U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

SEP 21 1998

Mr. Stephen R. Callegari, Sr.
President
SRC Engineers, Inc.
P.O. Box 81903
Lafayette, LA 70598-1903

Ref. No. 98-0200

Dear Mr. Callegari:

This is in response to your letter requesting clarification of the requirements for valves, nozzles, piping, and gauging devices for IM 101 portable tanks in 49 CFR 178.270-12(a). Specifically, you asked if a 24-inch inspection opening, located below the normal liquid level of the tank, is required to be fitted with a manually operated stop valve.

The answer is no. Paragraph (a) requires all tank nozzles, thermometer wells and inspection openings be fitted with manually operated stop valves located as near the shell as practicable either internal or external to the shell. However, the last sentence states, "A tank nozzle installed for a thermometer well or inspection opening need not be provided with a manually operated stop valve."

I hope this information is helpful. If we can be of further assistance, please contact us.

Sincerely,

Hattie L. Mitchell

Hattie L. Mitchell
Chief, Regulatory Review and Reinvention
Office of Hazardous Materials
Standards

SRC ENGINEERS, INC.

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Poster
§ 178.270-12

Mr. Edward T Mazzullo
Director, Office of Hazardous Materials Standards
U.S. Department of Transportation
400 Seventh Street S.W.
Washington, D.C. 20590
Phone: 800-467-4922 / 202-366-4488
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RE: IM 101/102 Steel Portable Tanks • Design – 49 CFR 178.270

Dear Mr. Mazzullo:

We request your assistance with interpretation of 49 CFR 178.270-12 Valves, Nozzles, Piping, and Gauging Devices. Our client wants us to design an IM 101 Tank with a 24" Inspection opening located below the normal liquid level of the tank along with two additional conventional openings used for inspection on the top vapor space of the tank. It is his interpretation of 49 CFR 178.270-12(a) that this would be permissible. He specifically states in the first and last sentence of section (a):

> All tank nozzles, except those provided for filling and discharge connections below the normal liquid level of this tank, relief devices, thermometer wells, and inspection openings, must be fitted with manually operated stop valves located as near the shell as practicable either internal or external to the shell...
>
> ...A tank nozzle installed for a thermometer well or inspection opening need not be provided with a manually operated stop valve.

Please review the above and render you interpretation at your earliest convenience.

Sincerely,

Stephen R. Callegari Sr., P.E.
President

federal register

Thursday
January 29, 1981

Part V

Department of Transportation

Research and Special Programs Administration

Intermodal Portable Tanks

certificate required by § 173.32a of this subchapter specifies the hazardous materials for which the tank is suitable. The lesser total vent capacity must be determined in accordance with the following formula:

Formula for metric units

$Q=5{,}660{,}000\ A^{0.82}(ZT)^{0.5}/(LC)(M^{0.5})$

Formula for nonmetric units

$Q=37{,}980{,}000\ A^{0.82}(ZT)^{0.5}/(LC)(M^{0.5})$

where:

Q=The total required venting capacity, in cubic meters of air per hour at standard conditions of 15.6°C. and 1 atm (cubic feet of air per hour at standard conditions of 60°F. and 14.7 psia);

T=The absolute temperature of the vapor at the venting conditions—degrees Kelvin (°C+273) [degrees Rankine (°F+460)];

A=The exposed surface area of tank shell—square meters (square feet);

L=The latent heat of vaporization of the lading—calories per gram (BTU/lb);

Z=The compressibiliy factor for the vapor (if this factor is unknown, let Z equal 1.0);

M=The molecular weight of vapor;

C=A constant derived from (K), the ratio of specific heats of the vapor. If (K) is unknown, let C=315.

$C=520[K(2/(K+1))^{(K+1)/(K-1)}]^{1/2}$

where:

$K=C_p/C_v$

C_p=The specific heat at constant pressure, in calories per gram degree centigrade (BTU/lb°F.); and

C_v=The specific heat at constant volume, in calories per gram degree centigrade (BTU/lb°F.).

