

WATER REGULATIONS ADVISORY SCHEME

BS6920 TEST ON EFFECT OF WATER QUALITY

FINAL REPORT

Organisation : Carlisle SynTec Incorporated

Product : Sure Seal Un-reinforced Roofing Membrane

WRc-NSF REPORT No: MAT/LAB 285H

Date of Report 3/10/03

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No	MAT/LAB 285H
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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.

Mark Norris

Mr Mark Norris, Materials Test Manager

Date *3rd Oct 2003*

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 Medmenham, UKAS registration number 1550, 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 sample(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 25 of the Water Supply (Water Quality) Regulations 1989.

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2. SAMPLES FOR TESTING

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

Name of organisation: Carlisle SynTec Incorporated
Contact name: Steve Green
Address: 104 High Street Tetsworth Oxfordshire OX9 7AE UK

Product:	Sure-Seal Un-reinforced Roofing Membrane
Product manufacturer:	Carlisle SynTec Incorporated
Submitting organisation:	Carlisle SynTec Incorporated

Date of receipt of product for test:	11/08/03
Trade name and reference of product:	Sure Seal
Batch number:	465
General composition of product:	EPDM
Typical use of the product:	Roofing and Lining applications

Sampling procedure:	Random
Receipt conditions and packaging:	In good condition
Storage conditions:	As in BS 6920 Part 2 Clause 5.2
Description/Appearance of the product:	Black rubber sheet

<i>WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval</i>	<i>WRc-NSF Report No</i>	<i>MAT/LAB 285H</i>
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<i>Product: Sure Seal Un-reinforced Roofing Membrane</i>	<i>Date of Report</i>	<i>3/10/03</i>

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

Test sample preparation:	Not applicable
Date test sample manufactured:	20/11/02
Date test sample prepared:	Not applicable

Surface area of one article:	15000 mm ²
Number of articles constituting a sample:	One
Surface area for test:	15000 mm ²
Calibration mark of test container:	1 litre

WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No	MAT/LAB 285H
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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: 12/08/03	Date leaching tests finished: 21/08/03
Number of panellists 3	Temperature of extraction: 23 ±2°C

Odour test

Extract	Date of test	Test water	Dilution number*	Odour descriptor
First	13/08/03	Chlorine free	0(2)	Faint rotten
First	13/08/03	Chlorinated	0(1)	Faint rotten
Final	21/08/03	Chlorine free	0(0)	None
Final	21/08/03	Chlorinated	0(0)	None

Flavour test

Extract	Date of test	Test water	Dilution number*	Flavour descriptor
First	13/08/03	Chlorine free	2(1)	Vile
First	13/08/03	Chlorinated	1(1)	Astringent/bitter
Final	21/08/03	Chlorine free	1(0)	None
Final	21/08/03	Chlorinated	2(1)	Bitter

* 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 Clause 4
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WRc-NSF Final Report for the Testing of a Product for Water Regulations Advisory Scheme Approval	WRc-NSF Report No	MAT/LAB 285H
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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: 12/08/03	Date leaching tests finished: 13/08/03
Analysis Registration No N19688	Temperature of extraction 23 ±2°C

Colour

Extract	Date of test	Hazen units		Test sample effect
		Blank	Extract	
First	13/08/03	<2	<2	None
Final	-	-	-	-

Turbidity

Extract	Date of test	Formazine Nephelometric units		Test sample effect
		Blank	Extract	
First	13/08/03	<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
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5. GROWTH OF MICROORGANISMS

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

Test Results

Date leaching tests started: 12/08/03	Date leaching tests finished: 30/09/03
Microbiology registration No W2223	Incubation temperature: 30 ± 1 °C

Mean dissolved oxygen difference MDOD (mg l ⁻¹ O ₂)	
Test sample	1.80
Test sample – after a further two weeks	1.48
Positive reference (paraffin wax)	5.81
Negative reference (glass)	0.04

Test water control dissolved oxygen (mg l ⁻¹ O ₂)	7.82
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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 pieces showed no changes in colour or appearance
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The Mean Dissolved Oxygen Value for the sample was found to be 1.80 mg l⁻¹. However after two further weeks of testing it was 1.48 mg l⁻¹; thus it has been found to comply with the requirements of BS 6920 Part 1 Clause 6 on the basis of two extra weeks testing.

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, Clause 6

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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: 13/08/03

Cell line: VERO cell line of African green monkey kidney cells (ATCC number CCL 81).		
Media preparation date: 6/08/03	Passage number: 347	
Cell concentration in sample: 1×10^6	Positive control: Zinc sulphate Bt 2125	
Morphology: Confluent growth of elongated cells. Some round cells. Medium orange/pink.		
Media log batch numbers	Medium concentrate (CCM): 2129	Distilled water (SDW): 2131

Test results

Date leaching tests started: 12/08/03	Date leaching tests finished: 13/08/03
Microbiology registration No: W2229	Temperature of extraction: 23 ± 2 °C

Cell Morphology	
Test Sample	Confluent growth of elongated cells.. Some round cells and cell debris. Medium pink.
Blank	Confluent growth of elongated cells. Some round cells and cell debris. Medium pink.
Negative control	Confluent growth of elongated cells.. Some round cells and cell debris. Medium pink.
Positive control	All cells rounded and still in suspension. Medium pink

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

