

BRITISH STANDARD 3815 : 1964

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SPECIFICATION FOR
**EPOXIDE RESIN
CASTING SYSTEMS**
FOR ELECTRICAL APPLICATIONS

BRITISH STANDARDS INSTITUTION

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Price 5/- net

BRITISH STANDARDS INSTITUTION

INCORPORATED BY ROYAL CHARTER

BRITISH STANDARDS HOUSE, 2 PARK ST., LONDON, W.1

TELEGRAMS: STANDARDS LONDON W1

TELEPHONE: MAYFAIR 9000

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THIS BRITISH STANDARD, having been approved by the Plastics Industry Standards Committee and endorsed by the Chairman of the Chemical Divisional Council, was published under the authority of the General Council on 18th November, 1964.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 4000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 15s. The B.S. Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

- B.S. 188. Determination of viscosity of liquids in c.g.s. units.
- B.S. 1428. Microchemical apparatus. Part D1. Burettes with pressure-filling device and automatic zero.
- B.S. 2782. Methods of testing plastics.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following B.S.I. references relate to the work on this standard:
Committee reference PLC/29 Draft for comment D63/11144

CO-OPERATING ORGANIZATIONS

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

Board of Trade

*British Electrical and Allied Manufacturers' Association

*British Plastics Federation

D.S.I.R.—Building Research Station

*Electrical Research Association

Engineering Equipment Users' Association

*Ministry of Aviation

*Ministry of Defence, Army Department

*Ministry of Defence, Navy Department

Oil Companies Materials Association

Plastics Institute

*Post Office

Royal Institute of British Architects

Royal Institute of Public Health and Hygiene

Rubber and Plastics Research Association of Great Britain

Society of Motor Manufacturers and Traders Ltd.

Surface Coating Synthetic Resin Manufacturers' Association

The Government departments and scientific and industrial 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:

Electricity Council, the Generating Board and the Area Boards in England and Wales

Electronic Engineering Association

Radio and Electronic Component Manufacturers' Federation

Telecommunication Engineering and Manufacturing Association

United Kingdom Atomic Energy Authority

BRITISH STANDARD SPECIFICATION FOR EPOXIDE RESIN CASTING SYSTEMS FOR ELECTRICAL APPLICATIONS

FOREWORD

This British Standard has been produced under the authority of the Plastics Industry Standards Committee and forms the parent document covering epoxide resin casting systems for electrical applications. Purely mechanical applications are not considered.

It is intended to cover a range of unfilled epoxide resin casting systems which may be used, unmodified or modified, in the casting, impregnation and encapsulation of electrical equipment. Filled systems are not included in this specification since it is impracticable to cover the diversity of filler types and proportions commonly used to achieve desired properties. An example of a particular filled cast material based on a resin system covered by this specification is dealt with in B.S. 3816, 'Cast epoxide resin insulating material for electrical applications at power frequencies'.

It is not intended to specify methods by which material should be applied, which should be in accordance with the supplier's recommendations.

The resin systems are classified primarily by the temperature of their deflection under load. It should be noted that this temperature does not necessarily give any indication of the maximum permissible working temperature for the material.

This standard does not give guidance about the applicability of resin systems to particular purposes. This is the responsibility of the user. It is intended to issue other British Standards, related to this parent standard and covering limited, more closely specified objectives. The first of these is B.S. 3816, 'Cast epoxide resin insulating material for electrical applications at power frequencies'.

Due regard should be paid to the supplier's instructions or recommendations where attention is drawn to the limited shelf life of an uncured resin system or any ingredient of a system, or where warnings are given about the toxicity of such systems or ingredients.

Attention is drawn to the following British Standard for epoxide resin systems:

B.S. 3534, 'Epoxide resin system for glass fibre reinforced plastics'.

B.S. 3816, 'Cast epoxide resin insulating material for electrical applications at power frequencies'.

NOTE. Where metric equivalents are stated, the figures in British units are to be regarded as the standard. The metric conversions are approximate. More accurate conversions should be based on the tables in B.S. 350, 'Conversion factors and tables'.

SPECIFICATION

SCOPE

1. This British Standard applies to unfilled epoxide resin systems for the casting, impregnation and encapsulation of electrical equipment.

DEFINITIONS

2. For the purposes of this British Standard the following definitions apply:

Epoxide resin system. A mixture consisting essentially of epoxide resin and hardener(s).

Batch. A quantity of material, i.e. resin or hardener, designated by the supplier as being substantially uniform in quality.

CLASSIFICATION

3. The resin systems shall be classified into Types 1 to 6 as follows, according to the temperature of deflection under load of the cast resin system when determined by the method specified in Appendix B.

Type	Temperature of deflection under load	
	°C	°C
		Up to but not including
1	40	70
2	70	90
3	90	105
4	105	130
5	130	155
6	155	180

NOTE 1. One particular resin system may be classified as belonging to various grades depending on the method of cure used.

NOTE 2. The temperature of deflection of the cast resin system under load is not necessarily the permissible working temperature.

PROPERTIES OF CURED RESIN SYSTEM

4. When tested by the appropriate method the properties of the cured resin system shall meet the requirements given in Table 1.