria: The cylinder shall not leak or rupture during the test.

(v) § 8.5.8 Flaw test:

(A) One uncoated cylinder shall have two flaws in the longitudinal direction cut into the composite sidewall. One flaw shall be a minimum of 25 mm (1 in) in length and a minimum of 1.25 mm (0.05 in) in depth, and the other flaw shall be a minimum of 200 mm (8 in) in length and a minimum of 0.75 mm (0.03 in) in depth.

(B) The flawed cylinder shall then be pressure cycled, from 2 (\pm) MPa to at least 125% of the nominal working pressure for a number of cycles equivalent to 750 times the service life of the cylinder in years.

(C) Criteria: The cylinder shall not leak or rupture within the first 3000 cycles but may fail by leakage up to the maximum number of cycles.

(vi) § 8.5.10 High velocity impact (gunfire) test:

(A) A cylinder shall be pneumatically pressurized to nominal working pressure with nitrogen, helium, or hydrogen and be impacted by a 7.62 mm (0.30 calibre) diameter armor-piercing projectile (specified as 7.62 x 51 mm NATO, armour piercing bullet) with a nominal velocity of 850 m/s. The bullet shall be fired from a distance of no more than 45 m.

(B) Criteria: The projectile shall impact the sidewall of the cylinder at a 90° angle but shall not be required to pass through the sidewall of the cylinder. The cylinder shall not rupture.

(vii) § 8.5.11 Fire resistance test:

(A) Two cylinders shall be fitted with the specified valves and PRD's intended for use in service. The cylinders shall be charged with air or nitrogen or the gas intended for use to the working pressure ($p_h \times 2/3$).

(B) Surface temperatures shall be monitored by thermocouples located along the bottom of the cylinders and shielded from direct flame impingement with metallic shielding of a minimum 0.4 mm thickness.

(C) Thermocouple temperatures and the cylinders pressure shall be recorded at intervals of every 30 s or less during the test.

(D) A uniform fire source of 1.65 m length shall be used that is capable of enveloping the entire diameter of each cylinder, when in the horizontal position, and producing a temperature $> 590^\circ\text{C}$, measured within 2 min on the bottom surface of each cylinder.

(E) The timing of the fire test shall start when the thermocouple temperature reaches 590 °C and all thermocouples must register a temperature > 590 °C for the remainder of the test.

(F) Any fuel may be used for the fire source provided it supplies uniform heat sufficient to maintain the specified test temperatures until the cylinder is vented. The selection of a fuel should take into consideration pollution concerns.

(G) The cylinders shall be tested in horizontal position as follows: Two cylinders shall be placed in a horizontal position with the center of the fire at the mid-point of the cylinder and with the lowest part of the cylinder approximately 0.1 m from the top of the firewood, in the case of a wood fire, or 0.1 m from the surface of the liquid in a fuel-based fire. The relief device shall be shielded from direct flame impingement. The cylinder shall be exposed to the fire until it has vented to a pressure less than 7 bar.

(H) Criteria: For cylinders intended to be fitted with a specified pressure-relief devices the cylinder shall vent through the pressure-relief devices. (This test shall be repeated if another design of pressure-relief device is specified and used).

(viii) § 8.5.12 Permeability test:

(A) One cylinder shall be filled with hydrogen to the nominal working pressure, placed in an enclosed sealed cylinder at ambient temperature, and monitored for 500 hours to establish a steady state permeation rate.

(B) Criteria: The steady state permeation rate for hydrogen gas shall be less than 6.0 Ncc/h of hydrogen per hours per liter water capacity.

(ix) § 8.5.13 Torque test:

(A) One cylinder shall be preconditioned with the boss subjected to twice the installation torque specified for the fittings. The cylinder shall then be subjected to 8.5.15 (Leak Test): All Type 4 cylinders shall be leak-tested using the procedures in paragraphs 7.a.(5)(ix)(B) and (C) below or an acceptable alternative method. Cylinders with multiple sealing connections shall be leak-tested at each connection. Permeation through the wall shall not be considered to be leakage.

(B) Cylinders shall be thoroughly dried then pressurized to nominal working pressure with a detectable gas or gas mixture (i.e., hydrogen gas, helium gas, or gas blends that contain one or both of these gases at a detectable level).

(C) Cylinders shall be placed in an enclosure to permit detection of any leaks.

(D) Criteria: Any gas detected beyond the allowable permeation rate shall be cause for rejection.

