BELIZE NATIONAL STANDARD

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BELIZE NATIONAL STANDARD SPECIFICATION FOR INSPECTION, TESTING AND REQUALIFICATION OF PORTABLE CONTAINERS FOR LIQUEFIED PETROLEUM GASES (LPG)

(BZS 22: 2012)

BBS

BELIZE BUREAU OF STANDARDS

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BELIZE NATIONAL STANDARD

FOR INSPECTION, TESTING AND REQUALIFICATION OF PORTABLE CONTAINERS FOR LIQUEFIED PETROLEUM GASES (LPG)

Committee Representation

The preparation of this standard for the Standards Advisory Council established under the Standards Act 1992 (Revised Edition 2000), was carried out under the supervision of the Bureau's Technical Committee for LIQUEFIED Petroleum Gas (LPG), which at the time comprised the following members:

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BELIZE NATIONAL STANDARD

FOR INSPECTION, TESTING AND

REQUALIFICATION OF PORTABLE CONTAINERS FOR

LIQUEFIED PETROLEUM GASES (LPG)

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0 FOREWORD

0.1 This standard is the second in a series of standards for portable containers of liquefied petroleum gases (LPG). The primary objective of the requirements outlined in this standard for the periodic inspection, testing and re-qualification of containers, is to ensure that containers in service, as well as those being re-introduced into service, are in good condition and do not present a safety hazard or risk to consumers.

0.2 The inspection , testing and re-qualification of the containers should be carried out only by persons who are competent in the subject, to assure all concerned that the cylinders fit the permissible limits for continued safe use.

0.3 In drafting this standard, considerable assistance was derived from SLNS 44: 2006, Standard for Inspection, Testing and Requalification of Portable Containers for Liquefied Petroleum Gases (LPG), Saint Lucia Bureau of Standards.

0.3 In preparing this standard assistance has been derived from:

(a)	BNS 130: 1992-	Specification for Inspection, Testing and Requalification of Portable Containers for Liquefied Petroleum Gases;
b)	BS EN 1440: 1997 -	Transportable, refillable welded steel Cylinders for Liquefied Petroleum Gases (LPG) – Periodic requalification;
c)	ISO 10297: -	Gas Cylinder Valves specification and Testing;
d)	ISO 10460: 1993 -	Welded Carbon Steel gas Cylinders – Period Inspecting and Testing.

1 SCOPE

1.1 This standard specifies the minimum requirements for the periodic inspection, testing and requalification of containers of liquefied petroleum gases to verify their integrity for further service.

1.2 It does not exclude the application of additional national requirements nor does it preclude the use of alternative methods where they provide equivalent methods of safety.

2 TERMS AND DEFINITIONS

For the purpose of this standard the following terms and definitions shall apply:

2.1 **competent person/body** means a person who by a combination of training, experience and supervision is able to make objective judgments on the subject.

2.2 **portable container** means any container of a mass not greater than 45 kg of liquefied petroleum gas.

2.3 **shell** refers to storage tanks or other pressure vessels, the shell the metal wall of the main body of the tank as distinguished from the head or ends.

2.4 **re-qualification** refers to activities carried out at defined intervals such as examining, measuring, testing or gauging the characteristics of a cylinder and comparing these with specified requirements.

3 GENERAL PROCEDURES FOR INSPECTION, TESTING AND REQUALIFICATION

3.1 The following procedures form the basic requirements for periodic inspection, testing and re- qualification of containers for liquefied petroleum gases:

3.1.1 Containers due for periodic inspection and testing shall be identified primarily from either the date of manufacture stamped on the container or the last periodic test date stamped on the container

3.1.2 Inspection, testing and requalification of the container are to be made by a competent person.

3.1.3 Each portable container shall be subjected to an external and internal visual inspection, as described in 4.0 and 5.0 respectively and additionally one or more of the following supplementary tests as agreed with a competent person or body.

a) Hardness test;

b) Verification of cylinder mass or tare;

c) Inspection of cylinder neck/shoulder;

d) Hydraulic proof test;

e) Inspection of cylinder threads;

f) Pneumatic proof test and leak test; and

g) Pneumatic leak test where the actual burst test pressure exceeds:

(i) 35 bar (525 psi) for commercial butane cylinders; and

(ii) 70 bar (1050 psi) for commercial propane cylinders.

