Regulation 4(1)(a)

Guidance: BS 6920 compliance overview

September 2020 v 0.1

INTRODUCTION

The Water Supply (Water Fittings) Regulations 1999, the Water Supply (Water Fittings) (Scotland) Byelaws 2014 and the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 (collectively referred to as 'the regulations' in this document), impose a legal duty on any person not to install water fittings unless they are of an appropriate quality and standard; suitable for the circumstances in which they are used; and compliant with any applicable requirements of schedule 2. Regulation 4 'Requirements for water fittings etc.' sets out the requirements which water fittings must meet.

Water undertakers have the statutory duty to enforce the regulations. The purpose of this document is to provide an overview of BS 6920 and identify the forms of evidence commonly used to demonstrate conformity with this standard.

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BS 6920 COMPLIANCE OVERVIEW

A key objective of the regulations is the prevention of contamination. Schedule 2 paragraph 2(1) applies when water is required to be wholesome:

> ….'no material or substance, either alone or in combination with any other material or substance or with the contents of any water fitting of which it forms a part, which causes or is likely to cause contamination of water shall be used in the construction, installation, renewal, repair or replacement of any water fitting which conveys or receives, or may convey or receive, water supplied for domestic or food production purposes.'

Although used widely to manufacture water fittings and components some non-metallic materials can have an adverse effect upon water quality. Some non-metallic materials have been known to release into water soluble organic chemicals, which support microbial slimes or flakes, and toxic metals, leading to taste, odour and appearance complaints as well as water quality failures.

Clause G2.2 in the official guidance published by Defra to accompany the regulations states:

> ..'For non-metallic materials, this requirement [Schedule 2 paragraph 2(1)] is deemed to be met by compliance with the appropriate British Standard, BS 6920: 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of water'. No standard of any other EEA State includes the same suite of tests, although individual tests may be considered as providing evidence for an equivalent level of performance.'…

If Schedule 2 paragraph 2(1) is not considered to be addressed by conformity with a mechanical performance specification, separate evidence of BS 6920 (or equivalent) conformity will be required.

BS 6920 details six tests which are designed to assess whether a non-metallic material is likely to-

Impart odour or flavour
[*Organoleptic or odour and flavour test*]

Cause a change in the appearance (colour, turbidity)
[*Appearance of water test*]

Promote microbial growth
[*Growth of aquatic microorganisms test (GMO) also known as mean dissolved oxygen difference (MDOD) test or enhanced microbial growth (EMG)*]

Leach substances of concern to human health into the water
[*Cytotoxicity test (Cyto) also known as extraction of substances that may be of concern to public health test (EXS)*]

Leach toxic metals into the water
[*Extraction of metals test or metal test (EM)*]

Be suitable for use at high temperature
[*High temperature (boiling water) test for non-metallic materials which come into contact with boiling water required to be wholesome. BS 6920 recommends a boiling water test is only carried out once a non-metallic material has conformed at 85°C*]

Non-metallic components giving satisfactory results in these tests are considered to be unlikely to be responsible for adverse effects upon water quality.

Only testing in accordance with the protocols set out in the current version of BS 6920 will be considered as acceptable evidence of BS 6920 conformity.

For information regarding the equivalence of non-metallic material performance testing please contact your water undertaker.

Please note:

To be suitable for use a non-metallic component must conform in all, as opposed to in most or some, respects with the current version of BS 6920 at the maximum operating temperature it is intended to be exposed to. That is to say must conform with the acceptance criteria specified for the test requirements identified in BS 6920-1: 2014. Please consult the test laboratory for further advice.

BS 6920 does not include provision to test water fittings that incorporate or are assembled from a number of different non-metallic materials or components. It does however include provision to test multi-layered (composite) products i.e. products whose water contact surface is made from a material different to that in the remainder of the product (e.g. a multi-layered pipe and cisterns).

BS 6920 TEST PROTOCOLS

1. Odour and flavour of water or organoleptic test

Probably the most frequent complaint received by water undertakers is that the water tastes or smells funny. Some of these complaints can be traced directly to the materials used in fittings.

