



Australian Compliance Laboratory

Specialising in performance testing of dangerous goods packaging

A mock guide to:

Pressure testing jerrycans and drums

For those wanting to internally test their dangerous goods packagings before laboratory analysis

Table of Contents

1	Mock leakproofness testing procedure	3
2	Mock internal pressure (hydraulic) testing procedures.....	3
2.1	Plastic jerrycans containing liquids.....	3
2.2	Plastic drums containing liquids.....	3
2.3	Metal jerrycans containing liquids.....	3
2.4	Metal drums containing liquids.....	4
3	Appendices.....	5
3.1	Appendix A: Determine the leakproofness test pressure	5
3.2	Appendix B: Determine the internal pressure (hydraulic) test pressure	5
3.3	Appendix C: Example test apparatus.....	5
4	Document information	6
4.1	General guidance.....	6
4.2	The codes.....	6
4.3	ACL contact information	6
4.4	Revision.....	6
4.5	Disclaimer	6

1 Mock leakproofness testing procedure

1. Determine the test pressure as per Appendix A.
2. Seal an empty package and pressurise it with air.
3. Spray soapy water around the closure(s), seams, and/or mould parting line.
4. Hold the test pressure for 5 minutes whilst checking for leaks.
5. The samples must not leak. This is observed by bubbles forming.

2 Mock internal pressure (hydraulic) testing procedures

2.1 Plastic jerrycans containing liquids



1. Determine the test pressure as per Appendix B.
2. Fill 3 samples up to their maximum capacity with water and seal tightly.
3. Pressurise the samples with water.
 - a. **WARNING: Do not use air** to pressurise samples in excess of 20kPa as they may violently explode.
4. Hold the test pressure for 30 minutes.
5. The samples must not leak.

2.2 Plastic drums containing liquids



1. Determine the test pressure as per Appendix B.
2. Fill 3 samples up to their maximum capacity with water and seal tightly.
3. Pressurise the samples with water.
 - a. **WARNING: Do not use air** to pressurise samples in excess of 20kPa as they may violently explode.
4. Hold the test pressure for 30 minutes.
5. The samples must not leak.

2.3 Metal jerrycans containing liquids



1. Determine the test pressure as per Appendix B.
2. Fill 3 samples up to their maximum capacity with water and seal tightly.
3. Pressurise the samples with water.
 - a. **WARNING: Do not use air** to pressurise samples in excess of 20kPa as they may violently explode.
4. Hold the test pressure for 5 minutes.
5. The samples must not leak.

2.4 Metal drums containing liquids



1. Determine the test pressure as per Appendix B.
2. Fill 3 samples up to their maximum capacity with water and seal tightly.
3. Pressurise the samples with water.
 - a. **WARNING:** Do not use air to pressurise samples in excess of 20kPa as they may violently explode.
4. Hold the test pressure for 5 minutes.
5. The samples must not leak.