3.1.4 Newly manufactured containers shall be certified every ten years provided that the container has been used exclusively for liquefied petroleum gas and is free from corroding components and any other physical and material defects as described in Table 1.

3.1.5 Containers already in use shall be certified every five years.

3.1.6 Besides the periodic inspections and requalification specified above all containers shall be inspected prior to filling to determine whether the condition of the cylinder is safe for filling or warrants immediate examination and requalification.

3.1.7 The date of requalification shall be stamped on the container.

3.1.8 Any container that has not been inspected or tested after the specified period (within the year) shall not be filled.

3.1.9 When the condition of the container remains in doubt after the initial tests, supplementary tests shall be implemented as in 3.1.3.

3.1.10 Any container rejected by the competent person shall be segregated for reconditioning or scrapping.

4 EXTERNAL VISUAL INSPECTION

4.1 Preparation for external visual inspection

4.1.1 Before any work is carried out the container shall be identified and its contents emptied using a safe procedure and the release of pressure shall be controlled. The container shall be emptied at a properly equipped testing station by an operator trained to handle liquefied petroleum gases.

4.1.2 If required the cylinder shall be cleaned and have all loose coatings, rust, scale, caked paint or other foreign matter removed from that part of the exterior of the container so that the surface can be adequately observed.

Cleaning may be achieved through steel wire brushing, shot blasting, water jet abrasive cleaning, and chemical cleaning or by other suitable methods.

4.1.3 Appropriate means shall be provided for inverting the container to facilitate inspection of the bottom. This is important because this is the part of the container most susceptible to corrosion.

4.1.4 If it is suspected that a container valve is obstructed, a check or checks shall be made to establish whether there is free passage through the valve or not. If it is established that there is no obstruction to gas flow in the container valve, the valve may be removed. When a container is found to have an obstructed gas passage in the valve or a damaged/inoperable valve, the container shall be set aside for special attention.

4.2 Inspection procedure

The entire cleaned surface of the container shall be inspected for the following physical and material defects:

a) dents, cuts or gouges, bulges, cracks, laminations or punctures applying the Rejection Rules in 4.4;

b) corrosion, general distortion, leaks, fire damage or other visible that might indicate a weakness which would render the cylinder unfit for further service, applying the Rejection Rules as in 4.4;

c) other defects e.g. heat/fire damage, torch or electric arc burns and stamping, etc, applying the Rejection Rules in Table 3;

d) integrity of all permanent attachments.

4.3 Inspection equipment

4.3.1 Exterior corrosion, denting, bulging, gouges or digs are normally measured by simple direct measurement with scales or depth gauges. A rigid, straight edge of sufficient length may be placed over the defect and a scale used to measure the distance from the bottom of the straight edge to the bottom of the defect.

4.3.2 Commercial depth gauges are especially suitable for measuring the depth of small cuts or pits. It is important when measuring such defects to use a scale which spans the entire affected area.

4.4 Physical and material defects and rejection rules

Gas container defects may be physical, material or due to corrosion as a result of environmental or service conditions to which the cylinder has been subjected.

Rejection Rules for physical and material defects on the container are contained in Table 1, Table 2 and Table 3.

5 INTERNAL VISUAL INSPECTION

5.1 Preparation of containers

a) The containers shall be emptied of liquid and depressurized in a safe and controlled manner before proceeding;

b) Containers with inoperative or blocked valves shall be brought to a place for safe valve removal;

c) Valves shall be removed from cylinders for inspection and maintenance.