(4) The required total venting capacity determined by using Table I or paragraph (d)(3) of this section may be reduced for insulated tanks to Q_t by the following formula:

$Q_t=FQ_1$

where:

Q_t=The total required venting capacity of the insulated tank;

Q_1=The total venting capacity required for an uninsulated tank according to Table I or paragraph (d)(3) of this section;

F=A coefficient with a value greater than or equal to 0.25 according to the following formula:

Formula for metric units

$F=8U(649-t)/93.5\times10^6$

Formula for nonmetric units

$F=8U(1200-t)/34{,}500$

where:

U=The thermal conductance of the insulation system taken at 38°C. (100°F.), in gram calories per hour sq. meter °C. (BTU per hour sq. feet °F); and

t=The actual temperature of the substance at loading, in °C. (°F.).

(5) Insulation, used for the purpose of reducing the venting capacity, must be approved by the approval agency. In all cases, insulation approved for this purpose must:

(i) Remain effective at all temperatures up to 649°C. (1200°F.); and

(ii) Be jacketed with a material having a melting point of 649°C. (1200°F.) or greater.

(6) The flow capacity rating of any pressure relief device must be certified by the manufacturer to be in accordance with the applicable provisions of the ASME Code with the following exceptions:

(i) The ASME Code stamp is not required; and

(ii) The flow capacity certification test for spring loaded pressure relief valves may be conducted at a pressure not to exceed 120% of the set pressure provided the stamped flow capacity rating is not greater than 83% of the average capacity of the valves tested.

(e) *Markings on pressure and vacuum relief devices.* The following information shall be plainly displayed on each pressure relief device:

(1) The pressure or, when appropriate, the temperature at which the device is set to function;

(2) Except for vacuum relief devices, the rated flow capacity of air discharged per minute at 15°C. (59°F.) and atmospheric pressure, at:

(i) The set pressure for frangible discs;

(ii) No greater than 20% above the start to discharge pressure for spring-loaded relief devices; or,

(iii) The fusing temperature for fusible elements.

(3) The manufacturer's name and catalog number; and

(4) The allowable tolerances at the start to discharge pressure and the allowable tolerances at the discharge temperature.

§ 178.270–12 Valves, nozzles, piping, and gauging devices.

(a) All tank nozzles, except for those provided for relief devices, thermometer wells, and inspection openings, must be fitted with manually operated stop valves located as near the shell as practicable either internal or external to the shell. A tank nozzle installed for a pressure relief device must not be provided with a stop valve that restricts the flow from the tank to the pressure relief device (see § 178.270–11(b)(2)). A tank nozzle installed in the vapor space to provide a filling or cleaning opening, which is closed by a blank flange or other suitable means, need not be provided with a manually operated stop valve. A tank nozzle installed for a thermometer well or inspection opening need not be provided with a manually operated stop valve.

(b) Each valve must be designed and constructed to a rated pressure not less than the maximum allowable working pressure to the tank. Each stop valve with a screwed spindle must be closed by a clockwise motion of the handwheel. All valves must be constructed to prevent unintentional opening.

(c) Each internal discharge valve shall be self-closing, located inside the tank, within the welded flange or within its companion flange.

(d) A shear section must be located outboard of each internal discharge valve seat and within 10.2 cm (4 inches) of the vessel. The shear section must break under strain without affecting the product retention capabilities of the tank and any attachments.

(e) All piping must be of suitable material. Welded joints must be used wherever practicable. The bursting strength of all piping and pipe fittings must be at least 4 times the maximum allowable working pressure of the tank. Piping must be supported in such a manner as to prevent damage due to thermal stresses, jarring or vibration.

(f) All nozzles and tank shell penetrations for nozzles shall be designed and constructed in accordance with the ASME Code.

(g) Glass liquid level gauges, or gauges of other easily destructible material, which are in direct communication with the contents of the tank are prohibited.

§ 178.270–13 Testing.

(a) *Hydrostatic test.* Each portable tank and all piping, valves, and other attachments which are subject to the pressure of the contents of the tank, except pressure relief devices, must be hydrostatically tested by completely filling the tank (including domes, if any) with water or other liquid having a similar density and viscosity and applying a pressure of at least 150 percent of the maximum allowable working pressure. The pressure shall be maintained for at least 10 minutes. While under pressure, the tank shall be inspected for leakage, undue distortion, or other conditions which indicate weakness or which might render the tank unsafe for transportation service. Failure to successfully meet the test criteria shall be deemed evidence of failure to meet the requirements of this specification. Tanks failing to pass the test shall be suitably repaired and must successfully pass the prescribed tests prior to use for transporting any hazardous material.

