Australian Standard™

Methods of test for elastomers

Method 16.1: Determinations using a shearing-disc viscometer—Determination of Mooney viscosity

PREFACE

This Standard was prepared by the Standards Australia Committee RU-003, Analysis and Testing of Elastomers to supersede in part AS 1683.16—1981, *Methods of test for rubber*. Method 16: *Natural and synthetic rubbers—Determination of viscosity and scorch characteristics by shearing disc (Mooney) viscometer.*

The objective of this Standard is to provide manufacturers and users of elastomeric materials with a method using a shearing-disc viscometer for measuring the Mooney viscosity of uncompounded or compounded rubbers.

This Standard is identical with and has been reproduced from ISO 289-1:1994, *Rubber, unvulcanized—Determinations using a shearing-disc viscometer*, Part 1: *Determination of Mooney viscosity.*

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

As this Standard is reproduced from an international Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text, 'this part of ISO 289' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to international Standards should be replaced by equivalent Australian Standards as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
471	Rubber—Standard temperatures, humidities and times for the conditioning and testing of test pieces	1683 1683.20	Methods of test for elastomers Method 20: Standard temperatures, humidities and times for conditioning and testing
1795	rubber, raw, natural and synthetic—Sampling and further preparation procedures	—	
2395	Rubber test mixes—Preparation mixing and vulcanization—Equipment and procedures	1683.19	Method 19: Preparation, mixing and vulcanizing of rubber test mixers—Equipment and procedures

Standards Australia

ISO		AS
6508	Metallic materials—Hardness test—Rockwell test (scales A-B-C-D-E-F-G-H-K)	—

1 Scope

This part of ISO 289 specifies a method of use of a shearing-disc viscometer for measuring the Mooney viscosity of uncompounded or compounded rubbers.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 289. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 289 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 471:1983, *Rubber — Standard temperatures, humidities and times for the conditioning and testing of test pieces.*

ISO 1795:1992, *Rubber, raw, natural and synthetic — Sampling and further preparative procedures.*

ISO 2393:1994, *Rubber test mixes — Preparation, mixing and vulcanization — Equipment and procedures.*

ISO 6508:1986, *Metallic materials — Hardness test — Rockwell test (scales A - B - C - D - E - F - G - H - K).*

ISO/TR 9272:1986, *Rubber and rubber products — Determination of precision for test method standards.*

3 Principle

The torque which has to be applied under specified conditions in order to rotate a metal disc in a cylindrical chamber formed from mating dies filled with rubber is measured. The resistance offered by the rubber to this rotation is expressed in arbitrary units as the Mooney viscosity of the test piece.

4 Apparatus

The essential parts of the apparatus (see figure 1) are:

a) two dies to form a cyclindrical cavity;

b) a rotor;

c) a means for maintaining the dies at a constant temperature;

d) a means for maintaining a specified closure pressure;

e) a means for rotating the rotor at constant angular velocity;

f) a means for indicating the torque required to rotate the rotor.

The rotor and die cavity have the dimensions shown in table 1.