The odour and flavour test, as its name suggests, was developed to identify those non-metallic components which might have the potential to cause odour and flavour problems in drinking water.

The test itself requires samples of the material or component to be submerged in two types of test water - chlorinated and chlorine free water. After a set period three panellists assess the samples for any discernible odour. A sample or 'extract' is also taken from the test water and diluted in chlorine free water. Three panellists then assess the diluted extracts for flavour compared to a reference sample (the flavour testing is only undertaken if all panellists report no odour).

To pass the test at least two panellists must report no odour in the undiluted solutions and no flavour in the first extracts and all three panellist no odour in the undiluted solution and no flavour in the second dilution. If the panellists do not pass the material on the first attempt BS 6920 includes provision for the process to be repeated using a sequence of six further extracts in a set period of time.

The test methodology requires the water the test sample is submerged in to be maintained at a set temperature. If the non-metallic component is only to be used in connection with cold water applications, the test temperature required is 23°C. If however, the component is to be used for applications at a higher temperature it needs to be tested at both 23°C and a temperature at least as high as that which it is intended to be exposed to. The highest test temperature specified in BS 6920 is a boiling water test.

Assessing BS 6920 odour and flavour of water test results: -
An example of the format, together with some of the descriptors that might be used, to report the results of odour and flavour testing in accordance with BS 6920:2014 is provided below. The comments are the statement of conformity, confirming whether or not the material complies with the requirements of this test.

List of commonly used descriptors:

List of odour and flavour descriptors commonly used:

Adhesive	Almond	Alcohol	Bad Eggs	Bitter
Bitumen	Burning	Burnt/charring	Cardboard	Chemical
Cocoa	Chlorophenic	Cooked	Disinfectant	Dry
Earthy	Fishy	Fruity	Ketonic	Lead pencil
Metallic	Mouldy	Mushroom	Musty	Oily
Organic	Paint	Peppery	Phenolic	Plastics
Pungent	Rancid	Rotten Vegetables	Rubber	Salty
Sharp	Solvent	Soapy	Sour	Styrene
Sweet	Toffee	Vegetable	Waxy	White Spirit

Odour and Flavour of Water
Methodology: BS 6920: 2014 Part 1: clause 4

Number of taster in panel – 3
Extraction temperature - 23°C
Date test commenced - 14 April 2019

Extract 1

(i) Chlorine free test water

TASTER	ODOUR DESCRIPTION	FLAVOUR DESCRIPTION	FLAVOUR DILUTION NUMBER
1	nil	nil	<1
2	nil	nil	<1
3	nil	nil	<1

(ii) Chlorinated test water

TASTER	ODOUR DESCRIPTION	FLAVOUR DESCRIPTION	FLAVOUR DILUTION NUMBER
1	nil	nil	<1
2	nil	nil	<1
3	nil	nil	<1

Comment: thus the samples of this product have been found to comply with the requirements of BS 6920: 2014: part 1 clause 4 when extracted at 23°C

Number of taster in panel – 3
Extraction temperature - 50°C
Date test commenced – 28 April 2019

Extract 1
(i) Chlorine free test water

TASTER	ODOUR DESCRIPTION	FLAVOUR DESCRIPTION	FLAVOUR DILUTION NUMBER
1	Chemical	N/A	N/A
2	Chemical	N/A	N/A
3	Chemical	N/A	N/A

(ii) Chlorinated test water

TASTER	ODOUR DESCRIPTION	FLAVOUR DESCRIPTION	FLAVOUR DILUTION NUMBER
1	Chemical	N/A	N/A
2	Chemical	N/A	N/A
3	Chemical	N/A	N/A

Extract 7 (final extract)

(i) Chlorine free test water

TASTER	ODOUR DESCRIPTION	FLAVOUR DESCRIPTION	FLAVOUR DILUTION NUMBER
1	nil	nil	<1
2	musty	nil	<1
3	musty	nil	<1