(b) *Testing of internal coils.* Internal coils, if installed, must be hydrostatically tested to an internal pressure of 13.8 bar (200 psig) or 150

46 FR 9898 1/29/81

46 FR 24184 4/30/81

61 FR 50628 9/26/96

178.270-12 (a)

federal register

MONDAY, DECEMBER 11, 1978
PART IV

DEPARTMENT OF TRANSPORTATION

Materials Transportation Bureau, Research and Special Programs Administration

■

INTERMODAL PORTABLE TANKS

Proposed Packaging Specifications

signed to withstand a positive external pressure differential of not less than 6 pounds per square inch.

(b) Portable tanks fitted with vacuum relief devices must be designed to withstand a positive external pressure differential not less than the set pressure of the vacuum relief device.

§ 178.270-11 Pressure and vacuum relief devices.

(a) *General.* Each portable tank must be fitted with at least one pressure relief device in accordance with the following:

(1) Each portable tank, or each independent compartment of a portable tank, with a capacity of 500 gallons or more must be provided with at least one spring loaded pressure relief device.

(2) Each portable tank, or each independent compartment of a portable tank, with a capacity less than 500 gallons must be fitted with either a frangible disc or spring loaded pressure relief device.

(b) *Location, arrangement and construction of relief devices.* (1) Pressure relief devices must be situated to provide unrestricted discharge without direct impingement of escaping vapors on any part of the tank or structural framework.

(2) Pressure relief devices must be located so as to have direct communication with the vapor space of the tank or compartment at the midlength of the top centerline. No shutoff valve may be installed between a tank opening and a relief device, or on the discharge side of any relief device. Piping and nozzles for relief devices must be of sufficient size to unrestrictedly pass the required rate of discharge to the relief device.

(3) Fusible elements, when installed, may not be covered or otherwise shielded from external heat.

(4) Spring loaded pressure relief devices must be constructed in a manner such that means are available to determine that the valve discs are free to turn on their seats. Valves must be sealed to prevent unauthorized adjustment of the relief setting.

(c) *Pressure settings of relief devices.*—(1) *Primary pressure relief devices.* The primary relief devices required by paragraph (a) of this section must be set to function at a pressure not to exceed 125 percent of the maximum allowable working pressure. Spring loaded relief devices must close after discharge at a pressure not lower than 10 percent below the start-to-discharge pressure and remain closed at all lesser pressures.

(2) *Emergency pressure relief devices.* Frangible discs, other than those used as a primary relief device in accordance with paragraph (a)(2) of this section, must be set to burst at a pressure of 150 percent of the maximum allowable working pressure. When additional spring loaded relief devices are installed to provide sufficient emergency venting capacity, the devices must be set to open at a pressure not less than 125 percent of the maximum allowable working pressure and must be designed so that they are fully open at a pressure not greater than 150 percent of the maximum allowable working pressure.

(3) *Fusible elements.* Fusible elements, whether used as primary or emergency relief devices, must have a nominal fusing temperature not more than 250°F.

(4) *Vacuum relief devices.* Vacuum relief devices, when used, must be designed to provide total containment of product under normal conditions and must be set to open at a nominal overpressure of not less than 3 pounds per square inch.

(d) *Venting capacity of relief devices.*—(1) *Spring loaded relief devices.* Each spring loaded pressure relief device must have a minimum relieving capacity of one standard cubic foot of air per minute per 30 square feet of exposed tank area. Each vacuum relief valve used must have a minimum cross sectional area of 0.44 square inches.

(2) Except as provided in paragraph (d)(3) of this section, the total venting capacity of all pressure relief devices installed on each portable tank must be sufficient, with all devices operating, to limit the pressure in the tank to not more than 20 percent above the start to discharge pressure of the installed device with the lowest pressure setting, and may not, in any case, be less than that required in the following Table:

TABLE I

MINIMUM EMERGENCY VENT CAPACITY IN CUBIC FEET FREE AIR/HOUR (14.7 PSIA AND 59° F.)

Exposed area square feet	Cubic feet free air per hour	Exposed area square feet	Cubic feet free air per hour
20	27,600	275	237,000
30	38,500	300	256,000
40	48,600	350	289,500
50	58,600	400	322,100
60	67,700	450	355,900
70	77,000	500	391,000
80	85,500	550	417,500
90	94,800	600	450,000
100	104,000	650	479,000
120	121,000	700	512,000
140	136,200	750	540,000
160	152,100	800	569,000
180	168,200	850	597,000
200	184,000	900	621,000
225	199,000	950	656,000
250	219,500	1,000	685,000

NOTE 1: Interpolate for intermediate sizes.

