



# **Australian Compliance Laboratory**

*Specialising in performance testing of dangerous goods packaging*

*A mock guide to:*

## **Drop testing bags**

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

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# 1 Mock drop testing procedures

## 1.1 Woven plastic bags without a side seam, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Chill the samples to  $\leq -18^{\circ}\text{C}$ .
4. Drop the cold samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. On an end of the bag where the centre of mass directly above point of impact
5. Samples must remain sift proof and in good condition.

## 1.2 Plastic film bags without a side seam, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Chill the samples to  $\leq -18^{\circ}\text{C}$ .
4. Drop the cold samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. On an end of the bag where the centre of mass directly above point of impact
5. Samples must remain sift proof and in good condition.

## 1.3 Textile bags with a side seam, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Drop the samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. Flat on a narrow face
  - c. On an end of the bag where the centre of mass directly above point of impact
4. Samples must remain sift proof and in good condition.

## 1.4 Textile bags without a side seam, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Drop the samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. On an end of the bag where the centre of mass directly above point of impact
4. Samples must remain sift proof and in good condition.

### 1.5 Single-ply paper bags with a side seam, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Drop the samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. Flat on a narrow face
  - c. On an end of the bag where the centre of mass directly above point of impact
4. Samples must remain sift proof and in good condition.

### 1.6 Single-ply paper bags without a side seam, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Drop the samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. On an end of the bag where the centre of mass directly above point of impact
4. Samples must remain sift proof and in good condition.

### 1.7 Multi-ply paper bags, containing solids



1. Determine the drop height from Appendix A.
2. Fill 3 samples to their maximum capacity with polygranules and sand. Seal the bags.
3. Drop the samples from the test height. Drop each sample once:
  - a. Flat on a wide face
  - b. On an end of the bag where the centre of mass directly above point of impact
4. Samples must remain sift proof and in good condition.

## 2 Appendices

### 2.1 Appendix A: Determine the drop height

Packing group	I	II	III
Drop height	1.8m	1.2m	0.8m

### 2.2 Appendix B: A note regarding conditioning fibre packages

For in-house testing, it's okay to test fibre packages at ambient conditions. This deduction is made after considering clause 6.1.5.1.3 of the ADG Code which waives fibre conditioning when samples are retested.

However, it should be said that actual laboratory conditions test fibre packages at 23°C and 50% relative humidity. This is done after a 'drying' period where the fibre is left to pre-condition at approximately 25°C and 30% relative humidity.

## 3 Document information

### 3.1 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.

### 3.2 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.

### 3.3 ACL contact information

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

E-mail: [info@auscompliancelab.com](mailto:info@auscompliancelab.com)

Phone: (+61) 0400 959 275

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

Website: [www.auscompliancelab.com](http://www.auscompliancelab.com)

### 3.4 Revision

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### 3.5 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.