

Our Ref: AW/M80412

19 January 2009

ITW Construction Products
Diamond Point
Fleming Way
Crawley
West Sussex
RN10 9DP

Dear Sir

WATER REGULATIONS ADVISORY SCHEME
"ITEMS WHICH HAVE PASSED FULL TESTS OF EFFECT ON WATER QUALITY - BS 6920"

We refer to your application for the material(s) described below to be approved arising from the results of the tests of effect on water quality that have been carried out on the product(s) so described, it has been decided that there is no objection to its/their use provided the source, nature and manufacturing processes of the ingredients and products are not changed. (See notes overleaf).

RESIN ANCHORS

5311

Spit Epcon C8. Clear ceramic epoxy resin. Mix and cure as per manufacturers instructions. Cold water use only. For use only in undertakers service reservoirs and similar structures having been tested at reduced surface area

Test Report: MAT/LAB 622A

0901501

ITW CONSTRUCTION PRODUCTS

An entry, as above, will accordingly be included in the Water Fittings Directory on-line, Part Two, under the section headed, "Materials which have passed full tests of effect on water quality".

Your attention is drawn to the statement overleaf. Manufacturers or applicants may only quote in their sales literature terms which are used in this letter, namely that the product as listed, having passed the tests of effect on water quality, is suitable for use in contact with potable water and that a reference to the product will be included in the Materials section, Part Two, of the Water Fittings Directory on-line: this may be abbreviated to "Water Regulations Advisory Scheme - Approved Material" or "WRAS - Approved Material". **Approval of this product does not signify the approval of its mechanical or physical properties for any use.**

The Technical Committee of the Scheme reserves the right to review approval. This product automatically becomes due for audit reassessment in January 2014.

Yours faithfully



Anthony Williams
WRAS Approvals Administrator
Water Regulations Advisory Scheme

Water Regulations Advisory Scheme

30 Fern Close, Pen-y-Fan Industrial Estate,
Oakdale, Gwent NP11 3EH, UK.

Tel: 01495 248454. Fax: 01495 249234.

E-mail: info@wras.co.uk Website: www.wras.co.uk

The Water Regulations Advisory Scheme Ltd
Registered in England No. 06663930
Registered Office: 1 Queen Anne's Gate,
London SW1H 9BT

ITW Construction Products
Diamond Point
Fleming Way
Crawley
West Sussex
RN10 9DP

Dear Sir/Madam

SPIT EPCON C8 - DIRECTORY REFERENCE NUMBER 0901501

This listing will appear in the Water Fittings Directory on-line.

Please visit our website www.wras.co.uk for further details.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'A. Williams', with a stylized flourish at the end.

Anthony Williams
WRAS Approvals Administrator
Water Regulations Advisory Scheme

MATERIALS WHICH HAVE PASSED FULL TESTS OF EFFECT ON WATER QUALITY AND ARE USED IN THE MANUFACTURE OF WATER FITTINGS AND WATER INSTALLATIONS AND IN THEIR ASSEMBLY, CONNECTION, DISCONNECTION AND REPAIR.

The material or product referred to in this letter is suitable for contact with, and for the manufacture of components of water fittings for use in contact with water for domestic purposes. The reference relates solely to its effect on the quality of the water with which it may come into contact and does not signify the approval of its mechanical or physical properties for any use. Certain products are approved in the full knowledge that for many plastic materials and natural and synthetic rubbers, variations in curing times and temperatures may have a significant effect on water quality. The right is reserved to require the testing of components made from any of these materials before listing those components if the scheme has any reason to believe that they differ from the materials originally tested and listed.

Entries in the Directory on-line relating to components made from listed materials are included on the understanding that the components are made of precisely the same materials as the test samples without any modification and without the addition or substitution of any ingredients, and that, as applicable, the curing times and temperature shall be as nearly as possible those recommended by the manufacturers of the materials or products and used for the production of test samples.

In order to avoid their affecting water quality, materials must be allowed to cure at the correct temperature for the necessary length of time. This cannot always be achieved where materials are mixed on site, often in approximate proportions, and cured in situ often under cold, ill-ventilated conditions. Entries relating to products or products produced under properly controlled factory conditions, cannot be guaranteed to apply to site conditions.

