



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 8698
(ELEVENTH REVISION)

EXPIRATION DATE: 2018-01-31

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Worthington Cryogenics, LLC
Theodore, AL
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, mark, sale and use of non-DOT specification vacuum insulated portable tanks for the transportation in commerce of the material authorized by this special permit. 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.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.320(a) and 176.76(g) in that a non-DOT specification portable tank is not authorized, except as specified herein.
5. BASIS: This special permit is based on the application of Worthington Cryogenics, LLC, dated February 26, 2016, submitted in accordance with § 107.109.

March 31, 2016

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Nitrogen, refrigerated liquid <i>cryogenic liquid</i>	2.2	UN1977	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is as follows:

(1) A vacuum insulated non-DOT specification portable tank designed and constructed of stainless steel or 9 percent nickel steel inner tank having a design temperature of -320EF. Each tank must be in accordance with Section VIII, Division I of the ASME Code and Union Carbide Corporation's drawings and calculations submitted with Union Carbide's application of January 21, 1984 which are on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD). Tanks made after January 31, 1981 must have their aluminum pressure building coils enclosed in steel or stainless steel or made of stainless steel, unless the aluminum pressure building coil is isolated from the inner tank by at least 2 valves which are closed during transportation.

(i) Except as otherwise specified, the tank must comply with one of the following designs on file with OHMSAPD:

Model Number	HTL 1000	HTL 2000	HTL 3000
Water Capacity (gal)	1060	2098	3096
Design Pressure (psig)	146	146	106
Drawing Numbers	C-2097882	C-2097883	C-2195323
	Rev. A	Rev. B	Rev. 0
Payload Weight (lbs)	6,650	13,150	19,800
Gross Weight (lbs)	14,346	24,500	32,175
SRV relief Capacity	39 SCFM	58 SCFM	60 SCFM
Frangible disc relief capacity	3180 SCFM	4646 SCFM	4646 SCFM
SRV setting	120 psig	120 psig	86 psig
FD burst pressure	156 psig	156 psig	120 psig

(ii) The tanks must be insulated with perlite in a vacuum, protected by a steel outer jacket.

(iii) The tanks must be tested to at least 1-1/2 times the sum of the tank design pressure plus static head plus 14.7 psig prior to initial service.

(iv) The tanks must be filled by weight as to allow at least 2 percent outage below the inlet of the pressure relief valve under conditions of incipient opening of this valve with the tank in a level attitude, or to a filling density of 75 percent at the road relief valve setting of 15 psig, whichever is lower and not to exceed the maximum gross weight limitation.

(v) The tanks must be protected by one or more spring loaded safety relief valves, one or more frangible discs and a road relief valve arranged to discharge upward and unobstructed to the outside of the protective housing in such a manner that discharge will not impinge on any part of the vessel, the tank itself, or any other cargo. Each safety relief valve on the tank must be set to start-to-discharge and the frangible discs must be designed to function as prescribed in paragraph 7.a.(1)(i) above.

(vi) The road relief valve must be set at no greater than 15 psig.

(vii) The inner tank need not be postweld heat-treated when manufactured from 9 percent nickel steel.

(viii) New construction is not authorized.

(2) Each non-DOT specification portable tank manufactured after the issuance of DOT-SP 8698 (5th Rev.) must be in full conformance with the requirements contained in § 178.337 for MC-338 cargo tank motor vehicles except as follows:

(i) Each portable tank must conform to drawings, calculations and specifications on file with OHMSAPD prior to the first shipment.

(ii) § 178.338-10: This section does not apply.

(iii) § 178.338-13(a): Lifting lugs, framework and any anchoring to the inner tank or the tank jacket must conform with § 178.338-13(a). The portable tank need not conform to §§ 178.338-13(b) or (c).

(iv) § 178.338-18 (a)(1) Each portable tank must be plainly and durably marked "DOT-SP 8698" in place of AMC-338".

(v) A portable tank that meets the definition of "container" must meet the requirements of 49 CFR Parts 450 through 453, and each design must be qualified in accordance with § 178.270-13(c).

b. TESTING - Each portable tank must be reinspected and retested once every five years in accordance with the procedure prescribed in § 180.605 for DOT Specification 51 portable tanks. Nitrogen or an inert gas may be used as a test medium in place of air or water as required by § 180.605(h). The test pressure for the inner tank must be determined from the following formula:

$$P_T = 1.25 \times [P_d] - 14.7$$

Where:

P_T = Test pressure, psig
 P_d = Design pressure
(the sum of the maximum allowable working pressure, liquid head and 14.7 psi)

c. OPERATIONAL CONTROLS -

(1) Each portable tank must be prepared and shipped as required in § 173.318, as applicable for the lading.

(2) Shipments by cargo vessel must conform with the following:

(i) The package must conform with § 176.76(g). The portable tank must not be over-stowed with other containers or freight.

March 31, 2016

(ii) Any road relief valve set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed during transportation by cargo vessel unless the holding time was determined based on the setting of the pressure control valve.

(iii) The legend "One-Way Travel Time Hours" or "OWTT _____ Hours" must be marked on the shipping paper and on the dangerous cargo manifest immediately after the container description. The OWTT is determined by the formula:

$$\text{OWTT} = \text{MRHT} - 24 \text{ hours.}$$

(iv) A written record of the portable tank's pressure and ambient (outside) temperature at the following times must be prepared for each shipment.

- (A) At the start of each trip;
- (B) Immediately before and after any manual venting;
- (C) At least every 24 hours; and
- (D) At the destination point.

(v) A One-Way Travel Time" markings on shipping papers, dangerous cargo manifests and written records of a tank's pressure and ambient (outside) temperature at trip start and destination, before and after any manual venting, and at least every 24 hours during transport are not required so long as the following conditions are met:

- (A) The lading is liquid nitrogen.
- (B) Transportation by cargo vessel is to oil and gas production facilities within the jurisdiction of the United States of America.
- (C) The portable tank is not overstowed with other containers or freight.

(3) No person may transport or offer for transportation a charged portable tank unless the pressure of the lading is equal to or less than that used to determine the marked rated holding time (MRHT) and the OWTT is equal to or greater than the elapsed time between the start and termination of travel.

(4) The actual holding time for each tank must be determined after each shipment. If it is determined that the actual holding time is less than 90 percent of the (MRHT) of the tank, the tank may not be refilled until it is restored to its MRHT or the tank is re-marked with the reduced holding time determined by this examination.

(5) The holding time and the MRHT of the first portable tank must be determined and results thereof must be submitted to OHMSAPD prior to initial shipment.

8. SPECIAL PROVISIONS:

a. 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.

b. 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.

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

d. 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 OHMSAPD for a specific manufacturing facility.

e. A current copy of this special permit must be maintained

March 31, 2016

at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.

f. Each portable tank must be plainly marked on both sides near the middle, in letters at least two inches high on a contrasting background, "DOT-SP 8698" and the legend "One Way Travel Time-Hours." Except as provided in paragraph 7.c.(2)(v) above, this blank must be filled in according to § 178.338-9.

g. Before transportation in an empty condition, each tank must be emptied of liquid contents. In addition, the vapor pressure must be so reduced as to avoid the possibility of venting en route.

h. Test certificates for each tank must be kept on file by the manufacturer or owner at its principal business office and be made available to OHMSAPD upon demand.

9. MODES OF TRANSPORTATION AUTHORIZED: Cargo vessel.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel and motor vehicle used to transport packages covered by this special permit.
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, 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.

March 31, 2016

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 Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: SGrey/kah