

# TEST REPORT

**Client:** WAGU Gummitechnik GmbH

**Product:** Wagunit H 1005

**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 596G

**Date of Report:** 10<sup>th</sup> December 2013

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*Client:* WAGU Gummitechnik GmbH

*Product:* Wagunit H 1005

*Test Criteria:* BS 6920: 2000

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**1. EXECUTIVE SUMMARY**

Test	Result
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 cold water but not hot water.**



Mrs Ruth Manning, Materials Testing Project Manager

Date 10/12/13

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 NSF-WRc 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 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.

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## 2. SAMPLES FOR TESTING

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

Contact name	Wolfgang Schulz
Name of organisation	WAGU Gummitechnik GmbH
Address	Friedrich-Harkort-Strasse 17 59581 Warstein-Belecke Germany

Product	Wagunit H 1005 Hard Rubber
Product manufacturer	WAGU Gummitechnik GmbH
Submitting organisation	WAGU Gummitechnik GmbH
Product manufacturing site	Germany
Method of manufacture	Compression moulding

Date of receipt of application form	26/09/13
Date of receipt of product for test	26/09/13
Trade name and reference of product	Wagunit H 1005
Batch number	2013156930001
General nature of product	Hard Rubber
Shore hardness	78 ±5 Shore D
Typical use of the product	Protective coating for steel surfaces

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WORK/MAT 012

Revision No. 8, 08/03/13

**NSF-WRc Test Report****Commercial in Confidence***Client: WAGU Gummitechnik GmbH**Product: Wagunit H 1005**Test Criteria: BS 6920: 2000*

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Receipt conditions	In good condition
Receipt packaging	Wrapped in plastic
Storage conditions	As in BS 6920: Part 2: Section 2.1: Clause 5.2
Description/appearance of the product for testing	Beige hard rubber sheet

Test sample preparation	Product prepared by applicant
Date test sample manufactured	16/06/2013

Surface area of one article	16,046 mm <sup>2</sup>
Inradius	0.9 mm
Number of articles constituting a sample	1
Surface area for test	16,046 mm <sup>2</sup>
Calibration mark of test container	1 L

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Product: Wagunit H 1005

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: 08/10/13	Date leaching tests finished: 09/10/13
Number of panellists: 3	Temperature of extraction: (23 ±2) °C

#### Odour test

Extract	Date of test	Test water	Dilution number*	Odour descriptor
First	09/10/13	Chlorine free	0(0)	None
First	09/10/13	Chlorinated	0(0)	None
Final	-	Chlorine free	-	-
Final	-	Chlorinated	-	-

#### Flavour test

Extract	Date of test	Test water	Dilution number*	Flavour descriptor
First	09/10/13	Chlorine free	1(0)	None
First	09/10/13	Chlorinated	1(0)	None
Final	-	Chlorine free	-	-
Final	-	Chlorinated	-	-

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

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 conform with the requirements of BS 6920: Part 1: 2000, Clause 4

Client: WAGU Gummitechnik GmbH

Product: Wagunit H 1005

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: 08/10/13	Date leaching tests finished: 09/10/13
Temperature of extraction: (23 ±2) °C	

### Colour

Extract	Date of test	Hazen units		Test sample effect
		Blank	Extract	
First	09/10/13	<2	<2	<2
Final	-	-	-	-

### Turbidity

Extract	Date of test	Formazine Nephelometric units		Test sample effect
		Blank	Extract	
First	09/10/13	0.158	0.170	0.012
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 conform with the requirements of BS 6920: Part 1: 2000, clause 5
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Client: WAGU Gummitechnik GmbH

Product: Wagunit H 1005

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: 08/10/13	Date testing finished: 26/11/13
Incubation temperature: (30 ±1) °C	

Mean dissolved oxygen difference MDOD (mg L <sup>-1</sup> O <sub>2</sub> )	
Test sample	0.2
Positive reference (paraffin wax)	6.4
Negative reference (glass)	-0.1

Test water control dissolved oxygen (mg L <sup>-1</sup> O <sub>2</sub> )	8.1
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Comments on changes in appearance of test material and any visible microbial growth	At the end of this test, the test sample showed no change in colour or appearance.
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On the basis of these results the samples of this product referred to in this report have been found to conform with the requirements of BS 6920: Part 1: 2000, Clause 6



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## 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: 08/10/13	Date leaching tests finished: 09/10/13
Temperature of extraction: (23 ±2) °C	

### Test Set-up

Date: 09/10/13

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

### Test Results

Date: 10/10/13

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

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## 7. THE EXTRACTION OF METALS

**Methodology:** BS 6920: Part 2: Section 2.6 and in-house method PROC/MAT 006 and ITS method number MT/ELE/23. Metals analysis undertaken in the UKAS accredited laboratory of ITS Testing Services (UK) Ltd, Sunbury-on-Thames, Middlesex. UKAS registration number 1049.

Date leaching tests started: 08/10/13	Date leaching tests finished: 09/10/13
Temperature of extraction: (23 ±2) °C	

### First Extract

Date of analysis: 10/11/13	Report No. Rt/ELE 12523
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Metal (µg L <sup>-1</sup> )	MAC (µg L <sup>-1</sup> )	LOD (µg L <sup>-1</sup> )	Blank 1 (µg L <sup>-1</sup> )	Blank 2 (µg L <sup>-1</sup> )	Sample 1 (µg L <sup>-1</sup> )	Sample 2 (µg L <sup>-1</sup> )
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	341	344
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 - ICPMS Inductively Coupled Plasma Mass Spectrometry

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 conform with the requirements of BS 6920: Part 1: 2000, Clause 8

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## Notes

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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.
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