Our Ref: MAT/LAB 622A

14th January 2009

Anthony Mulligan/Jon Gardner
ITW Construction Products
Flemming Way
Crawley
RH10 9DP

Dear Anthony and Jon

BS 6920 leaching tests for non-metallic products for use in contact with potable water.

Please find enclosed a copy of our final report for BS 6920 leaching tests on test samples of Spit Epcon C* Extreme.

We are pleased to inform you that your product gave satisfactory results in the BS 6920 leaching tests (five separate tests). The enclosed report has been forwarded to WRAS along with the M2 form.

If you have any queries or we can be of any further assistance with BS 6920 or other testing please do not hesitate to contact me.

Best regards



Ruth Manning
Materials Testing Technician
WRc-NSF Ltd
Reception +44 (0) 1495 236260 Fax Number: +44 (0) 1495 249234
Email: ruth.manning@wrcnsf.com, <http://www.wrcnsf.com>

WATER REGULATIONS ADVISORY SCHEME

BS6920 TEST ON EFFECT OF WATER QUALITY

FINAL REPORT

Organisation: ITW Construction Products
Product: Spit Epcon C8 Extreme

WRc-NSF REPORT No MAT/LAB 622A

Date of Report 13th January 2009

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

1. 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 BS6920: Part 1: 2000 "Specification" and thus does comply with the requirements of the Water Regulations Advisory Scheme Tests of Effect on Water Quality and is suitable for use with cold water but not hot water, in common with Resin Anchors Section 5311 of the WFMD having been tested at the reduced surface area of 1000 mm².

Mark Norris

Mr Mark Norris, Materials Test Manager

Date 13th Jan 2009

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 BS6920: 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.

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

2. SAMPLES FOR TESTING

BS6920, Section 2.1 and in-house method PROC/MAT 001.

Contact name: Anthony Mulligan / Jon Gardner
Name of organisation: ITW Construction Products
Address: ITW Construction Products Flemming Way Crawley RH10 9DP

Product:	Spit Epcon C8 Extreme
Product manufacturer:	Spit
Submitting organisation:	ITW Construction Products

Date of receipt of product for test:	24/11/08
Trade name and reference of product:	Spit Epcon C8, (Product Code 050085)
Batch number	Not known
General composition of product:	Ceramic 6 epoxy resin
Shore hardness:	Not applicable
Typical use of the product:	Rebar and Stud installation to concrete

Sampling procedure:	Random
Receipt conditions and packaging:	In good condition
Storage conditions:	As in BS 6920 Part 2 Section 2.1 Clause 5.2
Description/Appearance of the product:	Clear coating

<i>WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval</i>	<i>WRc-NSF Report No MAT/LAB 622A</i>
<i>Name of Organisation: ITW Construction Products</i>	
<i>Product: Spit Epcon C* Extreme</i>	<i>Date of Report 13/01/09</i>

Component name/reference:	Not applicable
Component manufacturer:	Not applicable
Fitting name/reference:	Not applicable
Fitting manufacturer:	Not applicable

Test sample preparation:	Spit Epcon C8 Extreme was thoroughly mixed and applied to the surface of glass plates to give a surface area of 1000 mm ² , these were then allowed to cure for 24 hrs at 7 ^o C before testing commenced
Date test sample manufactured:	Not known
Date test sample prepared:	24/11/08

Surface area of one article:	1000 mm ²
Number of articles constituting a sample:	One
Surface area for test:	1000 mm ²
Calibration mark of test container:	1Litre

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

3. ODOUR AND FLAVOUR OF WATER

Methodology: BS6920, Section 2.2.1 and in-house method PROC/MAT 004 and 006.

Test results

Date leaching tests started: 25/11/08	Date leaching tests finished: 26/11/08
Number of panellists: 3	Temperature of extraction: 23 ±2 °C

Odour test

Extract	Date of test	Test water	Dilution number*	Odour descriptor
First	26/11/08	Chlorine free	0(0)	None
First	26/11/08	Chlorinated	0(0)	None
Final	-	Chlorine free	-	-
Final	-	Chlorinated	-	-

Flavour test

Extract	Date of test	Test water	Dilution number*	Flavour descriptor
First	26/11/08	Chlorine free	1(0)	None
First	26/11/08	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

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 BS6920, Part 1, Clause 4

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

4. APPEARANCE OF WATER

Methodology: BS6920, Section 2.3 and in-house methods PROC/MAT 004, ING 78 (colour) and ING 100 (turbidity).