(ii) Chlorinated test water

TASTER	ODOUR DESCRIPTION	FLAVOUR DESCRIPTION	FLAVOUR DILUTION NUMBER
1	nil	astringent	2
2	nil	nil	<1
3	paint	nil	<1

Comment: thus the samples of this product have been found NOT to comply with the requirements of BS 6920: 2014: part 1 clause 4 when extracted at 50°C

Whilst all three panellists report no odour or flavour at 23°C they did detect both at 50°C. Based on these results the material was reported as being found to comply with the odour & flavour requirements of BS 6920: 2014: part 1 clause 4 cold water tests but not testing at a higher temperature. It could be considered as suitable for use with cold but not hot water.

2. Appearance of water test

Customer complaints about the appearance of water probably rank second to those about odour and flavour. The appearance of water test was designed to identify those non-metallic materials that have the potential to give rise to colour or turbidity, 'cloudiness', in drinking water.

This test, like the odour and flavour test, requires a sample of the non-metallic material to be submerged in test water. After 24 hours the colour and turbidity of an extract from this test water, and a control sample, are measured by machine. To pass the difference between the results must be not more than 5 Hazen units (colour) and not more than 0.5 Formazine nephelometric units or FNUs (turbidity).

If there is any noticeable colour or turbidity BS 6920 allows the process to be extended and if necessary repeated using two further samples. To conform any increase in colour and turbidity, compared to the test water control sample, must not exceed either 5 Hazen units (colour) or 0.5 Formazine nephelometric units or FNUs (turbidity). Please note where further samples have been tested a mean value is used for this comparison.

To be considered as being suitable for cold and hot water applications, unlike the taste and odour test which requires both cold (23°C) and testing at a higher temperature, this test only requires testing at the higher temperature to be satisfactorily completed.

Assessing BS 6920 appearance of water test results: -
An example of the format used to report the results of appearance of water testing in accordance with BS 6920: 2014 is provided below. The comment is a statement of conformity, confirming whether or not the material complies with the requirements of this test.

Appearance of water

Methodology: BS 6920: 2014 Part 1: clause 5

Extraction temperature - 50°C
Date test commenced - 23 April 2019

Extract 1

	Colour (Hazen Units)	**Turbidity** (Formazine nephelometric units)
Test container (product)	<2.5	0.14
Blank	<2.5	0.11
Net increase	Nil	0.03

Comment: thus the sample of this product have been found to comply with the requirements of BS 6920: 2014: part 1 clause 5 when extracted at 50°C

3. Growth of aquatic microorganisms (MDOD) or enhancement of microbial growth (EMG) test

This test was developed to try and identify those materials which might 'enhance' the growth of microorganism in drinking water. But rather than count bacteria, microbes etc. the test measures the depletion of dissolved oxygen in the test water caused by the growth of micro-organisms.

The test itself involves submerging a sample of non-metallic material in water and measuring the dissolved oxygen concentration for both the test sample and control during the fifth to seventh weeks of test (although in some borderline cases the test can be extended to 9 weeks). The mean dissolved oxygen difference or (MDOD) value is calculated by subtracting the mean value obtained for the control from that of the test sample.

A significant difference in the oxygen depletion between the test samples and control would indicate that micro-organisms present in the test sample were actively growing, suggesting that the material is likely to support microbial growth. Reference materials are also used; if the results for these exceed set levels the test is invalidated.

A non-metallic material conforms if the MDOD at week 5 is ≤1.69 mg/L. Or, when the MDOD taken at week 5 is ≥ 1.69 mg/L but not more than 2.9 mg/L, the arithmetic mean for the MDOD taken at set periods over a further two weeks this extended test is ≤2.39 mg/L. A non-metallic material giving a MDOD value of ≥ 2.4 mg/L fails the test.

This test is always carried out at 30°C.

