

Chapter 14:08 Factories and Works (Pressure-Vessel) Regulations,  
1976

**Chapter 14:08  
Factories and Works  
(Pressure-Vessel) Regulations, 1976**

*[Rhodesia Government Notice No. 303 of 1976](#)*

*Amended by S.I. 284/82.*

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IT is hereby notified that the Minister of Labour and Social Welfare has, in terms of [subsection \(1\) of section 34 of the Factories and Works Act \[Chapter 14:08\]](#), made the following regulations:—

## PRELIMINARY

### *Title*

1 (1) These regulations may be cited as the Factories and Works (Pressure-Vessels) Regulations, 1976.

(2) These regulations shall come into operation on the **1st May, 1976**.

### *Interpretation of terms*

2 In these regulations—

“**Chief Inspector**” means the Chief Inspector of Factories appointed in terms of [section 4 of the Act](#);

“**code of practice**” means a publication—

(a) embodying a standard laid down by the British Standards Institution or equivalent approved by the Chief Inspector of Factories;

[[subsection \(a\)](#) substituted by SI 284/82 with effect from 14<sup>th</sup> May, 1982]

(b) copies of which are held at Occupational Safety Offices where they may be inspected free of charge;

“**competent person**” means a person who has served an apprenticeship in an appropriate trade or who has not less than 5 years’ practical experience in working with machinery and who has a thorough knowledge of the machinery, or class of vessel of which he is in charge or which he may be required to examine;

“**gauge pressure**” means the pressure above or below that due to atmosphere, as specified by the Chief Inspector of Factories;

[definition substituted by SI 284/82 with effect from 14<sup>th</sup> May, 1982]

“**inspector**” means an inspector appointed in terms of [section 4 of the Act](#);

“**pressure-vessel**” means any closed vessel other than a boiler, or the cylinder or chamber of a steam or internal-combustion engine, which is subjected to an internal pressure higher or lower than that due to the atmosphere;

“**qualified person**” means a person who is able to submit documentary proof that he has received a thorough theoretical and practical education and training in engineering to the satisfaction of a competent professional institution recognized by the Chief Inspector, and who has held a position of independent responsibility for the control and supervision of machinery;

“**user**” means an occupier or builder as defined in the Act, or the person or persons using or leasing the machinery.

## PART I

### PRESSURE-VESSLES

#### *Design, construction and manufacture*

3 (1) No user shall use or cause or permit a pressure-vessel to be used unless—

(a) it has been designed and constructed in accordance with a code of practice approved by the Chief Inspector; or

(b) it has been approved by the Chief Inspector where no approved code of practice exists for any particular vessel; and

(c) it has been manufactured under the supervision of an inspection authority.

(2). Every user of a pressure-vessel shall have in his possession a certificate issued by an inspection authority in which the code to which the vessel was manufactured and the supervision exercised by the inspection authority during construction is certified:

Provided that, where the product of the maximum working pressure in kilopascals and the volume in cubic metres of the pressure-vessel does not exceed the figure 250, a batch certificate shall be deemed to be sufficient compliance with this subsection.

(3) The Chief Inspector may approve any organisation which employs inspection engineers to carry out the prescribed functions in regard to design, construction and manufacture of pressure-vessels and portable gas containers as an inspection authority.

(4) In giving effect to the provisions of [subsection \(3\)](#), the Chief Inspector may require an organization to submit to him such particulars of its technical equipment and resources, the extent of the qualifications and experience of its personnel and such other matters as he may consider necessary.

(5) Any approval of an inspection authority by the Chief Inspector may be withdrawn at any time.

### ***Manufacturer's plates***

4 Every user of a pressure-vessel shall cause a manufacturer's plate with the following particulars to be securely fixed in a conspicuous place to the shell of every such vessel—

- (a) manufacturer's name; and
- (b) country of origin; and
- (c) maker's number; and
- (d) year of construction; and
- (e) maximum safe working-pressure and test pressure, in kilopascals; and  
[amended by SI 284/82 with effect from 14<sup>th</sup> May, 1982]
- (f) capacity, in cubic metres; and
- (g) name and number of code and manufacture.

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### ***Maintenance***

5 No user shall use or cause or permit a pressure-vessel to be used unless—

- (a) it is kept clean and free from—
  - (i) carbonized oil or other flammable matter which may ignite under working conditions; or
  - (ii) any matter foreign to the normal intended use of the vessel; or
  - (iii) matter which is liable to chemical reaction which may cause an uncontrolled rise in pressure; and
- (b) it is at all times maintained in a safe working condition.

### ***Record-books***

6 Every user of a pressure-vessel shall keep on the premises a record book which shall be open to inspection by an inspector and in which shall be entered a written record of all tests, internal and external examinations, cleaning and repairs, and which shall be signed by the person carrying out tests, examinations, cleaning and repairs.

