

WATER REGULATIONS ADVISORY SCHEME (WRAS)

TESTING OF NON-METALLIC MATERIALS FOR USE WITH DRINKING  
 WATER (BS 6920 : 2014)

TEST REPORT

Product: Hot Water Resistant Enamel  
 Report Reference: M 106541  
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KESKIN KIMYA SAN. TIC.AS  
 IBRIKDERE MH  
 144 SK NO: 6/1 PO NO: 41255  
 UZUNTARLA  
 KARTEPE  
 KOCAELI  
 TURKEY

Report Date: 12<sup>th</sup> April 2018

**Executive Summary - this product has met the requirements of the Water Regulations Advisory Scheme (WRAS) Tests of Effect on Water Quality/ BS 6920:2014/ Extraction of Metals Test/ Hot (up to 85°C) and Cold Water Use.**

NOTES.

1. The results given in this report relate only to the items tested, and not necessarily to the bulk from which they were taken.
2. This test work was undertaken in the UKAS accredited Spencer House laboratory of Thames Water Utilities Ltd., UKAS registration number 0677, unless otherwise stated.
3. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
4. This test report shall not be reproduced, except in full, without our prior written approval.



**TESTING OF NON-METALLIC MATERIALS FOR USE WITH DRINKING WATER  
WATER REGULATIONS ADVISORY SCHEME TESTS OF EFFECT ON WATER  
QUALITY (BS 6920:2014)**

**0. INTRODUCTION**

The samples of the product referred to in this report have been tested in accordance with the methods of the Water Regulations Advisory Scheme (WRAS) Tests of Effect on Water Quality/BS 6920-2:2014 "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: Methods of Test".

**1. TEST SAMPLES**

General composition of product	Porcelain Enamel	
Material trade name/ designation	Hot Water Resistant Enamel	
Material manufacturer / site	KESKIN KIMYA SAN. TIC.AS / KOCAELI TURKEY	
Date of manufacture/ production	1 <sup>th</sup> November 2017	
Method of manufacture	Firing	
Production batch numbers	941	
Submitting organisation	KESKIN KIMYA SAN. TIC.AS	
Date of application	8 <sup>th</sup> November 2017	
Date of receipt of test samples	8 <sup>th</sup> November 2017	
Method of packaging	Wrapped in foam	
Condition on receipt	Satisfactory	
Laboratory storage before test	Ambient temperature (21±4)°C	
Description	test article shape dimensions	Plaque Rectangular 119.8mm x 60.3mm x 2.9mm
Appearance of article	colour surface finish opacity	Blue Glossy Opaque
Surface area of one article (mm <sup>2</sup> )	15491	
Number of articles to give a surface area to volume ratio of 15000mm <sup>2</sup> to 1L of test water	1	
Calibration mark of the test vessel/container in litres	1	
Extraction temperature used for test 6	(85±2)°C	

## 6. EXTRACTION OF METALS

Temperature of extraction: (85±2)°C

Date test started: 30.01.18

The results obtained for the first extract are given below -

Element	Unit	MAC	Reporting limit	Sample 1	Sample 2	Reagent blank
Aluminium	Al µg/L	200	1.4	97.5	149.2	8.3
Antimony	Sb µg/L	5	0.2	1.1	1.5	<0.2
Arsenic	As µg/L	10	0.4	<0.4	<0.4	<0.4
Boron 7 <sup>th</sup> Extract	B µg/L	1000	11	770 460	1059 916	<11 <11
Cadmium	Cd µg/L	5	0.1	<0.1	<0.1	<0.1
Chromium	Cr µg/L	50	0.9	<0.9	<0.9	<0.9
Iron	Fe µg/L	200	2.0	38.4	132.9	<2.0
Lead	Pb µg/L	10	0.2	<0.2	0.4	<0.2
Manganese	Mn µg/L	50	0.8	18.7	12.9	<0.8
Mercury	Hg µg/L	1	0.06	<0.06	<0.06	<0.06
Nickel	Ni µg/L	20	0.6	<0.6	<0.6	<0.6
Selenium	Se µg/L	10	0.6	<0.6	<0.6	<0.6

[\* method code LP/R/MT06 & LP/R/563]

### Extract Analytical.

Aluminium, antimony, arsenic, boron, cadmium, chromium, iron, lead, manganese, mercury, nickel, and selenium - inductively coupled plasma mass spectrometry\* or inductively coupled plasma optical emission spectrometry\*.

Analytical Control Data - this technique is in continuous use for analysis of drinking water metals; this technique is fully validated to the requirements of "A Manual on Analytical Quality Control for the Water Industry" (NS 30) and the requirements laid down by the Drinking Water Inspectorate. The technique has a comprehensive AQC protocol including control solutions with each batch of samples for analysis; full details available upon request.

**COMMENT.** On the basis of these results the samples of this product have been found **to conform** with the requirements of BS 6920-1 : Clause 8 when extracted at 85°C.

**NOTE.** In the Extraction of Metals Test the concentration of Aluminium found in the reagent blank exceeded the limit of detection for this element. After investigation it was concluded, however, that the test was valid and that the results obtained for the product do conform with the requirements for this test.

**CONCLUSIONS**

**The samples of this product meet the test criteria of BS 6920-1:2014 ("Specification") and thus DO conform with the requirements of the Water Regulations Advisory Scheme (WRAS) Tests of Effect on Water Quality, Extraction of Metals Test, and is suitable for use with hot (up to 85°C) and cold water.**

NOTE : materials and products intended for use by a public water supply organisation 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 conforms with Regulation 31 of the Water Supply (Water Quality) Regulations 2000.

**NO OTHER TESTS WERE UNDERTAKEN ON THIS PRODUCT.****NOTES -**

1. The results specified in this report relate only to the sample(s) submitted for testing. Any changes in the nature or source of ingredients and the process of manufacture or application could affect the suitability of this product for use in contact with wholesome water.
2. We would draw to your attention that reports issued by the accredited test laboratories do not of themselves constitute approval by the Water Regulations Advisory Scheme (WRAS) or the test laboratory. Applicants will be formally notified of their WRAS approval number by the Scheme if their application has been successful.



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