Assessing growth of aquatic micro-organisms test results: -

An example of the format used to report the results of growth of aquatic micro-organisms testing in accordance with BS 6920: 2014 is provided below. The comment is a statement of conformity, confirming whether or not the material complies with the requirements of this test.

Growth of aquatic micro-organisms

Methodology: BS 6920: 2014 Part 1: clause 6

Date test commenced – 12 March 2019
Mean dissolved oxygen differences

Test container (product)	0.7mg/l
Negative reference (glass) sample	0.2 mg/l
Positive reference (paraffin wax)	7.4mg/l
Mean dissolves oxygen concentration of test control	8.7 mg/l

Note: at the end of this test the test piece showed no changes in colour or appearance.

Comment: thus the sample of this product have been found to comply with the requirements of BS 6920: 2014: part 1 clause 6

4. Extraction of substances that may be of concern to public health (EXS) or cytotoxicity (Cyto) test

In addition to testing to see whether a material would support the growth of organisms there is a need to screen materials for those which could leach toxic substances. Rather than test using live animals the cytotoxicity test is carried out on African Green monkey kidney cells.

This test is carried out in two parts. Firstly, a sample of the test material in placed in test water for 24 hours then an extract taken. This extract is then used to prepare a growth media into which the live monkey cells are introduced. After a set period the appearance of these cells is compared against those in a blank and toxic (zinc sulphate) control.

There should be no signs of toxicity in the test sample media i.e. the cells should be healthy. If the morphology of the cells in is affected in any way, two further samples can be tested. If these exhibit a non-cytotoxic response the material is considered as conforming.

The results for controls must also be included, the cells in the blank sample should be healthy and those in the zinc sulphate solution control dead.

Both cold water (23°C) and higher temperature testing must be satisfied for a non-metallic material to be considered suitable for use at temperatures above 23 °C.

Assessing cytotoxicity test results: -
An example of the format used to report the results of cytotoxicity testing in accordance with BS 6920: 2014 is provided below. The comments are a statement of conformity, confirming whether or not the material complies with the requirements of this test.

The extraction of substances that may be of concern to public health
Methodology: BS 6920: 2014 Part 1: clause 7

Extracts were tested using Green African Monkey Kidney Cites
Extraction temperature - 23°C
Date test commenced – 28 March 2019

EXTRACT	GROWTH OF CELL TISSUE (MONOLAYER)
Reagent (Blank)	healthy, confluent
Zinc sulphate validation solution (cytotoxic)	cell death
Sample	healthy, confluent

Comment: thus the sample of this product have been found to give a non-cytotoxic response and therefore it has been found to comply with the requirements of BS 6920: 2014: part 1 clause 7 when extracted at 23°C

Extraction temperature - 50°C
Date test commenced – 30 April 2019

EXTRACT	GROWTH OF CELL TISSUE (MONOLAYER)
Reagent (Blank)	healthy, confluent
Zinc sulphate validation solution (cytotoxic)	cell death
Sample	healthy, confluent

Comment: thus the sample of this product have been found to give a non-cytotoxic response and therefore it has been found to comply with the requirements of BS 6920: 2014: part 1 clause 7 when extracted at 50°C

5. Extraction of metals (EM) or metals test

Many non-metallic materials incorporate metal ions, such as iron, aluminium or lead. Because some of these are considered to pose a risk to public health their presence in drinking water is restricted to set permitted levels. The extraction of metals test was developed to identify the release of metal ions into drinking water from non-metallic materials.

The test involves submerging a sample of the test material in test water for 24 hours after which a sample extract is taken and the concentration of a number of elements of potential concern to public health measured. To pass the test the detected levels must not exceed the maximum allowable concentration accepted in drinking water. If these concentrations are exceeded the test can be extended, with up to a maximum number of seven extracts taken. A reagent blank acts as test validation.

There are permitted level for antimony, arsenic, boron, cadmium, chromium, lead mercury, nickel, aluminium and iron, these are listed below.

Only testing at a higher temperature needs to be satisfied for a non-metallic material to be considered suitable for hot and cold water applications.