(x) § 8.5.15 Leak test:

(A) Leak testing shall be performed at a minimum of the test pressure, $p_h \times 2/3$.

(B) Acceptable methods for leak testing include, but are not limited to, bubble testing using dry air or gas or measurement of trace gases using a mass spectrometer.

(C) Criteria: Leakage greater than 10–3 mbar/litre/sec (i.e., approximately 1 visible bubble in 2 min or 6 cc/hour in the bubble leak test) shall constitute a failure of the test.

(xi) § 8.5.16 Pneumatic cycle test:

(A) One finished cylinder shall be pressure cycled using hydrogen from 2 (\pm) MPa to at least 125% of nominal working pressure for 1000 cycles. Each cycle shall consist of filling and venting of the cylinder. The fill rate shall not exceed 60 g/s and the maximum allowable gas temperature shall not be exceeded. The defueling rate shall be specified by the cylinder manufacturer. The first 500 cycles shall be conducted at ambient temperature, followed by a static hold at 115% of the nominal working pressure 55 °C (131°F) for a minimum of 30 hours. The second 500 cycles shall be conducted with the cylinder at an ambient temperature of 50 °C (122 °F).

(B) Criteria: Following completion of the test, the cylinder shall meet the requirements of the leak test 8.5.15.

(6) § 9 Batch Inspection and Testing. Batch of non-metallic liners: A batch of non-metallic liners is the quantity of liners of the same nominal diameter, length, thickness, and design, made successively from the same materials, and subjected to the same manufacturing process.

(i) § 9.1.4 Liner batch inspection and testing criteria: The supplier's certification of the liner and liner boss properties may serve as verification of compliance with the design specifications.

(ii) § 9.3 Overwrap materials: The supplier's certification of the fiber and resin matrix properties may serve a verification of compliance with the ISO 11119-3 standard.

(iii) § 9.4.5 Batch cycle test:

(A) A pressure cycling test shall be conducted on no less than one finished cylinder per five batches (a maximum of 1000 pieces produced sequentially) or six months of cylinder production, whichever comes first.

(B) The cylinder shall be subjected to a hydraulic pressure cycle test to test pressure, p_h , for unspecified gas service or maximum developed pressure at 65 °C, p_{max} , for dedicated gas service.

(C) The procedure shall be in accordance with 8.5.4, except that the test can be suspended, as appropriate to the design, N or N_d cycles where:

$$N = y \times 250 \text{ cycles per year of design life,}$$

$$N_d = y \times 500 \text{ cycles per year of design life,}$$

$$y = \text{is the number of years of design life.}$$

(iv) § 9.4.6 Batch burst test:

(A) One cylinder selected from each batch shall be hydrostatically pressurized to burst in accordance with the test procedure described in § 8.5.3. The batch test may be conducted on the first unit of the batch.

(B) Rupture may occur in any region of the cylinder. The burst pressure shall meet or exceed the minimum required burst pressure; otherwise, the batch shall be rejected.

(C) The cylinder used for the cycle test in § 9.4.5 may be used for the burst test. If the burst pressure of the cycled cylinder is less than the minimum required burst pressure, an additional burst test shall be conducted on another cylinder selected from the batch. The burst pressure on the additional cylinder shall meet or exceed the minimum required burst pressure; otherwise, the batch shall be rejected.

b. MARKING:

(1) Each cylinder must be permanently marked (other than by stamping) in the composite on the sidewall. The marking must be easily visible and must be protected from external damage due to the environment and handling.

(2) The marking must contain the following:

(i) DOT special permit number (DOT-SP 21501) followed by service pressure expressed in bar (psi).

(ii) A serial number and the manufacturer's identification number or a symbol as obtained from the Associate Administrator for Hazardous Materials Safety, located just below or immediately following the DOT marking above.

(iii) The DOT inspector's official mark must be placed near the serial number. The marking must contain the date the (month and year) of the initial hydraulic proof pressure test for that cylinder.

(iv) The size of the letters and numbers used must be at least 0.64 cm (1/4 inch) high if space permits.

(v) The following is example of an authorized format for marking:

DOT-SP 21501-350 bar (5033psi) 1234-MM (or symbol) II—
MM/YY

(vi) Additional markings are permitted in the composite provided the additional markings do not obscure the required marking and are not detrimental to the integrity of the cylinder.

(vii) Provisions for marking of the required requalification dates and RIN.

(viii) “WARNING – THIS CYLINDER MUST NOT BE SUBJECTED TO A VACUUM”.