5.2 Procedure for inspection

a) After removing, where necessary, residual liquid, loose scale and any other foreign matter from the interior, containers shall be inspected internally using an appropriate device (e.g. a lamp) to identify any of the defects similar to those listed in 4.2. Any internal lining or coating which may obstruct a thorough internal visual inspection shall be removed;

b) Containers showing signs of minor surface rust/corrosion shall be cleaned internally using an appropriate method (e.g. shot blasting under closely controlled conditions, water-jet abrasive, steam-jet cleaning, hot-water jet cleaning, chemical cleaning, etc). During cleaning care shall be taken to avoid damaging the container walls. Containers shall be re-inspected after cleaning.

Table 1- Physical and material defects on an LPG container & rejection rules

Defects	Description	Rejection
Bulge	Visible swelling of the container	Reject in all cases.
Dent	A depression in the cylinder that has neither penetrated nor removed metal, and its width at any point is greater than 2% of the external cylinder diameter.	When the depth of the dent exceeds 25% of its width at any point[a].

Defects	Description	Rejection
Cut or Gouge	A sharp impression where metal; has been removed or redistributed.	Where the original calculated wall thickness is known: where depth of cut or gouge is such that the undamaged (remaining) wall is less than the minimum calculated wall thickness.
Intersecting cut or gouge	The point of intersection of two or more cuts or gouges.	Rejection in all cases
Dent containing cut or gouge	A depression in the cylinder within which there is a cut or gouge.	When the size of the dent cut or gouge exceeds the dimensions for rejection as an individual defect.
Crack	A split or rift in the cylinder shell.	Rejection in all cases
Lamination	Layering of the material within the cylinder wall appearing as a discontinuity, crack, lap or bulge at the surface	Rejection in all cases
Leak	A leak may originate from a number of sources, defects in a welded or brazed seam, defects at the threaded opening, or from sharp dents, digs, gouges or pits.	Any container with a leakage, other than a leakage at thread connections which can be corrected by tightening, shall be rejected.
[a] Consideration of appearance and location also plays a part in the evaluation of dents.		

Table2 – Corrosion on the cylinder wall

Defect	Description	Rejection limit
Isolated corrosion pits	Pitting of metal occurring in isolated areas at a concentration not greater than 1 per 500 mm² of surface area	When the depth of discrete pits exceeds 0.6 mm (a greater depth can be accepted provided the depth of corrosion does not reduce the wall thickness below the minimum calculated wall thickness)
Area corrosion	Reduction in wall thickness over an area not exceeding 20% of the cylinder surface, including the ends (top and bottom)	When the depth of penetration of any pit exceeds 0.4 mm (a greater depth can be accepted provided the depth of corrosion does not reduce the wall thickness below the minimum calculated wall thickness.

Defect	Description	Rejection limit
General corrosion	A reduction in wall thickness over an area exceeding 20% of the cylinder surface.	When the depth of penetration of any pit exceeds 0,2 mm (a greater depth can be accepted provided the depth of corrosion does not reduce the wall thickness below the minimum calculated wall thickness.
Chain pitting or line or channels corrosion	A series of pits or corroded cavities of limited width along the length or around the corrosion circumference.	1) When the total length of corrosion in any direction exceeds 50% of the circumference of the cylinder. 2) When the depth of penetration of any pit exceeds 0,4 mm (a greater depth of corrosion does not reduce the wall thickness below the minimum calculated wall thickness) 3) When the depth of corrosion cannot be measured
Crevice corrosion	Crevice corrosion occurs in the area of the intersection of the foot ring or shroud with the cylinder	When the depth of penetration exceeds 0,4 mm or when the depth of corrosion cannot be measured

Table 3 – Other defects

Defect	Description	Rejection limit
Depressed bung	Damage to the bung which has altered the profile of the cylinder	Rejection in all cases or a limited level of depression/alignment deviation may be accepted as agreed with the competent body.
Arc or torch burns	Burning of the cylinder base metal, a hardened heat-affected zone, the addition of extraneous weld metal, or the removal of metal by scarfing or cratering	Rejection in all cases