Maximum permissible concentration of certain elements:

element	Maximum allowable concentration µg/l (parts per billion)	Reporting limits µg/l	Expression of results
Aluminium	200	20.0	Al µg/l
Antimony	5	0.5	Sb µg/l
Arsenic	10	1.0	AS µg/l
Boron	1000	100.0	B µg/l
Cadmium	5	0.5	Cd µg/l
Chromium	50	5.0	Cr µg/l
Iron	200	20.0	Fe µg/l
Lead	10	1.0	Pb µg/l
Manganese	50	5.0	Mn µg/l
Mercury	1	0.1	Hg µg/l
Nickel	20	2.0	Ni µg/l
Selenium	10	1.0	Se µg/l

Assessing extraction of metals test results: -

An example of the format used to report the results of extraction of metals testing in accordance with BS 6920: 2014: is provided below. The comment is a statement of conformity, confirming whether or not the material complies with the requirements of this test.

The extraction of metals

Extraction temperature – 50°C

Date test commenced – 25 April 2019

Number of extracts –1

Extract 1

Metal	Expression of the results	Max. Admissible concentration	Reporting limit	Concentration final extract I	II	Determined reagent blanks
Aluminium	Al µg/l	200	20.0	<20.0	<20.0	<20.0
Antimony	Sb µg/l	5	0.5	<0.5	<0.5	<0.5
Arsenic	As µg/l	10	1.0	<1.0	<1.0	<1.0
Boron	B µg/l	1000	100.0	<102.0	<100.0	<100.0
Cadmium	Cd µg/l	5	0.5	<0.5	<0.5	<0.5
Chromium	Cr µg/l	50	5.0	<5.0	<5.0	<5.0
Iron	Fe µg/l	200	20.0	<20.0	<20.0	<20.0
Lead	Pb µg/l	25	1.0	<1.0	<1.0	<1.0
Manganese	Mn µg/l	50	5.0	<5.0	<5.0	<5.0
Mercury	Hg µg/l	1	0.1	<0.1	<0.1	<0.1
Nickel	Ni µg/l	20	2.0	<2.0	<2.0	<2.0
Selenium	Se µg/l	10	1.0	<1.0	<1.0	<1.0

Comment – thus the samples of this product have been found to conform to the requirements of BS 6920: 2014: Part 1: clause 8 when extracted at 50 °c

6. High temperature test

The tests in BS 6920 were originally designed for non-metallic materials used in contact with cold water i.e. at temperatures up to 25 °C.

The high temperature test was introduced to allow the five other BS 6920 tests to be applied to non-metallic materials likely to be used in contact with hot water intended to be used for domestic purposes. High temperature testing is product specific. The results are not reported separately.

High temperature testing can be undertaken at any elevated temperature up to boiling point. In the case of the boiling water tests, BS 6920 recommends no testing is undertaken until a material has been shown to conform at 85°C.

To be suitable for hot water applications a non-metallic component has to conform to the odour and flavour, appearance of water, substances of concern to public health and extraction of metals tests from BS 6920 at the required elevated temperature.

Please note BS 6920 reports there is evidence that satisfactory test results for odour and flavour as well as substances of concern to public health in hot water might not indicate the suitability of the material for use in cold water. For this reason, in the case of these tests a non-metallic material has to be tested and conform at the required elevated temperature and cold water (23°C) to be considered as suitable for hot water applications.

EVIDENCE OF BS 6920 CONFORMITY

Water undertaker acceptance principle:

Water undertakers shall consider evidence of regulation 4(1)(a) compliance provided on a case and site specific basis.

Water undertakers retain absolute discretion in assessing whether a water fitting is compliant with regulation 4(1)(a).