### ***Installation***

7 A user shall cause every pressure vessel to be so installed as to be readily accessible for inspection and test.

## ***Access and inspection-ports and openings***

8 A user shall cause every pressure vessel to be fitted with—

- (a) suitable inspection openings, so situated that all internal surfaces, longitudinal seams and circumferential seams may be conveniently cleaned and inspected; and
- (b) at least 1 manhole, where the dimensions of the pressure vessel are such as to permit of entry into the vessel which shall not be less than 380 mm by 280 mm in the case of elliptical manholes, and at least 380 mm in diameter in the case of circular openings:

Provided that—

- (i) where there is no danger from internal corrosive action no manhole need be provided;
- (ii) an inspector shall determine whether the number and size of inspection openings are sufficient and may require more inspection openings to be provided.

## **PART II**

### **PRESSURE-VESSEL APPURTENANCES**

#### ***Pressure-gauges***

9 A user of a pressure-vessel shall cause every such vessel to be fitted with a suitable gauge designed to show at all time the correct internal pressure the dial of which shall be—

- (a) graduated to show pressure in kilopascals, and the maximum pressure which the gauge shall be capable of registering shall be not less than the hydraulic test pressure as defined in [section sixteen](#) and not more than double the maximum safe working-pressure of the vessel;
- (b) marked with a prominent red mark at the maximum safe working-pressure of the vessel;

Provided that, where 2 or more pressure-vessels with the same maximum safe working-pressure are connected to a common supply main, 1 pressure-gauge fitted to the supply main, so situated that its reading is easily visible from any of the pressure-vessels, shall be sufficient.

#### ***Safety-valves***

10 A user shall cause every pressure-vessel to be fitted with at least 1 safety-valve, which shall be—

- (a) kept locked, sealed or otherwise inaccessible to unauthorized persons;
- (b) set to open at or before reaching the maximum safe working-pressure;
- (c) of such size as to prevent the pressure rising in excess of 10% above the maximum safe working-pressure;
- (d) attached to, or as near as practicable to, and incapable of being shut off from, the pressure-vessel, except where 2 or more pressure-vessels with the same maximum safe working-pressure are connected to a common supply main, 1 safety-valve fitted direct to the supply main, so situated that it is easily visible from any pressure-vessels, shall be sufficient:

Provided that, where a pressure-vessel is capable of being isolated from such a common supply main, an inspector may require the fitting of a fusible plug or rupturing disc to such pressure-vessel;

- (e) constructed of metal of a type approved by an inspector;
- (f) arranged to discharge by means of pipes, where the discharge consists of dangerous or toxic gases, vapours or liquids, in such a manner as to ensure the safety of persons;

Provided that—

- (i) when an inspector is satisfied that the use of a safety valve in a particular process is impracticable due to its inability to operate under all working conditions, he may require or permit the use of rupturing discs subject to such further conditions as he may prescribe.
- (ii) with the permission of an inspector where the maximum safe working-pressure of steam receivers cannot be exceeded, no safety valve need be fitted to such receiver.

### ***Stop-valves***

11 A user shall cause every pressure-vessel to be fitted with a stop-valve which shall be—

(a) placed in the supply main as close as possible to the pressure-vessel:

Provided that, where 2 or more pressure-vessels operate in a group a stop-valve fitted close to the group shall be sufficient;

(b) constructed of metal of a type approved by an inspector.

### ***Drain-cocks***

12 A user of a pressure-vessel shall cause every such vessel in which liquid may collect to be fitted with a suitable drain at the lowest part of the vessel, the discharge whereof shall be controlled by a cock or valve and led to a safe place.

### ***Level-indicators***

13 A user shall cause every pressure-vessel, in which the level of the liquid in the vessel is material to the safety of persons, to be fitted with a means of indicating at all times the actual level of the liquid, and which—

(a) shall be conspicuously marked, with corresponding marks on the shell of the vessel, to indicate the safe-working level limits of liquid in the vessel;

(b) in the case of a glass tubular type level-indicator, shall be—

(i) fitted with an efficient guard which shall be so constructed as not to obscure the reading of the indicator;

(ii) so constructed that, in the event of the glass breaking, it shall automatically prevent the escape of poisonous, hot explosive or flammable substances into the atmosphere.

### ***Pressure reducing valves***

14 (1) A user shall cause every pressure-vessel which is worked from a supply the pressure of which is higher than the safe working-pressure of such vessel to be fitted with—

(a) pressure-reducing valve to reduce the supply pressure to the maximum safe working-pressure of the vessel;

and

(b) a safety-valve fitted adjacent to the low-pressure side of the reducing valve and set to release at the maximum safe working-pressure of the vessel, and of such size as to prevent the pressure rising in excess of 10% above the maximum safe working pressure.

