



Customer: C0427425

World plastics for construction industries
PO Box 53
Amman, 11512
Jordan

Result Limited testing was undertaken on this product in accordance with the WRAS Material Guidance document, Table 1 o & a (product manufactured from approved material and change in colour). Related approval number 1509510. This product has satisfied the criteria set out in BS 6920: Part 1: 2014 "Specification" and thus is suitable for use with hot (up to 85°C) and cold water.

| | |
|-----------------|---|
| Customer Name | World plastics for construction industries |
| Product | thermopipe (25mm PPR Pipe) |
| Test Undertaken | BS 6920: 2014 - Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water |
| Job Number | J-00320517 |
| PAMS Number | 181533 |

Thank you for having your product tested by NSF Wales Ltd.

Please contact your Account Manager if you have any questions or concerns pertaining to this report.

Report Date 10-JUL-2019
Original issue date: 04-FEB-2019

Report Authorisation 
Michael Bustin - Materials Testing Manager



0626

Result Summary Section

| Test | Result |
|---|---------------|
| Odour and flavour of water BS 6920: Part 1: 2014, Clause 4 - 23°C | Pass |
| Odour and flavour of water BS 6920: Part 1: 2014, Clause 4 - 85°C | Pass |
| Extraction of Metals BS 6920: Part 1: 2014, Clause 8 - 85°C | Pass |

Sample Details

| | |
|-------------------------------------|--|
| Date of Receipt of Application Form | 05/11/18 |
| Date of Receipt of Product for Test | 19/09/18 |
| Front Cover Test Description | Limited testing was undertaken on this product in accordance with the WRAS Material Guidance document, Table 1 o & a (product manufactured from approved material and change in colour). Related approval number 1509510. |
| Product | thermopipe (25mm PPR Pipe) |
| Nature of Material | Polypropylene |
| Date Test Sample Manufactured | 01/07/18 |
| Batch Number | Not provided |
| Receipt Conditions | Good Condition |
| Receipt Packaging | Clear plastic |
| Product Manufacturer | World plastics for construction industries |
| Product Manufacturing Site | Jordan |
| Tradename and Reference of Product | thermopipe |
| Method of Manufacture | Extrusion |
| Typical Use of the Product | Conveyance of potable water |
| Material Manufacturer | Borouge Pte Ltd. |
| Tradename and Reference of Material | RA140E |
| Material Manufacturing Site | United Arab Emirates |
| Nature of Product | Pipe |
| Sampling Procedure | Random |
| Address of Product Manufacturer | Jordan – Amman – Al Qastel – industrial zone |
| Submitting Organization | World plastics for construction industries |

Retest Information

| | |
|-------------------------------------|----------------|
| Date of Receipt of Application Form | 25/03/19 |
| Date of Receipt of Product for Test | 19/03/19 |
| Date Test Sample Manufactured | 01/07/18 |
| Batch Number | Not provided |
| Receipt Condition | Good Condition |
| Receipt Packaging | Shrink wrapped |

Sample Preparation

| | |
|--|--|
| Description/Appearance of the product | Blue, opaque, rigid, pipe with green opaque stripe |
| Length | 1000 mm |
| Inner diameter | 13 mm |
| Outer diameter | 20 mm |
| Surface area of one article | 62832.0 mm ² |
| Number of articles constituting a sample | 0.2387 |
| Surface area for test | 15000 mm ² |
| Calibration mark of test container | 1 L |
| Test sample preparation | For the OFW test, 1 m lengths of the complete pipe were filled with test water and the extract was diluted in accordance with BS 6920-2.2.2. For all other tests, lengths of the inner pipe with a surface area of 15,000 mm ² were used. |
| Storage Conditions | As in BS 6920: Part 2: Section 2.1: Clause 5.2 |

Additional Sample Details

| | |
|---|-----------------------|
| Length of test sample | 1 m |
| Total wall thickness | 3.5 mm |
| Internal surface area of test sample | 62832 mm ² |
| Volume of test water contained within test sample | 314 mL |
| Total volume of initial dilution | 1 L |
| Volume of extract water diluted to 1 L | 75 mL |

Job Attachments:



Photo 1

Odour and flavour of water BS 6920: Part 1: 2014, Clause 4 - 23°C

Methodology: BS 6920: Part 2: Section 2.2 and in-house method PROC/MAT 004 and 006.

Date Leaching Test Started: 1-JAN-2019

First Extract - Chlorinated Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | None | None | 1 |
| 2 | None | None | 1 |
| 3 | None | None | 1 |

First Extract - Chlorine Free Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | None | None | 1 |
| 2 | None | None | 1 |
| 3 | None | None | 1 |

On the basis of these results the samples of this product referred to in this report have been found to conform to the requirements of BS 6920: Part 1: 2014, Clause 4.