(3) The required total venting capacity determined by using Table I may be reduced for insulated tanks by the following relationship:

$$Q_T = F\,Q_i$$

Where:

Q_T is the total required venting capacity of the insulated tank.

Q_i is the toal venting capacity required for an uninsulated tank according to Table I.

F is 0.25 or 0.25U, whichever is greater (where U is the thermal conductivity of the insulation at 100°F. in BTU/(hr)(sq ft)(°F.)).

Insulation, when used, must be to the satisfaction of the approval agency. In no case shall an insulation be approved which:

(i) Will not remain effective at all temperatures up to 1200°F.; or,

(ii) Is jacketed with a material having a melting point of less than 1200°F.

(e) *Markings on pressure relief devices.* The following information shall be plainly displayed on each pressure relief device:

(1) The pressure or; when appropriate, the temperature at which the device is set to function;

(2) The rated flow of air discharged per minute at 59°F. and atmospheric pressure at the set pressure or temperature;

(3) The manufacturer's name and catalog number; and

(4) Allowable tolerances at start to discharge pressure and allowable temperature tolerances.

§ 178.270-12 Valves, nozzles, piping and gauging devices.

(a) All tank nozzles, except for those provided for relief devices, thermometer wells, and inspection openings,

must be fitted with manually operated stop valves located as near the shell as practicable either internal or external to the shell. Nozzles installed in the vapor space to provide filling and cleaning openings which are closed except during filling or cleaning by a blank flange or other suitable means, need not be provided with a manually operated stop valve.

(b) Each filling or discharge connection located below the normal liquid level of the tank contents must, in addition to the manually operated stop valve required by paragraph (a) of this section, be fitted with a bolted blank flange on the outlet side of the valve or other suitable protection against accidental escape of the contents.

(c) Each valve must be designed and constructed to a rated pressure not less than the maximum allowable working pressure of the tank. Each stop valve with a screwed spindle must be closed by a clockwise motion of the handwheel. All valves must be constructed to prevent unintentional opening.

(d) Internal discharge valves, when installed, shall be self-closing, located inside the tank, or within the welded flange and operated to ensure against the accidental escape of contents.

(e) All piping must be of suitable material. Welded joints must be used wherever practicable. The bursting strength of all piping and pipe fittings must be not less than 4 times the maximum allowable working pressure of the tank. Piping must be supported in such a manner as to prevent damage due to thermal stresses, jarring and vibration.

(f) All nozzles and tank shell penetrations for nozzles shall be designed and constructed in accordance with the ASME Code.

(g) Glass level gauges or gauges of other easily destructible material, which are in direct communication with the contents of the tank, may not be used.

§ 178.270-13 Testing.

(a) *Hydrostatic test.* Each portable tank and all piping, valves and other attachments which are subject to the pressure of the contents of the tank, except pressure relief devices, must be hydrostatically tested by completely filling the portable tank (including domes, if any) with water or other liquid having a similar density and viscosity and applying a pressure of not less than 150 percent of the maximum allowable working pressure. The pressure shall be measured at the top of the tank and shall be maintained for at least 10 minutes. While under pressure the tank shall be inspected for leakage, undue distortion, or other conditions which indicate weakness which might render the tank unsafe for transportation service. Failure to successfully meet the test criteria shall be deemed evidence of failure to meet the requirements of this specification. Tanks failing to pass the test shall be suitably repaired. The suitability of the repair shall be determined by the same method of test.

(b) *Testing of internal coils.* Internal coils, if installed, must be hydrostatically tested to a pressure of not less than 200 psig or 150 percent of the rated pressure of the coils, whichever is greater.

(c) *Internal restraint test.* A prototype tank of each portable tank design must withstand the following tests without leakage or deformation that would render it unsuitable for use:

(1) *Longitudinal restraint.* The tank loaded to its maximum gross weight is positioned with its longitudinal axis vertical. It shall be held in this position for five minutes by support at the lower end of the base structure providing vertical and lateral restraint and by support at the upper end of the base structure providing lateral restraint only.

(2) *Lateral restraint.* The tank loaded to its maximum gross weight is positioned with its transverse axis vertical. It shall be held in this position for five minutes by support at the lower side of the base structure providing vertical and lateral restraint and by support at the upper side of the base structure providing lateral restraint only.