Test results

Date leaching tests started: 25/11/08	Date leaching tests finished: 26/11/08
Temperature of extraction: 23±2 °C	

Colour

Extract	Date of test	Hazen units		Test sample effect
		Blank	Extract	
First	25/11/08	<2	<2	None
Final	-	-	-	-

Turbidity

Extract	Date of test	Formazine Nephelometric units		Test sample effect
		Blank	Extract	
First	25/11/08	<0.1	<0.1	None
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 BS6920, Part 1, Clause 5
--

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

5. GROWTH OF MICROORGANISMS

Methodology: BS6920, Section 2.4 and in-house method PROC/MIC 001.

Test Results

Date leaching tests started: 25/11/08	Date leaching tests finished: 13/01/09
Incubation temperature: 30 ± 1 °C	

Mean dissolved oxygen difference MDOD (mg l ⁻¹ O ₂)	
Test sample	0.07
Positive reference (paraffin wax)	7.06
Negative reference (glass)	0.06

Test water control dissolved oxygen (mg l ⁻¹ O ₂)	8.65
--	------

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 BS6920, Part 1, Clause 6

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

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

Methodology: BS6920, Section 2.5 in-house methods PROC/MAT 004 and PROC/MIC 004.

Test set-up

Date: 26/11/08

Cell line: VERO cell line of African green monkey kidney cells (ATCC number CCL 81).	
Media preparation date: 23/11/08	Passage number: 6
Cell concentration in sample: 7.5×10^5	Positive control: Zinc sulphate Bt: 54
Morphology: Confluent growth of elongated cells, some round cells and cell debris. Media orange/pink in colour.	
Media log batch numbers	Medium concentrate (CCM) B: 125 Distilled water (SDW) B: 55

Test results

Date leaching tests started: 25/11/08	Date leaching tests finished: 26/11/08
Temperature of extraction: 23 ± 2 °C	

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

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 BS6920, Part 1, Clause 7

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No MAT/LAB 622A
Name of Organisation: ITW Construction Products	
Product: Spit Epcon C* Extreme	Date of Report 13/01/09

7. THE EXTRACTION OF METALS

Methodology: BS6920, Section 2.6, in-house methods PROC/MAT 006 and INGs, as specified, metals analysis undertaken in the UKAS accredited laboratory of WRc-NSF Ltd Reading, UKAS registration number 1550.

Test results

Date leaching tests started: 25/11/08	Date leaching tests finished: 26/11/08
Analysis Registration No N22672	Temperature of extraction: ± 2 °C

Metal ($\mu\text{g l}^{-1}$)	Analytical Method (in-house method)	MAC ($\mu\text{g l}^{-1}$)	LOD ($\mu\text{g l}^{-1}$)	Blank ($\mu\text{g l}^{-1}$)	Sample 1 ($\mu\text{g l}^{-1}$)	Sample 2 ($\mu\text{g l}^{-1}$)
Aluminium	ICPMS (ING113)	200	20	<20	<20	<20
Antimony	ICPMS (ING113)	5	0.5	<0.5	<0.5	<0.5
Arsenic	ICPMS (ING113)	10	1	<1	<1	<1
Barium	ICPMS (ING113)	1000	100	<100	<100	<100
Cadmium	ICPMS (ING113)	5	0.5	<0.5	<0.5	<0.5
Chromium	ICPMS (ING113)	50	5	<5	<5	<5
Iron	ICPMS (ING113)	200	20	<20	<20	<20
Lead	ICPMS (ING113)	25	1	<1	<1	<1
Manganese	ICPMS (ING113)	50	5	<5	<5	<5
Mercury	ICPMS (ING113)	1	0.1	<0.1	<0.1	<0.1
Nickel	ICPMS (ING113)	20	2	<2	<2	<2
Selenium	ICPMS (ING113)	10	1	<1	<1	<1

MAC - Maximum admissible concentration

LOD - Required limit of detection based on the 1998 Drinking Water Directive requirements

ICPMS Inductively Coupled Plasma Mass Spectrometry

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 BS6920, Part 1, Clause 8