



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

GB/T 14905-2020

**Rubber and plastics hoses. Determination of adhesion between
components**

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Foreword

This Standard was drafted in accordance with the rules in GB/T 1.1-2009.

This Standard serves as a replacement of GB/T 14905-2009 Rubber and Plastics Hoses - Determination of Adhesion between Components. In comparison with GB/T 14905-2009, the main technical changes are as follows.

---The Chapter "Terms and Definitions" is added (see Chapter 3);

---The scope of application of Type 7 test piece is expanded; it is applicable to hoses whose spacing between adjacent coils of the helix is greater than 10 mm, and also suggestions for the preparation of test pieces when the spacing between adjacent coils of the helix is less than 10 mm are provided (see 6.3.8;

5.3.8 of Version 2009);

---Figure 1 ~ Figure 8 are modified, so that the representation of these figures can be more accurate, and the misunderstandings of standard users can be reduced (see Figure 1 ~ Figure 8; Figure 1 ~ Figure 8 of Version 2009).

This Standard uses the translation method in the equivalent adoption of ISO 8033:2016

Rubber and Plastics Hoses - Determination of Adhesion between Components.

The Chinese documents that have a consistent correspondence with the international documents in the Normative References of this Standard are as follows.

---GB/T 2941-2006 Rubber - General Procedures for Preparing and Conditioning Test Pieces for Physical Test Methods (ISO 23529.2004, IDT);

---GB/T 12833-2006 Rubber and Plastics - Analysis of Multiphase Traces Obtained in Determinations of Tear Strength and Adhesion Strength (ISO 6133.1998, IDT);

---GB/T 17200-2008 Technical Specification for Tensile, Compression and Flexural Testing Machines for Rubber and Plastics (constant rate of traverse) (ISO 5893.2002, IDT).

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

This Standard shall be under the jurisdiction of National Technical Committee 35 on Rubber & Products of Standardization Administration of China (SAC/TC 35).

The drafting organizations of this Standard. Shengli Oilfield Changlong Rubber & Plastic Co., Ltd.; Shenyang Rubber Research & Design Institute.

1 Scope

Adequate adhesion between components of a hose is the basis for the hose to perform well during use. This Standard specifies methods for the determination of the adhesion between lining and reinforcement, between cover and reinforcement, between reinforcement layers, between cover and outer lamination (thin layer of material outside the cover for protection) and between lining and inner lamination (thin layer of material inside the lining to reduce permeation of fluid into the lining).

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

ISO 5893 Rubber and Plastics Test Equipment - Tensile, Flexural and Compression
Types (constant rate of traverse) - Specification

3 Terms and Definitions

For the purposes of this document, the terms and definitions given in ISO 8330 apply.
ISO and IEC maintain terminological databases for use in standardization at the
following addresses.

4 Principle

Using test pieces of standard dimensions, the adhesion strength between lining and
reinforcement, between cover and reinforcement, between reinforcement layers,
between cover and outer lamination and between lining and inner lamination is
measured under specified conditions.

5 Apparatus

The machine shall be power driven, equipped with a suitable dynamometer, capable
of maintaining a substantially constant rate of traverse of the moving head during the
test and fitted with an autographic recorder. It shall comply with the requirements for
class 0.5 or 1 of ISO 5893.

For testing ring test pieces (type 6 and type 8), a mandrel shall be provided that is a
close sliding fit in the test piece. This mandrel shall be capable of being fitted into the
driven head of the machine so that it will rotate freely during the test.

6 Test Pieces

Strip, cut from the hose as a 35 mm $\pm$ 2 mm wide ring which is then cut transversely
to form a strip.

Strip, cut along a reinforcing helix, 25 mm $\pm$ 0.5 mm wide or the maximum obtainable.

7 Procedure

The rate of travel of the power-driven grip shall be such as to provide a rate of ply
separation of 50 mm/min $\pm$ 5 mm/min (for test pieces of types 1 to 7) or 25 mm/min $\pm$

2.5 mm/min (for type 8 test pieces).

If separation occurs at any other point, for example, inside either component under test, note this failure and report the force at which it occurs.

8 Expression of Results

The trace obtained from the graphical recorder shows the variations in the force at which the plies or layers have separated.

9 Test Report

The test report shall contain the following information.

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