AS 1683.17—2001
ISO 1408:1995

Australian Standard™

Methods of test for elastomers

Method 17: Determination of carbon black content of vulcanized rubber—Pyrolytic and chemical and degradation methods

PREFACE

This Standard was prepared by the Standards Australia Committee RU-003, Analysis and Testing of Elastomers to supersede AS 1683.17—1981, *Methods of test for rubber,* Method 17: *Vulcanized rubber—Determination of carbon black content—Pyrolytic method.*

The objective of this Standard is to provide manufacturers and users of elastomeric materials with one pyrohytic and two chemical degradation methods for the determination of the carbon black content of rubber.

This Standard is identical with and has been reproduced from ISO 1408:1995, *Rubber—Determination of carbon black content—Pyrolytic and chemical degradation methods.*

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 International Standard' should read 'this Australian Standard'.

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

None of the documents referenced in this Standard have been adopted as Australian Standards.

Standards Australia

NOTES

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

1.1 This International Standard specifies a pyrolytic method (A) and two chemical degradation methods (B and C) for the determination of the carbon black content of rubber.

1.2 Method A is preferred and should be used for the following polymers, except when certain compounding materials such as lead and cobalt salts, graphitic carbon blacks, phenolic and other resins, bitumen, or cellulose, etc., which cause the formation of a carbonaceous residue during pyrolysis, are present:

— polyisoprene, natural or synthetic;

— polybutadiene;

— styrene-butadiene copolymers;

— butyl rubber;

— acrylate rubber;

— ethylene-propylene copolymer;

— ethylene-propylene terpolymer;

— polyethers;

— polyethylene-derived polymers;

— silicone rubbers;

— fluorosilicone rubbers;

— chlorosulfonated polyethylenes containing less than 30 % (*m/m*) of chlorine.

The precision of this method may be affected if mineral fillers, e.g. alumina or calcium carbonate, are present which decompose or dehydrate, or form volatile halides in the case of halogenated polymers, at the pyrolysis temperature.

The method cannot be used for either chloroprene rubbers or butadiene-nitrile rubbers having an acrylic acid nitrile content greater than 30 % (*m/m*).

1.3 Method B is chiefly intended to be used with samples not amenable to the pyrolytic method A, although it can be used for all samples based on unsaturated rubbers except for isobutylene-isoprene copolymers.

1.4 Method C is relatively hazardous and should be used only for the analysis of samples based on isobutylene-isoprene copolymers and ethylene-propylene copolymers and related terpolymers when methods A and B fail.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged