International Standard 4658

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Rubber, acrylonitrile-butadiene (NBR) — Test recipe and evaluation of vulcanization characteristics

Caoutchouc acrylonitrile-butadiène (NBR) — Formule d'essai et évaluation des caractéristiques de vulcanisation

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4658 was developed by Technical Committee ISO/TC 45, *Rubber and rubber products*, and was circulated to the member bodies in June 1978.

It has been approved by the member bodies of the following countries :

Australia	Hungary	Sri Lanka
Austria	India	Sweden
Belgium	Ireland	Thailand
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No member body expressed disapproval of the document.

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Rubber, acrylonitrile-butadiene (NBR) — Test recipe and evaluation of vulcanization characteristics

1 Scope and field of application

This International Standard specifies the standard materials, equipment and processing methods for evaluating the vulcanization characteristics of acrylonitrile-butadiene rubber (NBR).

2 References

ISO 37, *Rubber, vulcanized — Determination of tensile stress-strain properties.*

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

ISO 1795, *Raw rubber in bales — Sampling.*

ISO 1796, *Rubber, raw — Sample preparation*[1)]

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

ISO 3417, *Rubber — Measurement of vulcanization characteristics with the oscillating disc curemeter.*

3 Standard test recipe

3.1 Standard test formula

The standard test formula is given in the following table.

The materials used shall be NBS[2)] Standard reference materials as indicated in the table, or shall be in accordance with equivalent national standards.

Material	NBS Standard reference material number	Parts by mass
NBR	–	100,0
Zinc oxide	370	3,0
Sulphur (see note 1)	–	1,5
Stearic acid	372	1,0
Oil furnace black (HAF)*	378	40,0
N-tert-butyl-2-benzothiazole sulphenamide (TBBS) (see note 2)	384	0,7
Total		146,2

* The current industry reference black may be used in place of NBS 378, but this may give slightly different results.

NOTES

1 The use of sulphur coated with 2 % magnesium carbonate is preferred. A standard lot of this material, reference M 266573-P is available from C.P. Hall and Co., 4460 Hudson Drive, Stow, Ohio 44224, USA.

2 *N-tert*-butyl-2-benzothiazole sulphenamide. This must be supplied in powder form with an initial ether- or ethanol-insoluble matter content of below 0,3 %. The material must be stored at room temperature in a closed container and the ether- or ethanol-insoluble matter shall be checked every 6 months. If this is found to exceed 0,75 % the material should be discarded or recrystallized.

3.2 Procedure

3.2.1 Equipment and procedure

Equipment and procedure for the preparation, mixing and vulcanization shall be in accordance with ISO 2393.

1) At present at the stage of draft. (Revision of ISO 1796-1972.)

2) National Bureau of Standards of the USA.

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