

Assessment of the potential for metallic materials to affect adversely the quality of water intended for human consumption — Specification

ICS 13.060.20

Committees responsible for this Draft for Development

The preparation of this Draft for Development was entrusted to EH/6, Effects of materials on water quality, which the following bodies were represented:

Automatic Vending Association of Britain
British Bathroom Council
British Cement Association
British Coatings Federation Ltd.
British Malleable Tube Fittings Association
British Non-Ferrous Metals Federation
British Plastics Federation
British Precast Concrete Federation
British Rubber Manufacturer's Association Ltd.
British Valve and Actuator Manufacturer's Association
British Water
Department of the Environment for NI
DETR — Water and Land Directorate
Galvanizers Association
Laboratory of the Government Chemist
Lead Development Association
Pipeline Industries Guild
UK Steel Association
UK Water Byelaws Scheme
Water Research Centre Plc.
Water UK
Zinc Development Association
Co opted Members

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Foreword

This Draft for Development has been entrusted by the Health and Environment Sector Policy and Strategy Committee to Technical committee EH/6, which has the responsibility to aid enquirers to understand the text. It is a revision of BS 7766:1994, which is now withdrawn, in light of the results of European research in this area.

The procedure given in this Draft for Development has been developed to test metallic materials for which no direct data as to their service performance are available. Although an attempt has been made, by use of suitable calibration factors, to relate the results obtained from the test to those to be expected under service conditions, this can only be approximate. The procedure can be used more safely as a ranking test, to compare the results obtained from a new material with the test results of an equivalent established material of known service performance.

It is recognized that, because of the time required for some materials to come to equilibrium with water, i.e. the point at which no further significant changes in the level of metal release with exposure period is occurring, it may not be possible to reach a decision in a short term test. It is further recognized that, in some countries, materials may be acceptable if their usage is restricted to a reduced range of drinking water compositions. To accommodate these situations, a “qualified acceptable” and a “null result” have been introduced, along with “fully acceptable” or “unacceptable”, as possible outcomes of the test.

It is intended that appropriate British Standards and other specifications will refer to this Draft for Development if they specify requirements for the effects of the specified product on the quality of water for human consumption.

This Draft for Development calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature because the field is still developing. It should be applied on this provisional basis, while information and experience of its practical application may be obtained.

A review of this Draft for Development will be carried out not later than 2 years after its publication. Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development will be made in an announcement in the appropriate issue of *Update Standards*. In this case, the call for comments will also include a call for interested parties to declare their interest in the further development of the draft.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed.

These should be sent to the Secretary of BSI Environment Sector Policy and Strategy Committee H/- Health and Environment, at British Standards House, 389 Chiswick High Road, London, W4 4AL.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 11 and a back cover.

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1 Scope

This Draft for Development specifies requirements to assess the likely suitability of metallic materials for the manufacture of products for use in contact with water intended for human consumption, with regard to their effect on the quality of the water.

This specification is applicable both to uncoated metals and to metallic coatings but is not applicable when drinking water is subjected to heating before draining off for consumption.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Draft for Development. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest editions of the publications referred to apply.

BS EN ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods*.

BS EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*.

3 Terms and definitions

3.1

Annex B metals

metals or metalloids in Annex B of this standard

3.2

leachate concentration versus exposure period

run time

sets of results from an individual test specimen of the concentration of Annex B metals after 24 h exposure in one of the specified test waters

NOTE The results can be expressed graphically. The results are used to determine the extent to which the specimen has reached equilibrium with the test water.

3.3

leachate concentration versus stagnation time

series of results from an individual test specimen of the concentration of Annex B metals after a series of exposure periods in different samples of one of the specified test waters

NOTE The results can be expressed graphically. The results are used to determine the likely exposure of a consumer to the metals being leached.

3.4

matrix elements

chemical elements in the test specimen not listed in Annex B present at a concentration of ≥ 5 % by mass

NOTE Although not used directly to determine the outcome of the test, their presence in the leachate water is used to determine the general stability of the alloy matrix which can affect the grade of acceptability of the material.

3.5

relevant component

metals listed in Annex B present in the test specimen at a level of ≥ 0.1 % by mass whose concentration in the leachate waters are used to determine the outcome of the test

3.6

sample

volume of test water analysed for its metal concentration

3.7

specimen

metal sample, in the form of a coupon, pipe or other, used in the test