



MUSCAT

Certificate No. : WL3- 4563
Date of Issue. : 24th March 2020

TEST CERTIFICATE Toxicity Analysis Report

Client Request Ref. : N/A

Wimpey Client : **Al Bashair Energy services International LLC**
Muscat, Sultanate of Oman

Project : Not Given

Sample Description : **COATECT 400 – Polymer Protective Coating**

Sample Information Provided by Client

Client Sample ID : **COATECT 400 – Polymer Protective Coating**

Manufacturer : Petro Chem Coat Inc

Manufacturer Location : Canada

Sampled by : Client

Date of Sampling : Not Given

Sample Submitted by : Client

Sampling Cert. No : N/A

Laboratory Information

Wimpey Sample ID : C20-4563

Sample Matrix : Solid

Sample Received On : 03/02/2020

Sample Container : None

Date Tested : 03/02/20-23/03/2020

Preservation : Not Applicable

Test Location(S) : Wimpey Muscat

Tested by : MR

I. Introduction

Further to the test request received from **M/s. Al Bashair Energy Services International LLC** on 3rd February 2020, to determine the suitability of 'COATECT 400 – Polymer Protective Coating' in contact with water intended for human consumption with regard to their effect on the quality of water was tested.

Test Method: BS 6920

II. Test Procedure:

The specimens were immersed in known amount of potable water and store at a temperature of 50°C in a calibrated water bath. Seven extractions were made with the sample i.e. 24 hours, 72 hours and 5 cycles of 24 hours at the same temperature of 50°C. After 24 hours , a chemical analysis was carried out on the extracted water sample to check any presence of leached contaminates of toxic metals as per BS 6920 Part 2 specification.



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III. Migration tests

Sensory tests: Odour and Flavour & Appearance of water

The Extracted solution after 14 Days, chemical analysis were carried out BS 6920 Part 1 : 2000.

Description	Normal Distilled Water (Blank)	Sample Extract (Water after immersing the sample)	BS 6920: Part 1 2000 Spec. limit
Odour	No Discernable Odor	No Discernable Odor	No Discernable Odor
Flavour	No Discernable Flavor	No Discernable Flavor	No Discernable Flavor
Colour	< 5 Pt Co	< 5 Pt Co	< 5 Pt Co
Turbidity	< 0.5 FNU	< 0.5 FNU	0.5 FNU
pH	7.2	7.3	-
Free chlorine (ppm)	0.5	<0.1	-
Total Hardness (ppm)	74.0	76.0	-
Chloride as Cl (ppm)	42.1	42.7	-
Total Dissolved Solids (ppm)	134	136	-
Total Suspended Solids (ppm)	<2	<2	-
Electrical Conductivity (µS/cm)	226	236	-

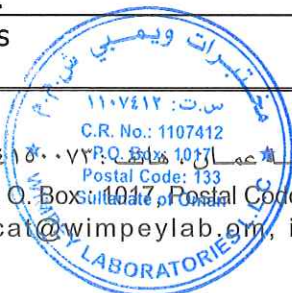
Remarks: No characteristic variation was observed in the sensory and chemical characteristics, suggests that the product fulfills BS 6920 specification.

IV. Leaching tests : Extraction of metals

Description	Normal Potable Water Water (Blank)	Sample Extract (Water after immersing the sample)	BS 6920: Part 1 2000 Spec. limit
Metals	Results (µg/L)		
Aluminum Al	<10	<10	Max. 200
Antimony Sb	<10	<10	Max. 5
Arsenic As	<10	<10	Max. 10
Barium Ba	<7	157	Max. 1000
Cadmium Cd	<1	<1	Max. 5
Chromium Cr	<2	<2	Max. 50
Iron Fe	<10	<10	Max. 200
Lead Pb	<5	<5	Max. 25
Manganese Mn	<5	<5	Max. 50
Mercury Hg	<1	<1	Max. 1
Nickel Ni	<10	<10	Max. 20
Selenium Se	<10	<10	Max. 10

Remarks

Comments on appearance changes of tested sample.	At the end of the test procedure, there was no discoloration or gloss loss was observed on the sample.
Toxic Elements	The toxic elements are within the permissible limit as per BS 6920 : Part 1 specification





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V. Growth of Aquatic Micro Organisms

Method: BS 6920 Part 2 Clause 6: Section 26


Sample Description	Mean Dissolved Oxygen values (mg L ⁻¹)	Duration
Water in Contact with the product	4.8	7 weeks
Negative control	6.0	7 weeks

The mean Dissolved oxygen difference (MDOD) between the water which is in contact with the product and negative control

Duration	Result
7 weeks	
1.2 mg/L	Pass (As MDDO variation is <1.7)

Conclusion : Chemical analysis of the above water extracts which had been exposed to the product did not indicate any amount of toxic elements leached from the specimen after 24 hours extraction at a temperature of 50°C. The results of chloride, total dissolved solids, and conductivity does not show much variation, Studies on growth of aquatic microorganism suggest that the specimen does not promote any bacterial growth, well evidenced by the mean dissolved oxygen concentration of 1.2 mg/L against the maximum permissible limit of 1.7 mg/L.

Based on the above test results, the product was found to be non toxic and complying with the BS 6920 specifications.

Authorized Signatory	
 Ullas Kumar.N Laboratory Manager	<p>This report shall only be reproduced in full. Approval of the testing laboratory is required for partial reproduction. The test results relate only to the samples tested @ time of analysis.</p> <p style="text-align: right;">Page 3 of 3</p>