

TEST REPORT

Client: Monarch Water

Product: Scaleout SP3
Water Treatment Media

Tests Undertaken: BS 6920: 2000 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

Report Number: MAT/LAB 707E

Date of Report: 17th February 2013

WRc-NSF Ltd,
30 Fern Close,
Pen-y-fan Industrial Estate,
Oakdale,
Gwent,
NP11 3EH, UK.

Telephone: +44 (0) 1495 236 260
Facsimile: +44 (0) 1495 249 234
E-mail: info@wrcnsf.com
Website: www.wrcnsf.com



0626

Client: Monarch Water

Product: Scaleout SP3 Water Treatment Media

Test Criteria: BS 6920: 2000

CONTENTS

Contents	2
1. Executive Summary	3
2. Samples for Testing	4
3. Odour and Flavour of Water.....	6
4. Appearance of Water	7
5. Growth of Microorganisms	8
6. The Extraction of Substances that may be of Concern to Public Health	9
7. The Extraction of Metals	10
Notes	11

Client: Monarch Water
Product: Scaleout SP3 Water Treatment Media
Test Criteria: BS 6920: 2000

1. EXECUTIVE SUMMARY

Table with 2 columns: Test, Result. Rows include: Odour and flavour of water (Pass), Appearance of water (Pass), Growth of aquatic microorganisms (Pass), The extraction of substances that may be of concern to public health (Pass), Extraction of metals (Pass).

This product has satisfied the criteria set out in BS 6920: Part 1: 2000 "Specification" and thus is suitable for use with hot (up to 50 °C) and cold water.

Mr Michael Bustin, Laboratory Manager – Materials Testing

17th February 2013
Date

- Please note the following statements
a) The samples of the product referred to in this report have been tested in accordance with the methods specified in BS 6920: 2000 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.
b) This work has been undertaken in the UKAS accredited laboratory of WRc-NSF Ltd Oakdale, UKAS registration number 0626, unless otherwise stated. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
c) The results specified in this report relate only to the samples(s) of this product submitted for testing. Any changes in the nature or source of ingredients and the process of manufacturer or application could affect the suitability of this product for use in contact with potable water.
d) We draw to your attention that reports issued by the accredited test laboratories do not of themselves constitute approval by the Water Regulations Advisory Scheme or the test laboratory. Only a letter from the Scheme, citing a Directory Reference number can be regarded as indicating approval.
e) Materials and products intended for use by a public water supply company in the preparation or conveyance of water may need to satisfy more comprehensive toxicological requirements as specified by the Drinking Water Inspectorate. These additional requirements are necessary to ensure Water Company usage complies with Regulation 31 of the Water Supply (Water Quality) Regulations 2000.

Client: Monarch Water
Product: Scaleout SP3 Water Treatment Media
Test Criteria: BS 6920: 2000

2. SAMPLES FOR TESTING

BS 6920: Part 2: Section 2.1 and in-house method PROC/MAT 001.

Contact name	Kevin Johnson
Name of organisation	Monarch Water
Address	Halesworth House Bramfield Suffolk IP10 9HS

Product	Scaleout SP3 Water Treatment Media
Product manufacturer	Watch GmbH
Submitting organisation	Monarch Water
Product manufacturing site	Mannheim, Germany
Method of manufacture	Not provided

Date of receipt of product for test	26/10/12
Trade name and reference of product	Scaleout SP3
Batch number	Not provided
General nature of product	Modified acrylic 90%, ceramic 10%
Shore hardness	Not applicable
Typical use of the product	Water treatment media

*Client: Monarch Water**Product: Scaleout SP3 Water Treatment Media**Test Criteria: BS 6920: 2000*

Sampling procedure	Random
Receipt conditions	In good condition
Receipt packaging	Plastic bag
Storage conditions	As in BS 6920: Part 2: Section 2.1: Clause 5.2
Description/appearance of the product for testing	Cream granules

Date test sample manufactured	02/08/12
Surface area for test	Approximately 15,000 mm ²
Calibration mark of test container	1 L

Client: Monarch Water
 Product: Scaleout SP3 Water Treatment Media
 Test Criteria: BS 6920: 2000

3. ODOUR AND FLAVOUR OF WATER

Methodology: BS 6920: Part 2: Section 2.2.1 and in-house method PROC/MAT 004 and 006.

Date leaching tests started: 13/01/13	Date leaching tests finished: 22/01/13
Number of panellists: 3	Temperature of extraction: 50 °C ±2 °C

Odour test

Extract	Date of test	Test water	Dilution number*	Odour descriptor
First	14/01/13	Chlorine free	0(0)	None
First	14/01/13	Chlorinated	0(3)	Chemical, Sweet
Final	-	Chlorine free	-	-
Final	22/01/13	Chlorinated	0(1)	Stale

Flavour test

Extract	Date of test	Test water	Dilution number*	Flavour descriptor
First	14/01/13	Chlorine free	1(0)	None
First	14/01/13	Chlorinated	Not suitable for flavour failed odour	
Final	-	Chlorine free	-	-
Final	22/01/13	Chlorinated	1(0)	None

* figure in brackets is the number of panellists detecting an odour or flavour at this dilution

On the basis of these results the samples of this product referred to in this report have been found to comply with the requirements of BS 6920: Part 1: 2000, Clause 4

*Client: Monarch Water**Product: Scaleout SP3 Water Treatment Media**Test Criteria: BS 6920: 2000*

4. APPEARANCE OF WATER

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 tests started: 18/12/12	Date leaching tests finished: 19/12/12
Temperature of extraction: 50 °C ±2 °C	

