



Customer: C0273416

Jain Irrigation Systems Ltd
Jain Plastic Park
Bambhori
Jalgaon, MM 425001
India

Result 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 60°C) and cold water.

Customer Name Jain Irrigation Systems Ltd
Product Jain HDPE Pipe PE 100 (Borouge HE3490-LS)
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-00427167
Work Order Number W0739806

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 19-JUL-2022

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 - 60°C	Pass
Appearance of Water BS 6920: Part 1: 2014, Clause 5	Pass
Growth of Microorganisms BS 6920: Part 1: 2014, Clause 6	Pass
Extraction of substances that may be of concern to public health BS 6920: Part 1: 2014, Clause 7 - 23°C	Pass
Extraction of substances that may be of concern to public health BS 6920: Part 1: 2014, Clause 7 - 60°C	Pass
Extraction of Metals BS 6920: Part 1: 2014, Clause 8 - 60°C	Pass

Sample Details

Date of Receipt of Application Form	27/01/22
Date of Receipt of Product for Test	11/02/22
Product *	Jain HDPE Pipe PE 100 (Borouge HE3490-LS)
Nature of Material *	HDPE
Date Test Sample Manufactured *	13/09/21
Batch Number *	Not provided
Receipt Conditions	Good Condition
Receipt Packaging	Bubble wrap
Product Manufacturer *	Jain Irrigation Systems Ltd.
Product Manufacturing Site *	India
Tradename and Reference of Product *	Jain HDPE Pipe PE 100
Method of Manufacture *	Extrusion
Typical Use of the Product *	Conveyance of potable water
Material Manufacturer *	Abu Dhabi Polymer Company, Limited
Tradename and Reference of Material *	Borouge HE3490-LS
Nature of Product *	Pipe
Sampling Procedure *	Random
Address of Product Manufacturer *	Jain Plastic Park, Bambhori, Jalgaon-425001, India
Submitting Organization *	Jain Irrigation Systems Ltd

* denotes customer supplied information

Sample Preparation

Description/Appearance of the product	Black, opaque, rigid pipe with blue stripe
Length	500 mm
Inner diameter	32.4 mm
Outer diameter	40.0 mm
Surface area of one article	114380.2 mm ²
Number of articles constituting a sample	0.13
Surface area for test	15211.4 mm ²
Calibration mark of test container	1 L
Storage Conditions	As in BS 6920: Part 2: Section 2.1: Clause 5.2

Job Attachments:

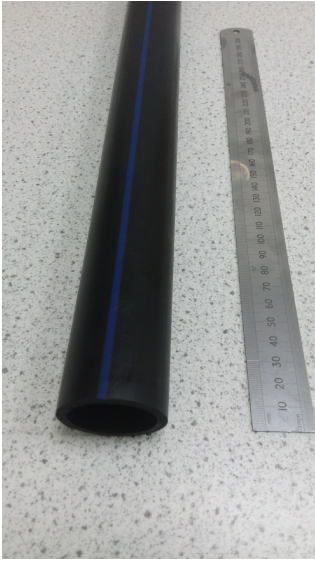


Photo 1.

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: 20-JUN-2022

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 - 60°C

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

Date Leaching Test Started: 27-JUN-2022

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.

Appearance of Water BS 6920: Part 1: 2014, Clause 5 - 60°C

Methodology: BS 6920: Part 2: Section 2.3 and in-house methods PROC/MAT 004, PROC/MAT 027 (colour) and PROC/MAT 030 (turbidity).

Date Leaching Test Started: 14-JUN-2022

First Extract

Name	Blank	Extract	Test Sample Effect
Colour (Hazen)	<2	<2	<2
Turbidity (FNU)	<0.1	<0.1	<0.1

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 5.

Growth of Microorganisms BS 6920: Part 1: 2014, Clause 6

Methodology: BS 6920: Part 2: Section 2.4 and in-house method PROC/MIC 001.

Date Test Started: 10-MAY-2022

Incubation temperature: (30 ±1) °C

Units: mg L⁻¹O₂

Mean Dissolved Oxygen Difference	Day 49
Test Sample	0.6
Positive Reference (paraffin wax)	5.7
Negative Reference (glass)	-0.1

Mean Dissolved Oxygen	Day 49
Test Water Control	7.5

Comments: At the end of this test, the test sample showed no change in colour or appearance.

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 6.

Extraction of substances that may be of concern to public health BS 6920: Part 1: 2014, Clause 7 - 23°C

Methodology: BS 6920: Part 2: Section 2.5 and in-house methods PROC/MAT 004 and PROC/MIC 004.

Date Leaching Test Started: 10-MAY-2022

Cell concentration used: 5×10^5

Cell morphology: Confluent growth of elongated cells, some round cells and cell debris. Media orange/pink in colour.

Sample/Control	Cell Morphology	Response
Test Sample	Confluent growth of elongated cells, some round cells and cell debris. Media pink in colour.	Non-Cytotoxic
Blank	Confluent growth of elongated cells, some round cells and cell debris. Media pink in colour.	Non-Cytotoxic
Negative Control	Confluent growth of elongated cells, some round cells and cell debris. Media pink in colour.	Non-Cytotoxic
Positive Control	All cells rounded and mainly still in suspension. Media pink in colour.	Cytotoxic

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 7.

Extraction of substances that may be of concern to public health BS 6920: Part 1: 2014, Clause 7 - 60°C

Methodology: BS 6920: Part 2: Section 2.5 and in-house methods PROC/MAT 004 and PROC/MIC 004.

Date Leaching Test Started: 14-JUN-2022

Cell concentration used: 5×10^5

Cell morphology: Confluent growth of elongated cells, some round cells and cell debris. Media orange/pink in colour.

Sample/Control	Cell Morphology	Response
Test Sample	Confluent growth of elongated cells, some round cells and cell debris. Media pink in colour.	Non-Cytotoxic
Blank	Confluent growth of elongated cells, some round cells and cell debris. Media pink in colour.	Non-Cytotoxic
Negative Control	Confluent growth of elongated cells, some round cells and cell debris. Media pink in colour.	Non-Cytotoxic
Positive Control	All cells rounded and mainly still in suspension. Media pink in colour.	Cytotoxic

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 7.

Extraction of Metals BS 6920: Part 1: 2014, Clause 8 - 60°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: 22-JUN-2022

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 >>**

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

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