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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 7124-2008

**Adhesives -- Determination of tensile lap-shear strength of
rigid-to-rigid bonded assemblies
(English Translation)**

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Table of Contents

1 Scope...	5
2 Normative References...	5
3 Principle...	5
4 Apparatus...	6
5 Specimens...	6
6 Conditioning...	8
7 Procedure...	8
8 Expression of results...	9
9 Precision...	9
10 Test report...	9

Foreword

This Standard equivalently adopts ISO 4587.2003 "Adhesives - Determination of tensile lap-shear strength of rigid-to-rigid bonded assemblies" (English version).

This Standard replaces GB/T 7124-1986 "The method for determination of strength properties of adhesive in shear by tension loading (Metal to metal)".

This Standard equivalently translates ISO 4587.2003. In normative references, it uses national standards to replace the international standards; the referenced standards' contents have no difference with the international standards.

For ease of use, this standard makes the following editorial changes.

- a) "this international standard" is replaced by "this Standard";
- b) Delete the foreword of international standard;
- c) Use decimal point "." to replace the comma that is used as the decimal point.

The main differences of this Standard, compared with GB 7124-1986, are as follows.

- Modify the name of the standard;
- Add the normative references (Clause 2 of this edition);
- Expand the adhesive material from metal to rigid material (Clause 1 of 1986 edition; Clause 1 of this edition);

- Adhesive surface length of the sample is changed from 12.5 ± 0.5 mm to $12.5 \text{ mm} \pm 0.25$ mm (4.1 of 1986 Edition 4.1; 5.1 of this edition);
- Test plate's thickness is changed from 2.0 ± 0.1 mm to $1.6 \text{ mm} \pm 0.1$ mm (4.1 of 1986 Edition; 5.1 of this edition);
- Add the layer thickness and the control method (5.2 of this edition);
- The test speed is changed from " 5 ± 1 mm/min" to "the shear load at a rate of 8.3 MPa to 9.8 MPa per minute." (3.1 of 1986 edition; Clause 7 of this edition);
- The expression of test result is changed from "arithmetic mean, maximum value, minimum value" to "the arithmetic mean and standard deviation of the breaking force or the breaking of the valid specimens." (8.2 of 1986 version; Clause 8 of this edition).

This Standard was proposed by China Petroleum and Chemical Industry Association.

This Standard shall be under the jurisdiction of National Adhesive Standardization Technical Committee.

Drafting organisations of this Standard. Shanghai Rubber Products Research Institute
AND Beijing Tianshan New Materials Technology Co., Ltd.

1 Scope

This Standard specifies a method for determining the tensile lap-shear strength of rigid-to-rigid bonded assemblies.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable.

3 Principle

Adhesive lap-shear bond strength is determined by stressing a single-overlap joint between rigid adherends in shear by the application of a tensile force parallel to the bond area and to the major axis of the specimen.

4 Apparatus

Tensile-testing machine should be selected so that the rupture of the specimen falls between 10 % and 80 % of the full-scale capacity.

5 Specimens

A typical thickness is 0.2 mm. Thicknesses can be controlled by inserting a calibrated wire spacer or small glass spheres in the bond area. If a wire spacer is used, the wire shall lie parallel to the direction of application of the load as this minimizes the effect of the wire on the joint.

6 Conditioning

The specimens shall be conditioned and tested in one of the standard conditioning atmospheres specified in GB/T 2918.

7 Procedure

Locate the specimen symmetrically in the grips, with each grip 50 mm $\pm$ 1 mm from the nearest edge of the overlap. A shim may be used in the grips so that the applied force will be in the plane of the adhesive bond.

8 Expression of results

Express the results of the tests as the arithmetic mean of the breaking force, in newtons, or the breaking stress, in megapascals, of the valid specimens. The lap shear strength, in megapascals, is calculated by dividing the breaking force, in newtons, by the shear area, in square millimetres.

9 Precision

This test is widely used and accepted. However, the precision is not known because interlaboratory data are not available.

10 Test report

The test report shall include the following information.

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