(d) *Rail impact test.* A prototype tank of each portable tank design which is to be authorized for transportation by rail must successfully withstand the prescribed impact tests without leakage or permanent deformation which would render the portable tank unsuitable for use.

(1) The car bearing the portable tank to be tested must be impacted four times into a string of five empty buffer cars with their brakes set and the train slack removed. The first three impacts shall be made at the same end of the test car at speeds not less than four, six and eight miles per hour. The fourth impact shall be at eight miles per hour at the opposite end of the test car. After each impact the portable tank shall be inspected for any evidence of leakage or deformation which would constitute a failure of the test.

(2) When track conditions prevent turning the test car around, the fourth impact may be accomplished by using a buffer car, equal to or exceeding the gross weight of the test car, as the striking car. The test car must be placed as the first car of the standing buffer cars and struck by the striking buffer car at the end not previously tested.

(e) *Pressure and vacuum relief devices.* Each spring loaded relief device must be tested for accuracy of the setting prior to installation on a portable tank and must be effectively sealed to maintain the required setting.

§ 178.270-14 Marking of tanks.

(a) *General.* Each portable tank must bear a corrosion resistant metal identification plate which is permanently attached to the portable tank in a position which is readily accessible for inspection. The information required in paragraph (b), and when appropriate, paragraph (c) of this section must be stamped, embossed or otherwise marked by an equally durable method on this plate in characters not less than ¼ inch high. This plate must not be painted so as to obscure the markings.

(b) *Required information.* At least the following information must appear on the metal identification plate for each specification IM 100 and IM 101 portable tank:

(1) DOT Specification number.
(2) Manufacturer's name.
(3) Date of manufacture.
(4) Manufacturer's serial number.
(5) Maximum allowable working pressure (psig.)
(6) Test pressure (psig).
(7) Total water capacity (gallons).
(8) Maximum gross weight (lbs.)
(9) Maximum weight of contents (lbs.).
(10) Equivalent minimum shell thickness in mild steel (in.) and actual shell thickness (in.).
(11) Tank material and specification number.
(12) Identification of approval agency.
(13) Date of last hydrostatic test and identification of witnessing approval agency.
(14) Date of last visual reinspection and identification of witnessing approval agency.

(c) *Additional information.* The following additional information must appear on the metal identification plate when appropriate:

(1) Lining material.
(2) Metallurgical design temperature (if above 150°F. or below 0°F.).
(3) Heating coil maximum allowable working pressure.
(4) Corrosion allowance provided.
(5) The words "RAIL AUTHORIZED" if the tank is authorized for rail transport. (Only permitted for design types which have successfully passed the tests in § 178.270-12(d).)

(d) Nothing in this section shall be deemed to preclude the display of other pertinent information on the required metal identification plate.

posed. The MTB recognizes, however, that inconsistency between domestic regulations and the international standards of a matter as fundamental as maximum permissible stress levels could, conceivably, adversely affect free movement of portable tanks in international commerce. For this reason, commenters are specifically requested to comment on the relative merits of both approaches to limitation of stress levels (i.e. ASME Code method and UN/IMCO method) devoting particular attention to:

(a) The potential that safety would be compromised if a 3:1 factor of safety was to be applied in certain cases;

(b) Any potentially significant barriers to trade that could result from the use of the stress level limitations proposed herein that are inconsistent with those in the international standards; and,

(c) The extent to which tanks constructed to a 3:1 factor of safety are actually in use throughout the world and reports of relevant transportation experience concerning such tanks.

Minimum thicknesses for heads and shells are proposed in § 178.270-5. The values specified assume tank construction is of mild steel which has been defined as a steel with a guaranteed minimum tensile strength of 52,500 pounds per square inch and a guaranteed minimum percentage elongation of 27, as recommended in the UN/IMCO standards. For tanks constructed of other than mild steel as defined, the required minimum thickness could be reduced by use of a mathematical equivalence relationship. The tensile strength of the material of construction as determined through actual testing could be used in place of the guaranteed minimum tensile strength tabulated for the material in the ASME Code.

In § 178.270-6 it is proposed that the stress in tank supports, frameworks or lifting attachments should not exceed 80 percent of the specified minimum yield strength of the materials of construction under specified conditions of dynamic loading. Furthermore, framework on tank containers would fully comply with the requirements of 49 CFR Parts 451 and 452 (43 FR 16948-16951, April 20, 1978) issued to implement the International Convention for Safe Containers.