3 Appendices

3.1 Appendix A: Determine the leakproofness test pressure

Packing group	I	II	III
Test pressure	30kPa	20kPa	20kPa

3.2 Appendix B: Determine the internal pressure (hydraulic) test pressure

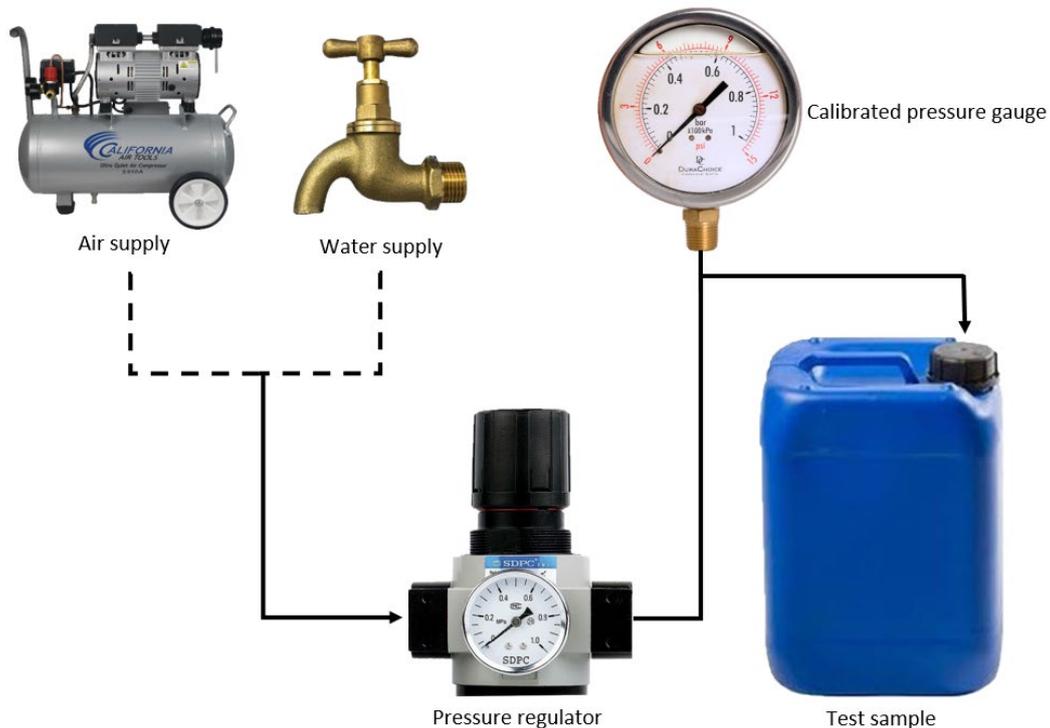
This snippet is taken from the ADG Code.

6.1.5.5.4 The hydraulic pressure (gauge) applied, as determined by any one of the following methods, must be:

- not less than the total gauge pressure measured in the packaging at 55 °C, multiplied by a safety factor of 1.5; this total gauge pressure must be determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C;
- not less than 1.75 times the vapour pressure at 50 °C of the liquid to be transported, minus 100 kPa but with a minimum test pressure of 100 kPa;
- not less than 1.5 times the vapour pressure at 55 °C of the liquid to be transported, minus 100 kPa but with a minimum test pressure of 100 kPa.

6.1.5.5.5 In addition, packagings intended to contain liquids of packing group I must be tested to a minimum test pressure of 250 kPa (gauge).

3.3 Appendix C: Example test apparatus



4 Document information

4.1 General guidance

1. Mock testing on one package means nothing as it may give an out-lying result. You need to test on many samples to create reliable data. The more samples you test, the more reliable your data.
2. It's prudent to over-test your package before submitting. This can be achieved by exceeding the test requirements and/or performing many tests on one package.
3. The more measurement, control, and repeatability of your tests, the better.
4. The closer to laboratory conditions of your tests, the better.

4.2 The codes

The mock test methods in this document are modelled on those in the [Australian Code for the Transport of Dangerous Goods by Road and Rail \(ADG Code\)](#) and the [United Nations Recommendations on the Transport of Dangerous Goods \(UNRDG\)](#), Chapter 6.1.5.

4.3 ACL contact information

If you need more information then please contact us. We'd love to share our insights.

E-mail: info@auscompliancelab.com

Phone: (+61) 0400 959 275

Address: 25/89 Boundary Road (Optic Way), Carrum Downs, VIC 3201

Website: www.auscompliancelab.com

4.4 Revision

Published July 2019

4.5 Disclaimer

This article is subject to ACL's [Disclaimer of Published Materials](#). Mock testing equipment, methods, and procedures may not be the same as those used in the laboratory and may produce different results. A passing result using these procedures may not result in a passing result in the laboratory. ACL is not responsible for any of the reader's results, observations, or interpretations arising from this article. Each packaging design may have special clauses or extra testing requirements. Readers should refer to the [ADG Code](#) for complete information.