

Australian Standard™

**Methods of test for single sided and
double sided pressure sensitive
adhesive tape**

Method 1.3: Adhesion—Rolling ball tack

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PREFACE

This Standard was prepared by the Standards Australia Committee PK-025, Packaging Code at the request of Australian Industry.

The objective of this Standard is to specify a method for testing tack for low-tack adhesives on pressure-sensitive adhesive tapes.

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FOREWORD

This test is intended primarily for quality control use since it demonstrates good reproducibility within a single laboratory and shows the ability to detect batch-to-batch variations accurately if adhesive film thickness is held constant.

Rolling ball tack is not intended as an investigative tool since for most pressure sensitive adhesive applications rolling ball tack results do not correlate well with application tack requirements.

In the determination of tack by the rolling-ball method, a steel ball is released at the top of an incline, allowed to accelerate down the incline and roll on to a horizontal surface covered with a pressure-sensitive adhesive. Tack is determined by measuring the distance that the ball travels across the adhesive before stopping.

There are two major retarding forces applied by the adhesive to the ball; the adhesion between the ball and the adhesive, often called “grab” and the “plowing effect” or energy required to push the adhesive out of the ball’s path.

Test results are influenced by adhesive film thickness, bond of adhesive to backing and backing rigidity, so these factors should be carefully controlled for satisfactory comparisons.

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Methods of test for single sided and double sided pressure-sensitive adhesive tape

Method 1.3: Adhesion—Rolling ball tack

1 SCOPE

This Standard specifies the method for determining the comparative tack of pressure sensitive adhesive tape by rolling a ball over an adhesive to determine tack.

NOTE: This test method is not recommended for the specification of end use products.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
2400	Packaging
2400.1	Part 1: Glossary of packaging terms

3 DEFINITIONS

For the purpose of this Standard, the following terms and definitions and those in AS 2400.1 apply:

3.1 Tack

The property of an adhesive that enables it to form a bond of measurable strength immediately after adhesive and adherent are brought into contact under low pressure.

4 REAGENTS**4.1 Isopropynol**

Reagent grade is required.

NOTE: Acetone, reagent grade, may also be used.

5 APPARATUS AND MATERIALS

The following apparatus and materials are required:

- Inclined trough*—The inclined trough is made of aluminium, which has a release lever at the top, which shall allow the ball to roll down the groove gaining momentum (see Figure 1).
- Ball*—The ball shall be made of stainless steel which is resistant to corrosion. The diameter of the ball shall be 11 mm unless other wise specified by the purchaser.

6 TEST CONDITIONS

Testing shall be conducted at $23 \pm 5^\circ\text{C}$ and $50 \pm 5\%$ relative humidity.