Requirements for joints in tank shells are proposed in § 178.270-7. All joints would be made by fusion welding. Joint preparation, welding procedures and efficiencies would be as prescribed in the ASME Code. If they are not ASME Code qualified, welders would have to be qualified by the approval agency using the procedures provided in the ASME Code.

General requirements concerning the protection of valves and accessories are proposed in § 178.270-8.

In § 178.270-9 it is proposed that all tanks be provided with inspection openings of adequate size to allow for complete internal inspection. For tanks with a capacity exceeding 500 gallons a manhole of specified minimum dimensions would have to be provided.

Tanks not fitted with vacuum relief devices would be required by § 178.270-10 to be designed to withstand a positive external pressure differential of 6 pounds per square inch. When vacuum relief valves are installed, tanks would have to be designed to withstand an external pressure not less than the set pressure of the relief device.

Requirements for pressure and vacuum relief devices are proposed in § 178.270-11. The requirements for the number and type of relief devices required as well as the pressure setting of these devices are based on the provisions of the UN and IMCO portable tank standards. It is proposed that each portable tank be fitted with at least one pressure relief device and that at least one spring loaded pressure relief device be provided for tanks with capacities of 500 gallons or greater. General requirements governing the location, arrangement and construction of relief devices are proposed in § 178.270-11(b). The spring loaded relief device required on tanks with capacities of 500 gallons or greater, or frangible discs fitted on tanks with lesser capacities that have no spring loaded device installed, would be required to function at a pressure of 125 percent of the maximum allowable working pressure. Additional frangible pressure relief devices installed to insure adequate venting capacity in fire situations, would be required to function at a pressure of 150 percent of the maximum allowable working pressure. Any fusible element installed would be required to have a fusing temperature of not more than 250° F. Vacuum relief devices, if fitted, would be required to open at a nominal overpressure of not less than 3 pounds per square inch.

Requirements for minimum total venting capacity of relief devices are proposed in § 178.270-11(d). A minimum relieving capacity of one standard cubic foot of air per minute per 30 square feet of tank area is prescribed for each spring loaded pressure relief device. In addition, the total required venting capacity for all installed pressure relief devices is presented in a tabular format as a function of tank surface area. The values for venting capacities proposed were obtained using the venting capacity relationship presented in Pamphlet S-1.2, published by the Compressed Gas Association, assuming hexane as the fluid vented. It is further proposed that the required venting capacity determined according to the proposed table for insulated tanks be permitted to be reduced in proportion to the efficiency of the installed insulation subject to a maximum reduction to 25 percent of the venting capacity specified in the table. General requirements relating to the survivability of insulation under fire conditions are also proposed. These requirements, as well as those proposed for markings on pressure relief devices, are as provided in the latest IMCO portable tank standards.

Requirements for the construction and arrangement of valves, piping and other accessories are proposed in § 178.270-12. It is proposed that all tank nozzles be fitted with manually operated stop valves with the exception of nozzles installed in the vapor space which are closed by a blank flange during transport. Valves on filling and discharge connections must be fitted as close to the shell as practicable and filling and discharge connections must be fitted with a secondary means of closure such as a blank flange. It is proposed that valves be rated at a pressure not lower than the maximum allowable working pressure of the tank, and that they be closed by a clockwise motion of the handwheel when screwed spindles are employed. Internal stop valves, when installed, would be required to be self-closing and to be fitted entirely within the shell or the welded discharge flange. Piping would be required to have a bursting strength not less than four times the maximum allowable working pressure of the tank and to be adequately supported to prevent damage due to jarring or vibration. It is proposed that all nozzles and shell penetrations be designed in accordance with the ASME Code. Glass or other easily destructible gauging devices would be prohibited.

Requirements for the initial test and inspection of specification IM 100 and IM 101 portable tanks are proposed in § 178.270-13. Each tank would be required to be subjected to a pressure test at a pressure of 150 percent of the maximum allowable working pressure of the tank. Leakage, undue distortion, or other conditions that indicate a weakness which might, in the opinion of the witnessing approval authority, render the tank unsafe for transportation services, would constitute failure of the test. Internal heating coils, if installed, would be required to be hydrostatically tested to a pressure not less than the greater of 200 psig or 150 percent of the rated pressure of the coils.

A prototype tank of each portable tank design would be required to undergo inertial restraint tests to insure