

MATERIALS USED IN THE TREATMENT AND DISTRIBUTION OF DRINKING WATER

**TESTING OF GRANULAR ACTIVATED CARBON.**  
**[BS EN 12902:2004/12915-1:2009]**

**TEST REPORT.**

Products : Eurocarb 0.1% Ag Impregnated Coconut Shell Based Activated Carbon  
Report Reference : M 103920/C  
Page 1 of 4 Pages.

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Report Date : 15<sup>th</sup> November 2006  
Reissued with amendment : 28<sup>th</sup> July 2010

Executive Summary - leachates were prepared from this product in accordance with BS EN 12902:2004. These leachates were analysed for the determinands specified in BS EN 12915-1:2009, section 6.2.3. The samples of this product were found to conform with the test requirements of BS EN 12915-1:2009, section 6.2.3.

NOTES.

1. The results given in this report relate only to the sample of this product tested and not necessarily to the bulk from which it was 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.

## MATERIALS USED IN THE TREATMENT AND DISTRIBUTION OF DRINKING WATER TESTING OF GRANULAR ACTIVATED CARBON. [BS EN 12902:2004/12915-1:2009].

### 1. SAMPLES FOR TESTING.

<b>General Composition of Material</b>	Granular Activated Carbon
<b>Trade Name/Reference of Product</b>	Eurocarb 0.1% Ag Impregnated Coconut Shell Based Activated Carbon, Batch No. 06/340
Product Manufacturer	Eurocarb Products Limited
Submitting Organisation	Eurocarb Products Limited
Date of Receipt of Test Samples	20 <sup>th</sup> September 2006
Appearance of Test Samples	Black, Granular

### 2. LEACHATE PREPARATION.

Leachate preparation was in accordance with clause 6.3.4.1 of BS EN 12902:2004 (Products used for treatment of water intended for human consumption - Inorganic supporting and filtering materials - Methods of test).

#### 2.1. Test Water.

This was prepared in accordance with clause 6.3.2.4 of BS EN 12902:2004, using tap water treated on-site using the following sequence - granular activated carbon bed followed by reverse osmosis, storage, followed by mixed bed ion-exchange resin, granular activated carbon bed, 0.45 $\mu$  filtration, ultra violet disinfection and finally 0.2 $\mu$  filtration.

#### 2.2. Pre-treatment.

Columns were prepared for final leachate production in accordance with clause 6.3.4.1 of BS EN 12902:2004

### 3. ANALYSIS AND RESULTS.

These are given in full on the following pages.

### 4. COMMENT.

Leachates from the sample of this material, prepared in accordance with BS EN 12902:2004, were analysed using the methods described on the following results pages, and found to comply with the requirements set out in 6.2.3 of BS EN 12915-1:2009 (Products used for treatment of water intended for human consumption - Granular activated carbon).

NOTE - this test report was reissued following the update to BS EN 12915-1 in June 2009.

**MATERIALS USED IN THE TREATMENT AND DISTRIBUTION OF DRINKING WATER  
TESTING OF GRANULAR ACTIVATED CARBON. [BS EN 12902:2004/12915-1:2009].**

**TEST RESULTS.**

**1. EXTRACTION OF METALS & CYANIDE.**

PRODUCT : Eurocarb 0.1% Ag Impregnated Coconut Shell Based Activated Carbon

Temperature of leachate preparation : (20±2)°C

The following results were obtained on the leachates prepared from this product.

Element	Unit	Limit in µg/l in the extraction water	Reporting Limit (µg/l)	Test Results (µg/l)	
				Sample	Reagent Blank
Antimony	µg/l	3	0.5	<0.5	<0.5
Arsenic	µg/l	10	0.8	<0.8	<0.8
Cadmium	µg/l	0.5	0.5	<0.5	<0.5
Chromium	µg/l	5	5.0	<5.0	<5.0
Lead	µg/l	5	0.5	<0.5	<0.5
Mercury	µg/l	0.3	0.05	<0.05	<0.05
Nickel	µg/l	15	2.0	<2.0	<2.0
Selenium	µg/l	3	0.5	<0.5	<0.5
Cyanide*	µg/l	5	2.0	<2.0	<2.0

**Analytical methods.**

**The analysis of the metals present in the leachates was undertaken in the Millharbour Laboratories of Thames Water, UKAS registration number 1258.**

*Antimony, arsenic, cadmium, chromium, lead, nickel, mercury and selenium* - inductively coupled plasma mass spectrometry [method code 407].

*Cyanide* - Skalar Robot [method code 294].

NOTE - These techniques are in continuous use for analysis of drinking water metals; all of these techniques are 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. Each technique has a comprehensive AQC protocol including control solutions and spike recovery testing with each batch of samples for analysis. **The methods for the analysis of metals are included in our scope of UKAS (BS EN ISO 17025) accreditation.**

## MATERIALS USED IN THE TREATMENT AND DISTRIBUTION OF DRINKING WATER TESTING OF GRANULAR ACTIVATED CARBON. [BS EN 12902:2004/12915-1:2009].

### TEST RESULTS.

#### 2. EXTRACTION OF POLYCYCLIC AROMATIC HYDROCARBONS.

PRODUCT : Eurocarb 0.01 Ag Impregnated Virgin Coconut Shell Based Activated Carbon

Temperature of Extraction : (20±2)°C

The following results were obtained on the leachates prepared from this product.

Determinand	Test Results (µg/L)	
	Sample	Reagent blank
benzo-1,12-perpylene	<0.001	<0.001
benzo-3,4-pyrene	<0.001	<0.001
benzo-3,4-fluoranthene	<0.001	<0.001
benzo-11,12-fluoranthene	<0.001	<0.001
fluoranthene	<0.005	<0.005
indino-(1,2,3-cd)-pyrene	<0.001	<0.001
Total	0.000	0.000

#### **Analytical method.**

Polycyclic aromatic hydrocarbons (PAHs) were extracted by automated shaking of the sample with 2,2,4-trimethyl pentane in the presence of an internal standard. The extracts were then concentrated by evaporation and transferred to autosampler vials prior to injection onto a high performance liquid chromatography system coupled to a programmable fluorescence detector. The components were separated using isocratic solvent elution and detected by the fluorescence detector.

The responses obtained were subsequently automatically calculated with reference to a calibration curve produced from a series of standard PAH solutions treated similarly. Electronic integration was used for the measurement of peak areas and subsequent quantification [method code LP/R/409].

NOTE - This technique is in continuous use for analysis of drinking water samples and is 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. This technique has a comprehensive AQC protocol including control solutions and spike recovery testing with each batch of samples for analysis - full details available upon request.