Defect	Description	Rejection limit
Fire damage[a]	Excessive general or localized heating of a cylinder, usually indicated by: - charring or burning of paint - fire damage of the metal - distortion of the cylinder - melting of metallic valve parts - melting of any plastic components, e.g date ring, plug or cap	Rejection in all cases
[a] If paint is only superficially charred, a cylinder may be accepted by a competent person		

Table 4- Maximum allowable dent depth chart

Average dent diameter (mm)	Maximum allowable dent depth (mm)	Average dent diameter (mm)	Maximum allowable dent depth (mm)
5	0.5	165	16.5
10	1.0	170	17.0
15	1.5	175	17.5
20	2.0	180	18.0
25	2.5	185	18.5
30	3.0	190	19.0
35	3.5	195	19.5
40	4.0	200	20.0
45	4.5	205	20.5
50	5.0	210	21.0
55	5.5	215	21.5
60	6.0	220	22.0
65	6.5	225	22.5
70	7.0	230	23.0
75	7.5	235	23.5
80	8.0	240	24.0
85	8.5	245	24.5
90	9.0	250	25.0
95	9.5	255	25.5
100	10.0	260	26.0
105	10.5	265	26.5
110	11.0	270	27.0
115	11.5	275	27.5
120	12.0	280	28.0
125	12.5	285	28.5
130	13.0	290	29.0
135	13.5	295	29.5
140	14.0	300	30.0
145	14.5	305	30.5
150	15.0	310	31.0
155	15.5	315	31.5
160	16.0	320	32.0

TABLE 5: LPG C

Cylinder Type	ICC Code	Water Capacity (kg)	Inside diameter (mm)	Overall length (mm)	Minimum original column 1 line corrosion cuts, gouges or digs less than 76 mm in length or general corrosion		Column 2 cuts gougers or digs more than 76 mm in length		Column 3 isolated pits		Column 4 pits in general		Corrosion area	
					Shell thickness (mm)	Head thickness (mm)	Shell (mm)	Head (mm)	Shell (mm)	Head (mm)	Shell (mm)	Head (mm)	Shell (mm)	Head (mm)
20#	4B-240	21,6	304,8	376,2	2,667	2,667	1,321	1,321	0,660	0,660	1,778	1,778	0,889	0,889
20#	4B-240	21,6	304,8	376,2	1,981	1,981	0,991	0,991	0483	0,483	1,321	0,321	0,660	0,660
60	4BA-240	653	3048	9779	2667	2667	1321	1321	0660	0660	1778	1778	0889	0889
60#	4BA-240	653	3048	9779	1981	1981	0991	0991	0483	0483	1321	1321	0660	0660
C	26-150} Or -300}	998	4064	8894 {9144	4445	7950	2210	3962	1092	1981	2946	5283	1473	2642
C	4B-240	1225	4064	8509	3937	4750	1956	2362	0965	1168	2616	3175	1295	1575
100#	4B-240	1084	3583	11367	3175	3175	1600	1600	0787	0787	2108	2108	1067	1067
100#	4BA-20	1084 & 1080	3583	11367	2210	2210	1118	1118	0559	0559	1473	1473	0737	0737
E(150#)	4B-240	1628	{4572 {4969	1016	10351	4089	4089	2032	1016	1016	2718	2718	1346	1346
E(128#)	26-150} Or-300}	1393	{4318	10287	5080	5080	2540	2540	1270	1270	3378	3378	1676	1676
M)205#)	4B-240	2703	5583	12319	4851	4851	2413	2413	1194	1194	3226	3226	1600	1600
P(300#)	4B-240	3243	6096	12192	5283	5283	2642	2642	1321	1321	3531	3531	1753	1753
P(300 #)	4BA-240	3243	6096	15875	3607	3607	1803	1803	0889	0889	2388	2388	1194	1194
X(420#)	4B-240	4536	7366	12351	6375	6375	3200	3429	1600	1600	4267	4572	2108	2286

TABLE 5: LPG C (Continued)