A water undertaker's decision to accept evidence of compliance is both time limited and location specific. Acceptance by a water undertaker should not be considered as a form of approval to be accepted across the UK water supply industry, or as compliance with all parts of the Water Supply (Water Fittings) Regulations/ Scottish Water Byelaws

Forms of evidence:

There are typically three forms of evidence to demonstrate 6920 conformity for non-metallic water fittings and/or their component parts, these are: -

1. Secretary of State Approval
2. Non-metallic component certification
3. BS 6920 test reports

Please note:

BS 6920 does not include provision to test water fittings that incorporate or are assembled from a number of different non-metallic materials or components. It does however include provision to test multi-layered (composite) products i.e. products whose water contact surface is made from a material different to that in the remainder of the product (e.g. a multi-layered pipe and cisterns).

The focus of this document is non-metallic components used in water fittings.

Non-metallic coatings, paints, linings, adhesives and lubricants in contact with water required to be wholesome also need to conform to BS 6920. The same types of evidence of compliance may be used for these products. Certified non-metallic coatings, paints, linings adhesives must be mixed/applied/cured in accordance with any installation requirements which apply as a condition of their certification.

1. SECRETARY OF STATE APPROVAL

Current product approvals granted by the Secretary of State may be considered as satisfying the requirements for non-metallic materials in contact with water required to be wholesome.

All products approved by the Secretary of State are included in the 'List of Approved Products for use in the Public Water Supply in the United Kingdom'
http://www.dwi.gov.uk/drinking-water-products//approved-products/index.htm

Please note: the scope of this form of approval does not include mechanical performance. A Secretary of State approval for a product alone is not considered to be evidence a water fitting is of a suitable quality and standard.

Water undertakers reserve the right to request further information to confirm BS 6920 conformity.

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2. NON-METALLIC COMPONENT CERTIFICATION

Confirmation that a non-metallic component is currently certified as conforming to BS 6920, may be accepted as evidence of BS 6920 conformity.

Please note water undertakers retain absolute discretion in assessing whether a certified non-metallic component is compliant with the regulations. In discharging their duty to enforce the water fitting regulations water undertakers can request further information about such certification.

Factors considered by water undertakers when assessing whether to accept certification as evidence of BS 6920 conformity include whether the certification has been:

- Granted on the basis of conformity with all the applicable tests specified in the current version of BS 6920.

- Issued by a certification scheme which can satisfactorily demonstrate to the water undertakers it is competent and operates in a consistent and impartial manner. That is to say has adequate procedures in place to give confidence in its certification.

  For example, ISO/IEC 17065 accreditation awarded by an accreditation body which recognises and is a signatory to the International Laboratory Accreditation Co-operation (ILAC) and undertakes regular audits to provide confidence in on-going conformity.

  Water undertakers will consider certification issued by non-accredited schemes, providing they are able to demonstrate an acceptable level of competency and operate in a consistent and impartial manner.

- The testing required to obtain the certification has been carried out by a test facility which is competent to undertake BS 6920 testing in an accurate and reproducible manner.

For example, has been carried out by a test facility with ISO/IEC 17025 accreditation awarded by an accreditation body which recognises and is a signatory to the International Laboratory Accreditation Co-operation (ILAC) for that testing.

- Publicly available: a listing providing full details of non-metallic components currently certified and the scope of their certification, for example whether it is for all components manufacturer from the same non-metallic material, the temperatures at which the non-metallic material conforms, shore hardness, inradius and method of manufacture.

  If this information is not publicly available water undertakers will request further details to assess compliance.

Please note:
Queries regarding the scope of certification, for example whether it covers non-metallic components or all components manufactured from the same non-metallic material including variants of it (such as a different colours, different shore hardness or components produced using a different method of manufacture) should be referred to the certification body.

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3. BS 6920 TEST REPORTS

Where a non-metallic component has been tested against the current version of BS 6920 a test report may be considered as evidence of BS 6920 conformity.

Please note water undertakers retain absolute discretion in assessing whether a BS 6920 test report for a non-metallic component may be considered as evidence of BS 6920 conformity. In discharging their duty to enforce the regulations water undertakers can request further information regarding BS 6920 test reports.