(3) Each frame must be marked “DOT-SP 21501”.

c. **REQUALIFICATION:** Each cylinder must be requalified once every 5 years by one of the two methods described in this special permit. The facility that performs requalification of these composite cylinders must be a valid DOT RIN holder for requalification of this type of composite cylinder as described in § 180.205(b) or have a valid special permit for requalification of this type of cylinder using Modal Acoustic Emission (MAE) testing.

(1) Method 1: Hydraulic Proof Pressure Testing and Visual Inspections. The requalification facility seeking RIN for Hydraulic Proof Pressure Testing and Visual Inspections must meet and prove the following requirements:

(i) Knowledge, documentation, equipment, and instrumentation for performing the external and internal visual inspection of cylinders manufactured in accordance with the provisions of DOT-SP 21501.

(ii) Knowledge, documentation, equipment, and instrumentation for performing the proof-pressure testing of cylinders manufactured in accordance with the provisions of DOT-SP 21501.

(iii) Adequate facilities, handling equipment, and skills to ensure cylinders manufactured in accordance with the provisions of DOT-SP 21501 will not be subject to impact or other damage during disassembling and reassembling.

(iv) Acknowledgment that the requalifier understands the specific operational controls of DOT-SP 21501 to include paragraph 7.d.(12), which states in part: “the cylinder must be rejected if it drops from a height greater than 2’ . . .”.

(v) Availability to document that during the requalification process, the structural integrity of frame design is not compromised and remains equal to or greater than the requirements specified in DOT-SP 21501 paragraph 7.d.(6).

(vi) Visual Inspections: The external and internal visual inspection must be in accordance with CGA pamphlet C-6.2.

(vii) Hydraulic proof pressure test as described in CGA Pamphlet C.1 in which the test pressure is equal to 1.5 times the marked working pressure and in which the pressure is held for a minimum of 3 minutes without a loss of pressure. The testing facility for proof pressure test must be equipped with protection system (e.g., water jacket well or concrete barrier) to avoid injury during the requalification process.

(2) Method 2: Modal Acoustic Emission (MAE) Testing and External Visual Inspection. Each organization seeking a RIN for requalification for performing MAE and external Visual Inspection must meet and prove the following requirements:

(i) Must be a holder of a special permit in performing MAE testing on composite cylinders.

(ii) MAE testing must be in accordance with the [Modal acoustic emission \(MAE\) Examination Procedure for Requalification of Composite Overwrapped Pressure Vessels \(Cylinders and tubes\)](#) posted on the Pipeline and Hazardous Materials Safety Administration's website.

(iii) External visual inspection must be in accordance with CGA pamphlet C-6.2.

(iv) Cylinders involved in a tipover or rollover accident. For cylinders that were possibly subjected to impact damage from an event such as cylinder trailer collision or rollover accident, the pressurization of the MAE testing must be by hydraulic medium (e.g., water) rather than gaseous medium.

(3) Requalification Marking: date (month/year) must be permanently marked on the cylinder as specified in § 180.213. The marking of the RIN symbol on the cylinder certifies compliance with all the terms and conditions of this special permit.

d. OPERATIONAL CONTROLS:

(1) Cylinders manufactured under this special permit are not authorized for use 15 years from the date of manufacture, except as specified under paragraph 8.a. of this special permit.

(2) A cylinder that has been subjected to fire may not be returned to service.

- (3) Manifolding of cylinders must be in accordance with the requirements of § 173.301(g).
- (4) Cylinders used in multiple-element gas containers must conform with § 178.75 Specification of MEGCs except for § 178.75(d)(3).
- (5) Transportation of Division 2.1 (flammable gas) materials is not authorized aboard cargo vessel and aircraft unless specifically authorized in the Hazardous Materials Table (§ 172.101).
- (6) The cylinders or tubes manufactured under this special permit must be permanently mounted inside of framing (e.g., tube trailer, MEGC or ISO Frame) for transportation in commerce, and the framing design and testing must meet the following requirements:
 - (i) All requirements of § 173.301(i).
 - (ii) Framing and containers must be designed, marked (approval plate), and approved in accordance with the requirements of 49 CFR Part 451 of International Convention for Safe Containers (CSC), ISO 1496-3: 1995/ Amd: 2006 standard in accordance with the design qualification described in the Luxfer Inc. application dated January 11, 2023, on file with OHMS, and following:
 - (A) ISO 1496-3:1995: Test No 4 – External Restraint (longitudinal).
 - (B) ISO 1496-3:1995: Test No 5 – Internal Restraint (longitudinal).
 - (C) ISO 1496-3:1995: Test No 6 – Internal Restraint (lateral);
 - (D) All requirements of CGA TB-25 or CGA Pamphlet C-29. Finite Element Analysis (FEA) shall demonstrate the ability of the frame assembly (FA) to meet all g-loading requirements of CGA-TB25.
- (7) Any semi-tractor used for the transport of tube trailer modules transporting the gases authorized under the terms of this special permit must be equipped with electronic roll stability control (RSC). The RSC powered switch must be on and activated during transportation.