Cylinder Type	ICC Code	Water Capacity (kg)	Inside diameter (mm)	Overall length (mm)	Minimum original column 1 line corrosion cuts, gouges or digs less than 76 mm in length or general corrosion		Column 2 cuts gougers or digs more than 76 mm in length		Column 3 isolated pits		Column 4 pits in general		Corrosion area	
					Shell thickness (mm)	Head thickness (mm)	Shell (mm)	Head (mm)	Shell (mm)	Head (mm)	Shell (mm)	Head (mm)	Shell (mm)	Head (mm)
X(420#)	4ba-240	4536	7366	14097	4369	4369	2184	2184	1092	1092	2896	2896	14448	1448

NOTE 1 for any container not listed above, select one with the same diameter and ICC Code from above table and use those limits.

NOTE 2 For those cases where the original thickness is known to exceed the specification minimum the values in columns 1 through 4 may be increased by an amount equal to the excess thickness.

6 ADDITIONAL TEST PROCEDURES

6.1 Hydraulic test

The container shall be submitted to a hydraulic pressure test using a suitable fluid e.g. water or kerosene as the test medium.

6.1.1 Preparation of containers

(a) The external surface of the container shall be cleaned as in 4.1.2;

(b) The containers shall be emptied of liquid and depressurized in a safe and controlled manner before proceeding;

(c) Containers with inoperative or blocked valves shall be brought to a place for safe valve removal;

(d) Valves shall be removed from containers for inspection and maintenance;

(e) If the cleaning method involves the wetting of the external surface, the external surface shall be completely dried before commencing the hydraulic test procedure.

6.1.2 Test equipment

(a) All rigid pipe work, flexible tubing, valves, fittings and components forming the pressure system of the test equipment, shall be designed to withstand a pressure of 1.5 times the maximum test pressure of any container to be tested. Flexible tubing shall have characteristics to prevent kinking.

(b) Pressure gauges that shall be used to read the cylinder test pressure shall be in accordance with EN 837-1 and EN 837-3 (class 1.6 or better). They shall be calibrated or checked for accuracy against a master gauge at regular intervals and in any case not less frequently than once a month. The master gauge shall be recalibrated in accordance with national requirements. The design and installation of the equipment and the cylinders connected to it shall ensure that no air is trapped in the system.

(c) All joints within the system shall be leak tight.

(d) A device shall be fitted to the test equipment to ensure that no cylinder is subjected to pressure in excess of its pressure by more than the tolerance given in 6.1.3 (d).

6.1.3 Procedure

(a) The test pressure shall be established from the marking on the container.

NOTE: More than one container may be tested at a time provided they all have the same test pressure.

(b) Before applying pressure, the external surface of the cylinder shall be in such condition that any leak can be detected. The cylinder shall be positioned so that the welds are visible during the test.

(c) The pressure shall be increased gradually in the cylinder until the test pressure is reached. Then the cylinder shall be isolated from the pumping system.

(d) The test pressure shall not be exceeded by more than 10% or 2 bar (30 psi), whichever is the lesser. The test pressure shall be held for 30s to carry out the test.

(e) If there is a leakage in the pressure system, it shall be corrected and the cylinders retested.

(f) Cylinders which do not leak or show any visible permanent distortion shall be deemed to have satisfied the requirements of the hydraulic test.

(g) Any cylinders that fail the test shall be rejected. Rejected cylinders having a pinhole leak at the weld may be repaired, however. Cylinders that leak through pinholes at the weld should be rendered unserviceable or examined by a competent person to determine whether they can be repaired by welding. Any welding or repairing should be carried out in accordance with a written procedure approved by a competent body.

(h) All repaired cylinders shall as a minimum be subjected to the procedures from a) to g) above. All repaired cylinders which fail a second time shall be rendered unserviceable.

6.2 Pneumatic leak test and proof test

6.2.1 Preparation of containers

(a) The external surface of the container shall be cleaned as in 4.1.2.

(b) The containers shall be emptied of liquid in a safe and controlled manner before proceeding. Containers with the inoperative or blocked valves shall be brought to a safe place for valve removal.