Odour and flavour of water BS 6920: Part 1: 2014, Clause 4 - 85°C

Methodology: BS 6920: Part 2: Section 2.2 and in-house method PROC/MAT 004 and 006.

Date Leaching Test Started: 3-DEC-2018

First Extract - Chlorinated Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|---|-------------------------|
| 1 | Lead Pencil | Not Suitable for flavour - failed odour | 2 |
| 2 | Lead | Not Suitable for flavour - failed odour | 2 |
| 3 | Lead Pencil | Not Suitable for flavour - failed odour | 2 |

First Extract - Chlorine Free Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | Soapy | None | 1 |
| 2 | None | None | 1 |
| 3 | None | None | 1 |

Final Extract - Chlorinated Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|--------------------|--------------------|-------------------------|
| 1 | Pencil Sharpenings | None | 1 |
| 2 | Wood | Wood | 2 |
| 3 | Pencil | None | 1 |

In accordance with BS 6920: Part 1: 2014, Clause 4 the test was repeated on two further samples of the product - 85°C

Methodology: BS 6920: Part 2: Section 2.2 and in-house method PROC/MAT 004 and 006.

Date Leaching Test Started: 8-MAY-2019

First Extract - Retest Sample 1 - Chlorinated Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | None | None | 1 |
| 2 | Chemical | None | 1 |
| 3 | None | None | 1 |

First Extract - Retest Sample 1 - Chlorine Free Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | None | None | 1 |
| 2 | None | None | 1 |
| 3 | None | None | 1 |

First Extract - Retest Sample 2 - Chlorinated Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | None | None | 1 |
| 2 | Chemical | None | 1 |
| 3 | None | None | 1 |

First Extract - Retest Sample 2 - Chlorine Free Test Water

| Panellist | Odour Descriptor | Flavour Descriptor | Flavour Dilution Number |
|-----------|------------------|--------------------|-------------------------|
| 1 | None | None | 1 |
| 2 | None | None | 1 |
| 3 | None | None | 1 |

On the basis of these results the samples of this product referred to in this report have been found to conform to the requirements of in accordance with BS 6920: Part 1: 2014, Clause 4.

Extraction of Metals BS 6920: Part 1: 2014, Clause 8 - 85°C

Methodology: BS 6920: Part 2: Section 2.6 and in-house methods PROC/MAT 006 (leachate preparation) and PROC/ING 003 (ICPMS analysis).

Date Leaching Tests Started: 27-NOV-2018

First Extract

| Metal (µg/L) | MAC (µg/L) | LOD (µg/L) | Blank (µg/L) | Sample 1 (µg/L) | Sample 2 (µg/L) |
|---------------------|-------------------|-------------------|---------------------|------------------------|------------------------|
| Aluminium | 200 | 20 | <20 | <20 | <20 |
| Antimony | 5 | 0.5 | <0.5 | <0.5 | <0.5 |
| Arsenic | 10 | 1 | <1 | <1 | <1 |
| Boron | 1000 | 100 | <100 | <100 | <100 |
| Cadmium | 5 | 0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 50 | 5 | <5 | <5 | <5 |
| Iron | 200 | 20 | <20 | <20 | <20 |
| Lead | 10 | 1 | <1 | <1 | <1 |
| Manganese | 50 | 5 | <5 | <5 | <5 |
| Mercury | 1 | 0.1 | <0.1 | <0.1 | <0.1 |
| Nickel | 20 | 2 | <2 | <2 | <2 |
| Selenium | 10 | 1 | <1 | <1 | <1 |

Analytical Method - ICPMS Inductively Coupled Plasma Mass Spectrometry
 MAC - Maximum admissible concentration
 LOD - Required limit of detection

On the basis of these results the samples of this product referred to in this report have been found to conform to the requirements of BS 6920: Part 1: 2014, Clause 8.

<< **Testing Laboratories** >>

| | <u>Flag</u> | <u>Id</u> | <u>Address</u> |
|--|-------------|-----------|--|
| All work performed at: (Unless otherwise specified) | → | NSF_WALES | NSF Wales Ltd. 30 Fern Close Pen-Y-Fan Industrial Estate, Oakdale Gwent, NP11 3EH UK |

Job Notes:

This report replaces previously issued report with serial# FI20190204101631. This report is being re-issued due to the hot water OFW test being repeated. This changes the overall status of the report.

NOTES

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