For a BS 6920 test report to be considered as evidence of compliance it must meet the following requirements:

- Be written in English. Only the original test report or a certified pdf of it will be considered: a précis or summary is not acceptable.
- Verify conformity with all applicable tests. That is to say must include a statement of conformity for all tests, as opposed to most or some, material respects, specified in the current version of BS 6920 required to claim conformity.

  Water undertakers require acceptable evidence of conformity with all applicable test protocols.

  Please note there may be occasions where multiple BS 6920 test reports are required to demonstrate conformity, for example when supplementary testing is required to extend scope. Consult the test laboratory for further information.

- Satisfy the reporting requirements specified in the current version of BS 6920.

  These include the need for a test report to be signed by at least one member of laboratory staff from the test facility that carried out the testing: a unique identifier, such as a reference or serial number on each page. A statement of conformity or non-conformity with the acceptance criteria specified for the test requirements identified in BS 6920-1: 2014. Please consult the test laboratory for further advice.

- Be for the component in question.

  If a test report is for a plaque, rather than the component, acceptability may be considered subject to supplementary testing.

  If the test report is for a different component made from the same non-metallic material acceptance may be considered, however this will be dependent on a number of factors including but not limited to, whether the test sample was produced using a different method of manufacture or a different colour, size or shore hardness. Consult the test laboratory which undertook the BS 6920 testing for further information.

- Be undertaken at a test facility which is competent to undertake BS 6920 testing in an accurate and reproducible manner.

  For example, the testing was conducted at a test facility which has ISO/IEC 17025 accreditation awarded by an accreditation body which recognises and is a signatory to the International Laboratory Accreditation Co-operation (ILAC), for BS 6920 testing.

Please note:
A manufacturer's declaration will be required, this must include but is not limited to confirmation the non-metallic material used to manufacture the component is the same as that tested – that is to say it has not been modified, the ingredients, including their proportions or percentages, the suppliers of raw material together with the site and method of manufacture have not changed since the original test sample was produced and tested.

To be considered as suitable for installation the evidence of BS 6920 conformity must cover the maximum operating temperature the non-metallic component will be exposed to.

Non-metallic components which have not been tested at temperatures above 23°C, or fail testing at a higher temperature, can only be considered as only suitable for cold water applications. To be considered as suitable for use for hot water applications a non-metallic component must conform to BS 6920 at the highest temperature to which it is likely to be exposed. High temperature testing can be carried out at a range of temperatures up to boiling.

Checklist: evidence of BS 6920 compliance: certified non-metallic component

Please note:
The following information is non-statutory guidance drawing attention to the types of information water undertakers will consider when determining compliance with regulation 4(1)(a).

Providing this information does not guarantee acceptance.

Current certification of a non-metallic component, issued by a certification scheme which has adequate procedures in place to provide confidence its certification satisfies the requirements of regulation 4(1)(a), may be considered as evidence of BS 6920 conformity.

Water undertakers retain absolute discretion in assessing whether a certified non-metallic component is compliant with the regulations. In discharging their duty to enforce the water fitting regulations water undertakers can request further information about such certification.

To be considered as evidence demonstrating conformity with BS 6920 the certification must be:

- Current and publicly available. The listing must provide confirmation the non-metallic component is currently certified.

  For example clarify whether the certification covers only those components listed or all components manufacturer from the same non-metallic material, including those of a different colour, size/shape, shore hardness, inradius and method of manufacture as well as the temperatures at which the non-metallic material conforms to BS 6920.

  If it is unclear, please contact the certification body for clarification.

  If this information is not publicly available water undertakers will request further details to assess compliance.

- Issued by a certification scheme which can satisfactorily demonstrate it has adequate procedures in place to give confidence that its certification satisfies the requirements of regulation 4(1)(a).

  For example, ISO/IEC 17065 accreditation awarded by an accreditation body which recognises and is a signatory to the International Laboratory Accreditation Co-operation (ILAC) and undertakes regular audits to provide confidence in on-going conformity.