(c) Consideration should be given to the need for repainting before commencing the pneumatic test, if full water immersion is to be used.

6.2.2 Procedure

(a) The pneumatic proof test pressure for the cylinder shall be established prior to the test commencing and shall be the same as for an equivalent hydraulic test. Cylinders shall be charged with the pneumatic test medium to the test pressure and held at that pressure for 5s to 7s to carry out the test. Where a pressure relief valve is fitted, an adequate margin of safety shall be maintained between the pneumatic proof test pressure and the pressure setting of the pressure relief valve. If necessary the pressure relief valve shall be removed and the port plugged for testing.

(b) The pressure may then be reduced to that required for the leakage test. The reduced pressure shall not be less than the pressure developed at the reference temperature as given in the design standard. If the pressure relief valve has been removed, it shall be reinstalled before leak testing.

(c) The leakage test shall be for the entire cylinder and shall be by full water immersion or an equivalent method.

(d) Any cylinder that fails that test shall be reconditioned or rendered unserviceable.

(e) All reconditioned cylinders shall as a minimum be subjected to the procedures from (a) to (d) of this subclause.

6.3 Pneumatic leak test

6.3.1 Preparation of containers

(a) The external surface of the containers shall be cleaned as in 4.1.2.

(b) Containers with inoperative or blocked valves shall be brought to a safe place for valve removal.

(c) Consideration can be given to the need for repainting before commencing the pneumatic test, if full water immersion is to be used.

6.3.2 Procedure

(a) The containers shall be filled either with a pneumatic test medium, (e.g. natural gas, air, nitrogen), or with a small quantity of LPG in

such a way that the internal pressures developed in the cylinder at the time it is checked for leakage shall be:

i. 7^{+2}_{o} bar (psi) for commercial butane cylinders;

ii. 18^{0+2}_{o} bar (psi) for commercial propane cylinders.

(b) Propane vapor may also be used as the test medium in which case the test pressure shall be limited to 5 bar (75 psi). Then the cylinder shall be isolated from the pressure source.

(c) The gas tightness check shall be capable of detecting any leak from any part of the cylinder or its equipment.

(d) The test can consist of full immersion of cylinder in water or an equivalent system.

(e) Any cylinder which fails the test shall be reconditioned or rendered unserviceable. All reconditioned cylinders shall as a minimum be subjected to the procedures from a to c of the sub clause 3.1.3

6.4 Volumetric expansion test

6.4.1 General

The cylinder shall be placed in a water jacket equipped to measure expansion and may be pressurized by water, kerosene or another suitable liquid.

6.4.2 Preparation of cylinders

(a) The cylinders shall be emptied of any liquid and depressurized in a safe and controlled manner before proceeding.

(b) Cylinders with inoperative or blocked valves shall be brought to a place for safe valve removal.

(c) Valves shall be removed from cylinders for internal inspection.

NOTE: The external surface of the cylinder may have to be subject to cleaning (see 6.3.1).

6.4.3 Test equipment

(a) All rigid pipework, flexible tubing, valves, fittings, and other components forming the pressure system of the test equipment shall be designed to withstand a pressure of 1.5 times the maximum test pressure of any cylinders to be tested. Flexible tubing shall have characteristics that prevent kinking.

(b) Pressure gauges that are used to read the cylinder test pressure shall be in accordance with EN 837-1 and EN 837-3 (class 1.6 or better). They shall be calibrated or checked for accuracy against a master gauge at regular intervals and in any case not less frequently than once a month. The master gauge shall be recalibrated in accordance with national requirements. The design and installation of the equipment and the cylinders connected to it shall ensure that no air is trapped in the system.

(c) All joints within the system shall be leak proof.

(d) A device shall be fitted to the test equipment to ensure that no cylinder is subjected to pressure in excess of its test pressure by more than the tolerance given in 6.1.3 (d).

6.4.4 Procedure

(a) The pressure of the test shall be established from the test pressure marking on the cylinder.