Colour

Extract	Date of test	Hazen units		Test sample effect
		Blank	Extract	
First	19/12/12	<2	<2	<2
Final	-	-	-	-

Turbidity

Extract	Date of test	Formazine Nephelometric units		Test sample effect
		Blank	Extract	
First	19/12/12	0.148	0.166	0.018
Final	-	-	-	-

First extract becomes final extract

On the basis of these results the samples of this product referred to in this report have been found to comply with the requirements of BS 6920: Part 1: 2000, Clause 5

Client: Monarch Water
 Product: Scaleout SP3 Water Treatment Media
 Test Criteria: BS 6920: 2000

5. GROWTH OF MICROORGANISMS

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

Date testing started: 13/11/12	Date testing finished: 01/01/13
Incubation temperature: 30 °C ±1 °C	

Mean dissolved oxygen difference MDOD (mg L ⁻¹ O ₂)	
Test sample	0.30
Positive reference (paraffin wax)	6.83
Negative reference (glass)	0.30

Test water control dissolved oxygen (mg L ⁻¹ O ₂)	8.34
--	------

Comments on changes in appearance of test material and any visible microbial growth	At the end of this test, the test pieces 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 comply with the requirements of BS 6920: Part 1: 2000, Clause 6

Client: Monarch Water
 Product: Scaleout SP3 Water Treatment Media
 Test Criteria: BS 6920: 2000

6. THE EXTRACTION OF SUBSTANCES THAT MAY BE OF CONCERN TO PUBLIC HEALTH

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

Date leaching tests started: 18/12/12	Date leaching tests finished: 19/12/12
Temperature of extraction: 50 °C ±2 °C	

Test Set-up

Date: 19/12/12

Cell concentration used	5 x 10 ⁵
Cell morphology	Confluent growth of elongated cells, some round cells and cell debris. Media orange/pink in colour.

Test Results

Date: 20/12/12

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 comply with the requirements of BS 6920: Part 1: 2000, Clause 7

Client: Monarch Water
 Product: Scaleout SP3 Water Treatment Media
 Test Criteria: BS 6920: 2000

7. THE EXTRACTION OF METALS

Methodology: BS 6920: Part 2: Section 2.6 and in-house methods PROC/MAT 006 and INGs, as specified, metals analysis undertaken in the UKAS accredited laboratory of WRc-NSF Ltd Reading, Berks. UKAS registration number 1550.

Date leaching tests started: 29/10/12	Date leaching tests finished: 30/10/12
Temperature of extraction: 50 °C ±2 °C	

First Extract

Date of analysis: 31/10/12	Analysis Registration No. N23498
----------------------------	----------------------------------

Metal (µg L ⁻¹)	MAC (µg L ⁻¹)	LOD (µg L ⁻¹)	Blank 1 (µg L ⁻¹)	Blank 2 (µg L ⁻¹)	Sample 1 (µg L ⁻¹)	Sample 2 (µg L ⁻¹)
Aluminium	200	20	<20	<20	<20	<20
Antimony	5	0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	10	1	<1	<1	<1	<1
Barium	1000	100	<100	<100	<100	<100
Cadmium	5	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	50	5	<5	<5	<5	<5
Iron	200	20	<20	<20	<20	<20
Lead	25	1	<1	<1	<1	<1
Manganese	50	5	<5	<5	<5	<5
Mercury	1	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	20	2	<2	<2	<2	<2
Selenium	10	1	<1	<1	<1	<1

Analytical Method (in-house method) - ICPMS Inductively Coupled Plasma Mass Spectrometry (ING113)

MAC - Maximum admissible concentration

LOD - Required limit of detection

First extract becomes final extract

On the basis of these results the samples of this product referred to in this report have been found to comply with the requirements of BS 6920: Part 1: 2000, Clause 8

Report Number: MAT/LAB 707E
 Date of Report: 17th February 2013
 WORK/MAT 012

Page 10 of 11
 © WRc-NSF Ltd 2013
 Revision No. 7, 28/05/11

Client: Monarch Water
Product: Scaleout SP3 Water Treatment Media
Test Criteria: BS 6920: 2000

NOTES

1. This report is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service (UKAS). WRc-NSF is UKAS accredited against ISO/IEC 17025: 2005 for calibration and testing, laboratory numbers 0248 and 0626 respectively. For details of the laboratory Schedule of Accreditation please see the UKAS website (www.ukas.org).
2. The laboratory provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories.
3. Opinions and interpretations in this report are outside the scope of UKAS Accreditation.
4. The results specified in this report relate only to the sample(s) of the product submitted for testing. Any change in the source or nature of the product or materials used in the product, method of manufacture or application could affect the performance of the product.
5. This test report does not constitute approval or endorsement of the product by either WRc-NSF or its parent companies.
6. The contents of this report are the copyright of WRc-NSF Ltd and all rights are reserved. No part of this publication may be reproduced, stored in a retrieval system in any form or by any means electronic, mechanical, photocopying, recording or otherwise, without prior written consent of WRc-NSF Ltd.
7. Any queries regarding this report should be addressed to the authorised signatory or to the Technical Manager at WRc-NSF. Copies of reports are retained by WRc-NSF for six years after issue.
8. Tests not UKAS accredited or tests which have been subcontracted are identified in the following manner:
 - Tests marked \$ are not included in the WRc-NSF UKAS accreditation schedule;
 - Tests marked @ have not been performed by WRc-NSF and the approved subcontractor is not UKAS accredited for the test(s);
 - Tests marked # have not been performed by WRc-NSF and the approved subcontractor is UKAS accredited for the test(s).

