
International Standard



3257

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Rubber compounding ingredients — Carbon black — Test recipe and method of evaluation in styrene- butadiene rubbers

*Ingrédients de mélange du caoutchouc — Noir de carbone — Formule d'essai et méthode d'évaluation dans les caoutchoucs
butadiène-styrène*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

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 3257 was developed by Technical Committee ISO/TC 45, *Rubber and rubber products*. The first edition (ISO 3257-1975) had been approved by the member bodies of the following countries :

Australia	Hungary	Spain
Austria	India	Sweden
Belgium	Ireland	Switzerland
Bulgaria	Italy	Turkey
Canada	Mexico	United Kingdom
Czechoslovakia	Netherlands	USA
Egypt, Arab Rep. of	New Zealand	USSR
France	Portugal	Yugoslavia
Germany, F. R.	Romania	

No member body had expressed disapproval of the document.

This second edition, which cancels and replaces ISO 3257-1975, incorporates draft amendment 3, which was circulated to the member bodies in January 1980 and has been approved by the member bodies of the following countries :

Belgium	India	Sri Lanka
Brazil	Italy	Sweden
China	Korea, Rep. of	Switzerland
Czechoslovakia	Mexico	Thailand
Egypt, Arab Rep. of	Poland	Turkey
France	Romania	United Kingdom
Germany, F. R.	South Africa, Rep. of	USSR
Hungary	Spain	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Netherlands
USA

Rubber compounding ingredients — Carbon black — Test recipe and method of evaluation in styrene- butadiene rubbers

1 Scope and field of application

This International Standard specifies standard materials, equipment and processing methods for evaluating carbon black in styrene-butadiene rubbers (SBR).

NOTE — Variations in equipment and testing procedure permitted in this International Standard can lead to discrepant results. Therefore, carbon black is preferably compared to a reference carbon black tested under the same conditions.

2 References

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

ISO/R 289, *Determination of viscosity of natural and synthetic rubbers by the shearing disk viscometer.*

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

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 Test recipe

3.1 Standard test formula

The standard test formula is given in the table.

The materials shall be NBS¹⁾ standard reference materials as in-

dicated in the table, or shall be in accordance with equivalent national standards.

Table

Material	NBS standard reference material number	Parts by mass
SBR 1500*	386	100,00
Zinc oxide	370	3,00
Sulphur	371	1,75
Stearic acid	372	1,00
Carbon black	—	50,00
TBBS**	384	1,00
		156,75

* A European equivalent to NBS standard reference material 386 has been developed to match by ANIC. This EST (European Standard Type) rubber is an SBR 1500 type using a rosin acid emulsifier and a staining stabilizer.

The Mooney viscosity (ML 1 + 4 at 100 °C), determined in accordance with ISO/R 289, of this standard reference material should have limits of ± 1 Mooney unit within the absolute range of 50 to 56, but with the preferred viscosity of 52 to 53.

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

3.2 Procedure

3.2.1 Equipment and procedure

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

1) National Bureau of Standards of the USA.