

# *Regulations Respecting Compressed Gas Pressure Vessels*

*Repealed*

by Chapter B-5.1 Reg 1 (effective January 1, 2007)

*Formerly*

Saskatchewan Regulations 99/70 (effective June 1, 1970).

## **NOTE:**

This consolidation is not official. Amendments have been incorporated for convenience of reference and the original statutes and regulations should be consulted for all purposes of interpretation and application of the law. In order to preserve the integrity of the original statutes and regulations, errors that may have appeared are reproduced in this consolidation.

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## SASKATCHEWAN REGULATIONS 99/70

### *The Boiler and Pressure Vessel Act*

#### REGULATIONS RESPECTING COMPRESSED GAS PRESSURE VESSELS

##### Interpretation

1 In these regulations, the expression:

- (a) “**Act**” means *The Boiler and Pressure Vessel Act*, chapter 371 of the Revised Statutes of Saskatchewan;
- (b) “**compressed gas**” means any gas whether in a liquid, vapour, or dissolved state, which is explosive, inflammable or toxic or contained under pressure exceeding fifteen pounds to the square inch, exempting only those gases where regulations have already been established;
- (c) “**compressed gas plant**” means a plant used for producing, manufacturing, transferring, storing, distributing or otherwise handling compressed gas, and includes all property, buildings and equipment contained therein or connected therewith;
- (d) “**approved**” unless otherwise stated, means approved by the chief inspector;
- (e) “**A.S.M.E.**” means the American Society of Mechanical Engineers;
- (f) “**C.R.C.**” means the Board of Transport Commissioners for Canada or the Canadian Railway Commission;
- (g) “**C.S.A.**” means the Canadian Standards Association;
- (h) “**I.C.C.**” means the Inter-State Commerce Commission of the United States of America;
- (i) “**person**” includes an association, corporation, firm, partnership and syndicate;
- (j) “**portable cylinder**” means a pressure vessel constructed, tested and marked in accordance with C.R.C. or I.C.C. specifications and approved by the chief inspector;
- (k) “**pressure container**” means any vessel subject to pressure from a compressed gas other than a portable cylinder constructed in accordance with C.R.C. or I.C.C. requirements;
- (l) “**storage tank**” means any pressure vessel or pressure container designed in accordance with these regulations for storing or containing a compressed gas;

(m) “**transport tank**” means a pressure vessel other than a railway tank car, designed to be permanently mounted on a conveyance as an integral unit and used for containing and transporting a compressed gas in regular commercial services; and all other expressions shall have the same meaning as in the Act.

8 May 70 SR 99/70 s1.

#### **Approved vessels**

2(1) No pressure vessel other than an approved portable cylinder as defined in section 1(j) or an approved storage tank, transport tank, or other pressure container designed, constructed and fitted in accordance with these regulations shall be used for the storage, delivery or application of a compressed gas.

(2) It shall be a violation to construct, sell, lease, use or fill any vessel or container with a compressed gas which does not meet all the requirements of these regulations.

(3) The requirements contained in these regulations respecting the design, construction and use of pressure vessels and pressure containers for a compressed gas are based on the requirements of C.S.A. Code B51, the A.S.M.E. codes.

8 May 70 SR 99/70 s2.

#### **Maximum size of vessels**

3 The maximum water capacity of any compressed gas vessel shall be 30,000 U.S. gallons provided also that the maximum water capacity of vessels for particular purposes shall be as follows:

(a) for any vessel used as a transport or trailer tank in regular commercial delivery service as provided for in section 21(a), the maximum capacity shall be as limited by the Highway Traffic Board.

8 May 70 SR 99/70 s3.

#### **Vessel design registration**

4(1) Every pressure vessel or pressure container including bulk storage tanks, used storage tanks, transport tanks, shall have their design approved and registered by the department prior to construction or entry into the province for which purpose the manufacturer shall submit design drawings and specifications to the chief inspector in duplicate in accordance with the requirements of C.S.A. Code B51.