  Water undertakers will consider certification issued by non-accredited schemes, providing they are able to demonstrate an acceptable level of competency as well as consistent operation and impartiality

- The testing required to obtain the certification has been carried out by a test facility which is competent to undertake BS 6920 testing in an accurate and reproducible manner.

For example, has been carried out by a test facility with ISO/IEC 17025 accreditation awarded by an accreditation body which recognises and is a signatory to the International Laboratory Accreditation Co-operation (ILAC) for BS 6920 testing.

- Granted on the basis all testing required to claim conformity with the current version of BS 6920 has been satisfactorily completed. Please contact the certification body for clarification.

Please note:

A manufacturer's declaration may be required.

To be considered as suitable for installation the scope of certification must cover the maximum operating temperature the non-metallic component will be exposed to.

Certified non-metallic coatings, paints, linings adhesives must be mixed/applied/cured in accordance with any installation requirements which apply as a condition of their certification.

Checklist: evidence of BS 6920 compliance: BS 6920 test reports

Please note:
The following information is non-statutory guidance drawing attention to the types of information water undertakers will consider when determining compliance with regulation 4(1)(a).

Providing this information does not guarantee acceptance.

Water undertakers retain absolute discretion in assessing whether a BS 6920 test report for a non-metallic component may be considered as evidence of BS 6920 conformity.

In discharging their duty to enforce the regulations water undertakers can request further information about such BS 6920 test reports.

To be considered as evidence demonstrating conformity with BS 6920 a test report must:

- Verify conformity with all, as opposed to most or in some respects, tests specified in the current version of BS 6920. That is to say must include a statement of conformity with the acceptance criteria specified for the test requirements identified in BS 6920-1: 2014.

  Water undertakers require acceptable evidence of conformity with all applicable test protocols.

  Please note there may be occasions where multiple BS 6920 test reports are required to demonstrate conformity, for example when supplementary testing is required to extend scope. Consult the test laboratory for further information.

- Satisfy the reporting requirements specified in the current version of BS 6920.

  These include the need for a test report to be signed by at least one member of laboratory staff from the test facility that carried out the testing. A unique identifier such as a reference or serial number on each page. A statement of conformity or non-conformity with the acceptance criteria specified for the test requirements identified in BS 6920-1: 2014. Please consult the test laboratory for further advice.

- Be written in English. Only the original test report or a certified pdf of it will be considered: a précis or summary is not acceptable.

- Be for the non-metallic component in question.

  If a test report is for a plaque, rather than the component, acceptability may be considered subject to supplementary testing.

If the test report is for a different component made from the same non-metallic material acceptance may be considered, however this will be dependent on a number of factors including but not limited to, whether the test sample was produced using a different method of manufacture or a different colour, size or shore hardness. Consult the test laboratory for further information.

- Be undertaken at a test facility which is competent to undertake BS 6920 testing in an accurate and reproducible manner.

  For example, the testing has been completed at a test facility which has ISO/IEC 17025 accreditation, awarded by an accreditation body which recognises and is a signatory to the International Laboratory Accreditation Co-operation (ILAC), for BS 6920 testing.

Please note:

A manufacturer's declaration will be required, this must include but is not limited to confirmation the non-metallic material used to manufacture the component (or plaque as applicable) has not be modified – that is to say that the ingredients, including their proportions or percentages, the suppliers of raw material together with the site and method of manufacture have not changed since the original test sample was produced and tested.

To be considered as suitable for installation the evidence of BS 6920 conformity must cover the maximum operating temperature the non-metallic component will be exposed to.

Conformity at 23°C: non-metallic components which are not tested at temperatures above 23°C or fail testing at a higher temperature can only be considered as only suitable for cold water applications.

To be considered as suitable for use for hot water applications a non-metallic component must conform to BS 6920 at the highest temperature to which it is likely to be exposed. High temperature testing can be carried out at a range of temperatures up to boiling

Certified non-metallic coatings, paints, linings adhesives must be mixed/applied/cured in accordance with any installation requirements which apply as a condition of their certification.