

BRITISH STANDARD 2690 : Part 7 : 1968

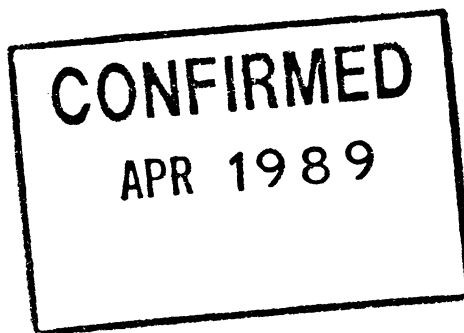
**METHODS OF TESTING
WATER USED
IN INDUSTRY**

**Part 7. Nitrite, Nitrate and Ammonia
(Free, Saline and Albuminoid)**

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BRITISH STANDARDS INSTITUTION

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THIS BRITISH STANDARD, having been endorsed by the Chairman of the Chemical Divisional Council, was published under the authority of the General Council on 30th August, 1968.

SBN: 580 00280 2

First published, February, 1956.

First revision, Part 7, August, 1968.

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 BS Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

BS 1328. Methods of sampling water used in industry.

BS 3591. Industrial methylated spirits.

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 BSI references relate to the work on this standard:
Committee references C/37, C/37/1, C/37/1/1.
Draft for comment 67/24172.

CO-OPERATING ORGANIZATIONS

The Technical Committee which has been working under the supervision of the Chemical Divisional Council, and which is responsible for the preparation of this British Standard, consists of representatives from the following Government departments and scientific and industrial organizations:

Association of Shell Boiler Makers
 British Launderers' Research Association
 *British Steel Industry
 *Chemical Industries Association
 *Electricity Council, the Central Electricity Generating Board and the Area Boards in England and Wales
 Greater London Council
 Institute of Fuel
 Institute of Marine Engineers
 Institution of Chemical Engineers
 *Institution of Gas Engineers
 Institution of Mechanical Engineers
 Institution of Municipal Engineers
 *Ministry of Defence, Navy Department
 Ministry of Labour (H.M. Factory Inspectorate)
 *Ministry of Technology—Laboratory of the Government Chemist
 National Coal Board
 Royal Institute of Chemistry
 Society of Laundry Engineers and Allied Trades Ltd.
 Individual firms

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:

Gas Council
 Institute of Petroleum
 London Transport Board
 Society for Water Treatment and Examination
 Water-tube Boilermakers' Association
 An individual firm

BRITISH STANDARD METHODS OF TESTING WATER USED IN INDUSTRY

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FOREWORD

This British Standard has been prepared under the authority of the Chemical Divisional Council.

Since the original publication of BS 2690 in 1956 an addendum was published in 1960 extending the methods to cover the testing of very pure waters. Since that time various further advances have been made in the development of methods of analysing water and a revision of the document has commenced.

For each substance to be determined, where more than one method is given, the first is the simplest and the last is the most sensitive. An intermediate method will be intermediate in some respect such as sensitivity or accuracy in the presence of interferences.

The document is being published in separate parts so that it will in the future be simpler to revise these parts and also in order that new methods may be made available as soon as possible.

The following parts have already been published:

Part 1. Copper and iron.

Part 2. Dissolved oxygen, hydrazine and sulphite.

Part 3. Silica and phosphate.

Part 4. Aluminium, calcium, magnesium and fluoride.

Part 5. Alkalinity, acidity, pH value and carbon dioxide.

Part 6. Chloride and sulphate.

NOTE. The coherent system of units adopted by ISO, known as the SI system, has been used in this part of the revision. In particular the siemens (S) is the name given to the unit formerly called the 'mho' (reciprocal ohm) and conductivities are accordingly expressed in terms of microsiemens per metre ($\mu\text{S/m}$), where

$$1 \text{ micromho/cm} = 100 \mu\text{S/m}.$$

Also wavelengths are expressed in terms of nanometres (nm) rather than $\text{m}\mu$; these units are equivalent.

METHODS

1. GENERAL

1.1 Reagents. All reagents shall be of a recognized analytical reagent quality unless otherwise specified.

1.2 Water. Subject to the special requirements of certain methods, pure water having a conductivity of less than $50 \mu\text{S/m}$ at 20°C when freshly prepared and measured out of contact with air is to be used whenever water is required. This can be achieved by treating water with the correct grades of ion exchange resins.

1.3 Ranges. Where the range of amounts of the substance being determined is stated at the beginning of a test it is usually given in either microgrammes (μg) or milligrammes (mg); occasionally the range is given in p.p.m., i.e. mg/litre. The procedures described for the various tests cover the stated ranges, but may in certain cases be modified by taking a smaller volume of the sample and diluting with water or by taking a larger volume of the sample and evaporating. The test portion shall then be adjusted to the appropriate volume before proceeding with the determination.

1.4 Sampling. It is important to obtain a representative sample. Appropriate methods of sampling are described in BS 1328*.

1.5 Interferences. It must always be realized that although the methods given will be applicable in almost all cases, occasionally some substance may be present which will render the method unsuitable.

1.6 Colorimetric methods. It is recommended that the spectrophotometer used for colorimetric determination should have a band width not exceeding 1% of the wavelength at which the measurement is carried out.

1.7 Methylated spirits. Industrial methylated spirits is specified in some tests. It is pointed out that the use of this material is governed by the Industrial Methylated Spirits Regulation 1952 (S.I. 1952 No. 2230)†. The methylated spirit shall, when used, conform to BS 3591‡, and be of a strength corresponding to 92% alcohol.

2. NITRITE

2.1 Range. 1 to $15 \mu\text{g}$ nitrite (expressed as N).

2.2 Maximum size of sample. The maximum size of the sample is 40 ml.

* BS 1328, 'Methods of sampling water used in industry'.

† Ethanol may be substituted for industrial methylated spirits if desired.

‡ BS 3591 'Industrial methylated spirits'.