(2) When a vessel design has been approved and registered by the department, any design or construction changes including material changes, will require department approval, which, unless they are of a minor nature will require the resubmitting of new design drawings and specification to the department for re-registration.

(3) A minimum corrosion allowance of 1/8" shall be required on all vessels containing corrosive gases or liquids.

8 May 70 SR 99/70 s4.

**Stamping and Manufacturer's Affidavit**

**5** Where a vessel design has been approved and registered and the registration number allotted thereto by the department, vessels may be constructed according to such design in any number unless the design is cancelled by the department or becomes obsolete due to revisions in the regulations or in the codes, rules or standards referred to therein, provided that the following requirements are complied with:

(a) every vessel is constructed in strict accordance with the design which has been approved and registered by Saskatchewan, including the vessel dimensions, the thickness of shell and heads, the A.S.M.E. or A.S.T.M. material specifications and all other design details, and all welding is in accordance with a tested and proven procedure meeting the requirements of the A.S.M.E. Welding Qualifications code and section 7;

(b) each such vessel or a name plate permanently attached thereto is stamped with the following:

Saskatchewan Registration number or National Board Stamping or both,

Manufacturer's name and manufacturer's serial number.

Plate specification number and tensile strength for both shell and heads,

Thickness of shell and heads,

Registered maximum design pressure,

A.S.M.E. Code paragraph number and year built,

Diameter and overall length,

Water capacity in U.S. gallons or both U.S. and Imperial gallons.

(c) a Manufacturer's Affidavit on a special Saskatchewan affidavit form is submitted to the chief inspector at Regina for each vessel to be used in the Province immediately the vessel is shipped and a duplicate copy of same is forwarded with the vessel to the consignee;

(d) the Manufacturer's Affidavit shall include thereon a certificate of shop inspection signed by the authorized shop inspector.

8 May 70 SR 99/70 s5.

**Shop inspection**

**6** Each vessel exceeding 5 cubic feet in volume shall be shop inspected during construction and if constructed in Canada the authorized shop inspector shall be a provincial government boiler or pressure vessel inspector. In the U.S.A. the shop inspector shall hold a National Board Commission and be employed by a Code State or boiler insurance company.

8 May 70 SR 99/70 s6.

**Welders tests and welding procedure**

7(1) Welders, including welding machine operators employed on the construction of any vessel shall have been tested within an eighteen month period which tests shall have been witnessed or certified to by an authorized inspector as specified for shop inspection in section 6.

(2) Welders tests shall have been in accordance with the A.S.M.E. "Welding Qualifications Code", and a record of same on form Q-1(g) as specified in appendix 2 of the code be available to the department. The signature of the authorized inspector certifying to the welders test shall appear on form Q-1(g).

(3) Where the welders have not been tested as specified in subsection (1) weld test coupons may be ordered cut from the vessel by the department inspector and shall be tested in accordance with subsection (2) and if the coupons fail the vessel shall be sealed and its use prohibited.

(4) In addition to the welders tests specified in subsections (1) and (2) the welding procedure shall be established, tested, proved and registered by the manufacturer which procedure and tests shall include the filler metal to be used in actual construction and records of same forwarded to the department for registration.

8 May 70 SR 99/70 s7.

**Vessel design pressure**

8 Every storage vessel or pressure container shall be designed for a minimum pressure of 175% of the gas vapour pressure at 100°F. and every transport vessel or pressure container shall be designed for a minimum pressure of 200% of the gas vapour pressure at 100°F.

8 May 70 SR 99/70 s8.

**Hot formed heads**

9 Every vessel shall be constructed with hot-formed heads to eliminate stress corrosion cracking provided that where such heads are not available the following may be used as an alternative:

- (a) cold formed heads stress relieved in an approved manner prior to vessel fabrication;
- (b) stress relieving of the entire vessel after fabrication will be mandatory.

