

Specification for

Electrically conducting rubber flooring

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Cooperating organizations

The Rubber Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

- British Association of Synthetic Rubber Manufacturers*
- British Rubber Manufacturers' Association*
- Department of Industry (Chemicals and Textiles)
- Institution of Production Engineers
- Malaysian Rubber Producers' Research Association*
- Ministry of Defence*
- Rubber and Plastics Research Association of Great Britain
- Rubber Growers' Association
- Society of Motor Manufacturers and Traders Limited

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- British Floor Covering Manufacturers' Association
- Contract Flooring Association
- Department of the Environment (Building Research Establishment)

This British Standard, having been prepared under the direction of the Rubber Standards Committee, was published under the authority of the Executive Board on 31 May 1978

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Foreword

This British Standard has been prepared under the direction of the Rubber Standards Committee and is a revision of the 1959 edition. In this revision, metric units are used throughout and the nominal thickness of rubber flooring is restricted to 6 mm (approximately $\frac{1}{4}$ in) which represents the bulk of this type of flooring currently manufactured.

In locations where it is necessary to take precautionary measures against the accumulation of static electricity, e.g. in hospital operating theatres and certain buildings used for the manufacture and processing of explosives, the flooring forms an important link in providing a safe path for the discharge of electricity from objects and persons. Flooring intended to be used for this purpose should have uniform electrical conductance to a degree that will always ensure that, under the fastest rate of generation of any charge that can possibly occur in practice, a dangerous potential cannot exist.

Rubber is normally regarded as a material of high electrical resistivity, and in consequence is widely used as an insulator. However, the incorporation of certain materials, in particular certain forms of carbon black, greatly reduces its electrical resistivity so that volume resistivities down to $100 \Omega \text{ m}$ are obtainable. Two types of flooring, with resistance reduced in this way, are recognized.

In some locations (e.g. buildings used for the manufacture of certain explosives) a predominant requirement is the provision of a comparatively low-resistance discharge path to earth. Special measures are then taken to eliminate the possibility of electric shock and fire by placing wiring and controls outside the zone of risk, and the use of portable electric equipment and flexible connections is prohibited. An upper limit is placed on the maximum permitted electrical resistance of the flooring, and there is no lower limit. Rubber flooring with these electrical characteristics is designated “electrically conducting”, and forms the subject of this British Standard.

In a somewhat different situation, where electrical equipment is used in which the development of a fault could give rise to the risk of shock or fire, it is essential that the flooring, whilst being sufficiently conducting to disperse static charges, should also have sufficient resistance to limit any leakage current from the electrical installation or apparatus through the floor to earth. Consequently, flooring for such applications must have a resistance prescribed, with both the upper and lower limits clearly defined. Material with these electrical characteristics is designated “antistatic” and is covered by BS 2050.

WARNING. It is essential that electrically conducting rubber flooring in accordance with this British Standard be used only in those situations where the special precautions mentioned above are taken in the design, installation and maintenance of the electrical installation and equipment, so as virtually to eliminate the possibility of electric shock and fire.

It is strongly recommended that a warning notice, stating that the floor is conducting, should be displayed in any room fitted with conducting rubber flooring.

Earthing. Although flooring of either type may be earthed fortuitously, by contact with subfloors, service pipes, earthed metal of apparatus, etc., a more reliable method of earthing is considered to be necessary for electrically conducting flooring. It is recommended that such flooring be laid on a metal earthing grid or other suitable system, having a permanent low-resistance connection to earth.

Further guidance on the arrangement of a grid and other aspects of earthing and laying are given in Appendix E.