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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1408

VULCANIZED RUBBER

DETERMINATION OF CARBON BLACK

PYROLYTIC METHOD

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1408, *Vulcanized rubber – Determination of carbon black – Pyrolytic method*, was drawn up by Technical Committee ISO/TC 45, *Rubber*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1408, which was circulated to all the ISO Member Bodies for enquiry in March 1968.

The Draft was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Iran	South Africa, Rep. of
Austria	Israel	Spain
Brazil	Italy	Sweden
Canada	Japan	Switzerland
France	Korea, Dem. P. Rep. of	U.A.R.
Germany	Netherlands	United Kingdom
Hungary	New Zealand	U.S.A.
India	Poland	

The following Member Body opposed the approval of the Draft :

Czechoslovakia

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 1408 | November 1971

VULCANIZED RUBBER

DETERMINATION OF CARBON BLACK

PYROLYTIC METHOD

1. SCOPE

This ISO Recommendation describes a pyrolytic method for the determination of carbon black in vulcanizates of the following polymers :

Natural rubber
Synthetic polyisoprene
Polybutadiene
Styrene butadiene rubber
Butyl rubber
Acrylate rubber
Ethylene-propylene copolymer
Ethylene-propylene terpolymer

This method is not suitable for vulcanizates containing halogens or nitrogen in the polymer or for those containing certain compounding materials, such as lead salts or phenolic resins, which cause the formation of a carbonaceous residue during pyrolysis.

The precision of the method may be affected if mineral fillers are present which dissociate at the pyrolysis temperature.

2. PRINCIPLE

A weighed portion of the rubber is extracted, placed in a combustion boat and pyrolysed at a temperature of 800 to 900 °C in a stream of nitrogen. The combustion boat containing the non-volatile residue is cooled and weighed. Carbon black is burnt off in a muffle furnace and the boat and contents weighed again. The loss in mass represents carbon black.

3. REAGENTS

3.1 *Nitrogen*, dry and free from oxygen.

NOTE. – Nitrogen sold commercially as "free from oxygen" may require further purification.

3.2 *Xylene.*

3.3 *Acetone*, analytical reagent grade.

3.4 *Chloroform*, analytical reagent grade.