(b) The pressure shall be increased gradually in the cylinder until the test pressure is reached. Then the cylinder shall be isolated from the pumping system.

(c) The test pressure shall be held for at least 30s to carry out the test.

(d) If there is a leakage in the pressure system, it shall be corrected and the cylinders retested.

(e) The cylinder shall not exhibit a permanent expansion greater than 10% of the maximum expansion.

7 INSPECTION OF CYLINDER THREADS

7.1 General

If the valve (or any other fitting) is removed during periodic inspection, the cylinder's threads shall be inspected in accordance with 4.2 to 4.4.

7.2 Internal threads

The internal threads of the cylinder shall be visually examined to ensure that they are of adequate form and are clean. They shall be checked for burrs, cracks and other thread damage.

7.3 External threads

External neck threads which are required for operational reasons shall be examined for integrity and for thread damage.

7.4 Damaged threads

Where necessary and where the design permits, damaged threads may be repaired by a competent person.

8 FINAL OPERATIONS

8.1 Drying

After hydraulic testing, effective precautions shall be taken to prevent internal corrosion.

8.2 Purging

Air should be removed from the cylinder, e.g. by evacuation or by displacement with LPG. Cylinders should not be left open without valves or plugs for any period other than that required for essential maintenance.

8.3 Tare mass

The tare mass of the cylinder shall be re-established if any modification or re-valving has been made on the cylinder (see ISO 4706 and ISO 22991)

8.4 Valving

A valve suitable for the intended use shall be fitted to the cylinder using a sealing material/system (see ISO 13341 for details) and the optimum torque necessary to ensure a seal between the valve and the cylinder. The torque applied shall take into consideration the size, form and taper of the threads, the material of the valve and the type of sealing material/system used.

8.5 Marking

After successful completion of the periodic inspection, each cylinder shall be legibly and durably marked, on the shroud, with the following information:

a) The identification of the test station or inspection body which carried out the periodic inspection;

b) The date of the inspection, which shall be in accordance with International Standard **ISO 8601: 2004 Data elements and interchange formats – Information interchange – Representation of dates and times (year/month/date)**. The height of the markings shall be at least 4 mm.

8.6 Reference to next periodic inspection date

The next periodic inspection date shall be identified on the cylinder in accordance with the relevant regulations.

8.7 Identification of contents

The cylinder contents shall be identified in accordance with the relevant regulations, e.g. commercial propane.

9 RENDERING CYLINDERS UNSERVICEABLE

9.1 The decision to reject a cylinder may be taken at any stage during the inspection and test procedure. Before rendering any cylinder unserviceable, the agreement of the owner shall be obtained so that the cylinder cannot be reissued into service as a pressure vessel.

9.2 Prior to taking any of the following actions ensure that the cylinder is empty and degassed. The following methods may be employed to render a cylinder unserviceable:

a) by crushing the cylinder using mechanical means;

b) by burning an irregular hole in the top dome equivalent in area to approximately 10% of the area of the top dome, or in the case of a thin-welded cylinder, by piercing in at least three places;

c) by irregular cutting of the neck;

d) by irregular cutting of the cylinder in two or more pieces;

e) by bursting (in a controlled and safe manner).

9.3 All cylinders rendered unserviceable shall be disposed of at an approved landfill.

10 RECORDS

10.1 The competent body shall maintain records including quality system, inspection reports and test data, calibration data and reports concerning the qualification or approvals of the competent persons.

10.2 Inspection reports and test data for cylinders shall be kept and maintained by the competent body at least until the retest date plus 2 years.

10.3 An inspection report or test data can cover one or more cylinders.

10.4 Where reports are issued for individual cylinders at least the following information shall be available:

a) serial number;

b) cylinder mass or tare, where applicable;

c) test pressure where applicable;

d) type and result of test (pass or fail);

e) retest date;

f) identification of the competent person;

g) details of any major repairs made to the cylinder by the retester;

h) cylinder manufacturing specification;

i) water capacity/size.

End of Document !