- (8) All new trailer modules (COPV frame assembly and chassis) transporting the gases authorized under the terms of this special permit must be equipped with rigid body Static Rollover Threshold (SRT) of 0.375. The SRT calculations must be submitted to OHMS. The SRT calculations must account for susceptibility to rollover accident and the vehicle dynamics during transportation.
- (9) The new design and fabrication of that external piping and valves connecting the cylinders must be such that damage to a valve or to the piping does not result in discharge of the contents through piping, tubing, valve, or other components. Failure of one or more of these components, must result in no excess flow from the cylinder.
- (10) Except as specified in paragraph 7.d.(11), the cylinder/tube assembly must be equipped with a Fire Protection System (FPS), which meets the following criteria, and the design must be submitted in writing to the OHMS prior to first use:
- (i) An FPS with a pressure relief device (PRD) that includes sensors or pneumatic piping along the length of each tube to respond to a local or engulfing fire and release the internal pressure of each tube prior to rupture of any tube in the assembly.
 - (ii) The FPS vent line must direct the released gas upwards and outside of the frame system. Standard Operating Procedures (SOP) for the FPS must include inspection of the entire FPS, all gauges, fittings, valves, and vent system. The FPS design, test results, and relevant SOPs must be submitted to OHMS before deployment of the first production of the tube assembly.
- (11) If the packaging (tube assembly) is not equipped with an FPS, one of the tubes must be bonfire tested in accordance with the procedure described in ISO standard 11515 with the following acceptance criteria, and the test results must be submitted in writing to OHMS prior to first use: The tube, which is used for the bonfire testing, must be exposed to an engulfing fire for a minimum of 20 minutes without rupturing.
- (12) Cylinder handling: the cylinder must be rejected if it drops from a height greater than 2' during the manufacturing and/or prior to being mounted to the framing.
- (13) SOPs that govern filling/discharging operations and incident reporting must be provided to OHMS in advance of the first unit's deployment.

(14) All cylinders must be operated and maintained in accordance with the Luxfer Gas Cylinders G-Stor H2 Type 4 Carbon Composite Hydrogen Cylinder User Manual dated 2022 and submitted on November 26, 2023, to OHMS.

8. SPECIAL PROVISIONS:

a. Service Life Extension Program:

(1) Cylinders manufactured under this special permit are authorized for a maximum service life of 15 years from the date of manufacture. The service life extension program must be implemented for each design type that is intended for additional service life beyond 15 years to determine the additional years of service life. If cylinders are authorized for extended service life, the maximum service life of each cylinder under this special permit is 30 years from the date of manufacture.

(2) Under the service life extension program, the grantee must randomly recall a minimum of thirty cylinders of each design type that have been in service for 10 and 13 years. Cylinders recalled after 10 years shall be designated "Group A" and cylinders recalled after 13 years shall be designated "Group B". All recalled cylinders must be subjected to design requalification as specified Sections 8.5.4, 8.5.5, 8.5.7 and 8.5.8 of ISO 11119-3. Acceptance criteria shall be as defined in ISO 11119-3 except $P_b = 1.6P_h$ and the design life (y) must be greater than or equal to 20 years. All cylinders that fail to meet the requalification requirements must be condemned, removed from service, and rendered incapable of retaining pressure. In the case that some units from the initial minimum lot size are condemned, an additional 30 cylinders must be selected and subjected to the same design requalification as specified above (Sections 8.5.4, 8.5.5, 8.5.7 and 8.5.8 of ISO 11119-3). An Independent Inspection Agency must witness all testing.

(3) The complete test report including original test data must be submitted to the Associate Administrator for Hazardous Materials Safety for assessment within 30 days of completion. Failure to meet the acceptance criteria specified in this paragraph 8.a. shall result in the design being restricted to a maximum life of 15 years.

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 who 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.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, and cargo-only 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.:



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: AS