(2) Where 2 or more pressure-vessels with the same working-pressure are connected to the same source of supply, 1 pressure-reducing valve and 1 safety-valve shall be sufficient.

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### ***Door-interlocks***

15 A user shall cause every pressure-vessel which is intended to operate under pressure and which is equipped for operational purposes with removable or hinged doors or covers to be fitted with interlocks or other effective means for preventing—

(a) a rise in pressure or vacuum inside the vessel before the door or cover is in the fully closed or locked position; and

(b) the release of the door or cover from the locked or closed position before the pressure inside the vessel has been reduced to atmospheric pressure.

## **PART III**

## STATUTORY INSPECTION AND TESTS

### *Inspection and tests*

16 (1) A user shall cause every pressure-vessel to be subjected to inspection and test by a qualified person or a competent person appointed by the user, in writing and approved by the Chief Inspector, in accordance with the following provisions—

[amended by SI 284/82 with effect from 14<sup>th</sup> May, 1982]

(a) pressure-vessels in which the product of the designed working-pressure in kilopascals and the capacity in cubic mtrs exceeds the figure 75 but does not exceed the figure 250 shall be inspected and tested before use for the first time and at such intervals as required by the relevant code of practice pertaining to its manufacture;

[amended by SI 284/82 with effect from 14<sup>th</sup> May, 1982]

(b) pressure-vessels in which the product of the designed working pressure and the capacity in cubic metres exceeds the figure all be—

(i) inspected and tested before commissioning after installation for the first or any subsequent time or after having been out of commission for more than 2 years or after major repairs;

(ii) inspected at regular intervals or not more than 2 years;

(iii) tested at regular intervals of not more than 4 years:

Provided that, where particular working conditions exist, an inspector may require more frequent inspections and tests to be carried out.

(2). The inspection and test referred to in [subsection \(1\)](#) shall consist of—

(a) an examination of the internal and external surfaces of the vessel and of all the fittings and appurtenances;

(b) a pressure test by water, or, where water is impracticable, by another neutral liquid, to a pressure of 1,3 times the maximum safe working pressure of the vessel:

Provided that, where—

(i) the construction of the vessel is such as to preclude a thorough inspection of all the internal surfaces, such as vessel-jackets, the internal inspection may be substituted by a pressure test;

(ii) it is impracticable to use a liquid for such test, an inspector may permit a test with a non-flammable gas to a pressure of 1,1 times the maximum safe working-pressure of the vessel and on condition that the test is preceded by an internal inspection and on such further conditions and precautionary measure as he may instruct;

(iii) if it can be shown that special circumstances exist, as in the case of ammonia bullets, fermenting storage-vessels or carbon dioxide liquid receivers, the Chief Inspector may allow such relaxation or modification of the requirements of the regulations as he may consider necessary.

[proviso (iii) inserted by SI 284/82 with effect from 14<sup>th</sup> May, 1982]

(3) Notwithstanding anything to the contrary contained in this section, cooking-pots, tyre-moulds and similar jacketed vessels shall, irrespective of size, be subjected to inspection and test as prescribed by paragraph (b) of subsection (1) of this section.

### *Reduction in permitted pressure, and repairs*

17 (1) When it appears from an examination or test that a pressure-vessel can no longer be worked with safety at the maximum working-pressure, and the user declines to have the necessary renewals or repairs effected, the inspector may fix a new maximum working pressure at which the vessel may continue to be worked, and the inspector shall require the new reduced pressure to be marked on the manufacturer's plate, and no user shall require or permit such a vessel to be worked at a higher pressure.

(2) When, on examination, a pressure-vessel is found to be in a condition from which immediate danger may arise, the user shall suspend forthwith the working of such vessel, and it shall not be used until repairs have been carried out and permission has been granted thereto by the inspector.

## **PART IV**

### **PORTABLE GAS-CONTAINERS**

#### ***Construction and use***

18 No occupier or user shall fill, place in service or use any portable gas-container except those used for medical gases or for solely domestic use unless—

(a) it complies with a code of practice approved by the Chief Inspector with respect to—

- (i) initial and periodical inspection and tests; and
- (ii) fittings and safety devices; and
- (iii) identification markings; and
- (iv) colour markings; and
- (v) charging;

and

(b) it has been manufactured under the supervision of an approved inspection authority to a code approved by the Chief Inspector; or

(c) it is approved by the Chief Inspector where no approval code exists for such a gas-container

#### ***Handling***

19 During storage, transportation and use of portable gas-containers, the user shall cause effective measure to be taken against bumping, falling, rolling, overheating or corrosion.

20 In the case of toxic, inflammable and corrosive gases, the container-valve shall be adequately protected at all times, except when being used or filled, by means of a metal cap or cover securely attached to the container, unless the valve is so recessed or shrouded or the container is so boxed or crated as to prevent the valve from being damaged during impact.