8 May 70 SR 99/70 s9.

**Baffle plates**

10 Every pressure vessel or pressure container subject to registration of design and over 5½ feet in overall length shall be fitted with one or more baffle plates having a minimum thickness of 3/16 inch. The maximum distance from head to baffle or between baffles shall be 5½ feet.

8 May 70 SR 99/70 s10.

**Manhole opening**

**11** Every vessel having a water capacity of 8,000 U.S. gallons or more shall be constructed with a manhole opening meeting A.S.M.E. requirements.

8 May 70 SR 99/70 s11.

**Manufacturer to supply fittings**

**12** Every vessel shall be fitted by the manufacturer with approved fittings including safety relief valves meeting the requirements of sections of the code as specified and all such fittings shall be especially designed for use with the type of compressed gas designated and shall be unaffected by use of such compressed gas.

8 May 70 SR 99/70 s12.

**Valves, fittings and piping**

**13** Valves, fittings and piping subject to tank pressure shall be designed for a minimum working pressure pursuant to the type of gas and design pressure of the vessel. Schedule 80 piping of steel shall be used throughout.

8 May 70 SR 99/70 s13.

**Dual fittings**

**14(1)** Every vessel opening with the exception of openings for safety relief valves or those protected by an orifice not larger than No. 54 drill size shall be fitted with dual fittings as follows:

- (a) with a manual operated shut-off valve in conjunction with either an excess-flow valve or a back-pressure check valve;
- (b) a combination excess-flow valve and back-pressure check valve;
- (c) a double back-pressure check valve;

**(2)** Excess-flow valves, back-pressure check valves and similar fittings shall be either inside the vessel or as close as possible to the outside of same.

8 May 70 SR 99/70 s14.

**Protection of fittings**

**15** Fittings located at the top of transport tanks, trailer tanks or any other vessel subject to be used for delivery purposes shall be recessed or otherwise protected against damage from the tank overturning by means of a steel box structure or other approved rigid metal guards having at least the same thickness as the vessel, well braced and securely welded to the container adjacent to the fittings. Where fittings or piping are located at the end of a transport tank, trailer tank or any vessel used for transporting a compressed gas it shall be protected from collision by means of a similar steel structure and also with an adequate vehicle bumper.

8 May 70 SR 99/70 s15.

**Relief valves and setting**

**16** Every vessel shall be fitted by the manufacturer with one or more spring loaded safety relief valves designed especially for the type of compressed gas and marked by the manufacturer as being approved for this purpose. The marking shall also include the valve capacity and the pressure at which the valve is set to relieve.

8 May 70 SR 99/70 s16.

**Assessory relief valves**

**17** Where excessive pressure may be caused in any pipe line, pump, compressor or other apparatus by the closing of valves, stops or any other device an approved hydrostatic relief valve shall in installed.

8 May 70 SR 99/70 s17.

**Pressure gauge**

**18** Every vessel having a water capacity of more than 250 U.S. gallons, also positive displacement pumps or compressors shall be equipped by the manufacturer with a pressure gauge.

8 May 70 SR 99/70 s18.

**Vessels to be painted**

**19** Every vessel shall be painted white by the manufacturer or by the distributor before being sold or used and the words danger (Name of Gas) shall be painted on the tank in any contrasting colour.

8 May 70 SR 99/70 s19.

**Use for other gases prohibited**

**20** Pressure vessels, containers and cylinders shall not be used for other than the gas designated.

8 May 70 SR 99/70 s20.

**Transport vessel limitations**

**21** Every vessel used for transporting compressed gases in any way whatsoever shall meet the following requirements:

(a) transport or trailer tanks in regular commercial delivery service shall be permanently fastened to the vehicle irrespective of capacity, and design drawings covering the vessel and the vehicle as a unit shall be submitted to the department for registration;

(b) every unit used for compressed gas delivery shall meet all requirements of the Highway Traffic Board respecting such vehicles in addition to meeting the requirements of these regulations.

8 May 70 SR 99/70 s21.