



BS6920 Test Report

REPORT NO. MA6744/N

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PTFE Coating

Ceram CP

| | | | |
|---|--|---|--|
| CLIENT: | | Wilo UK Ltd Second Avenue Centrum 100 Burton-on-Trent Staffordshire DE14 2WJ | |
| CLIENT'S REFERENCE: | | PO84627 | |
| DATE | | 4 September 2019 | |
| REPORTED BY:  JACKIE TREMAIN ANALYST | | REVIEWED BY:  HANNAH TODD TEAM SUPERVISOR | |

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

**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
WRAS TESTS OF EFFECT ON WATER QUALITY (BS 6920: 2014)**

INFORMATION AND GUIDANCE NOTE

WATER REGULATIONS ADVISORY SCHEME

The Scheme wishes to draw to the attention of product manufacturers and users that reports issued by accredited test laboratories do not of themselves constitute approval by the Scheme or the test laboratory. Only a letter from the Scheme, citing a Directory Reference Number, can be regarded as indicating approval.

| 1. SAMPLES FOR TESTING | | |
|---|--------------------------------|--|
| General composition of product | | PTFE Coating |
| Trade name and reference of material | | Ceram CP |
| Material manufacturer | | Aalberts Surface Treatment GmbH, Germany |
| Submitting organisation | | Wilo UK Ltd |
| Batch number of product | | 1901030/Order Number 61166797 |
| Date of manufacture of product | | 16 May 2019 |
| Method of manufacture of sample | | airless spray application |
| Sampling procedure | | specially prepared test pieces |
| Description of sample | | black opaque matt coated panel |
| Surface area of test piece | | 15137mm ² |
| Number of articles constituting a test piece | | 1 |
| Dimensions of test piece: | length/width/thickness: | 120.03mm/60.01mm/2.03mm |
| Calibration mark of test containers | | 1 litre |
| Date of application | | 28 May 2019 |
| Date of receipt of test samples | | 29 May 2019 |
| Condition of samples on receipt | | satisfactory |
| Method of packaging | | paper |
| Conditions of storage of the samples between receipt and testing | | as instructed in BS6920-2.1: 2014: clause 5.2 |
| Proposed use of the product | | as a non-stick surface to avoid ochre deposition on bore hole pumps in deep wells (waterworks) |

FACTORY APPLIED PRODUCTS

The samples were prepared in accordance with manufacturer's application instructions.

| | |
|------------------------------------|--|
| | |
| Samples prepared by | Wilo UK Ltd |
| Mode of preparation of the product | the coating was applied to the substrate using an airless spray in an oven at 220°C. It was then sintered for 20 minutes and allowed to cool to ambient temperature. |
| Nature of test plates | 316L stainless steel |
| Number of coats | 1 |
| Wet film thickness of each coat | 40µm |
| Application conditions | 20°C |
| Date of preparation of the samples | 16 May 2019 |

2. ODOUR AND FLAVOUR OF WATER

Number of tasters in the taste panel – 3

Extraction temperature – 23°C

Date test commenced – 30 July 2019

Extract 1

(i) chlorine free test water:

| TASTER | ODOUR DESCRIPTION | FLAVOUR DESCRIPTION | FLAVOUR DILUTION NUMBER |
|--------|-------------------|---------------------|-------------------------|
| 1 | nil | nil | <1 |
| 2 | nil | nil | <1 |
| 3 | nil | nil | <1 |

(ii) chlorinated test water:

| TASTER | ODOUR DESCRIPTION | FLAVOUR DESCRIPTION | FLAVOUR DILUTION NUMBER |
|--------|-------------------|---------------------|-------------------------|
| 1 | nil | nil | <1 |
| 2 | nil | nil | <1 |
| 3 | nil | nil | <1 |

Comment - thus the samples of this product have been found to comply with the requirements of BS 6920: Part 1: clause 4 when extracted at 23°C.

3. APPEARANCE OF WATER

Extraction temperature – 23°C

Date test commenced – 2 July 2019

Extract 1

| | COLOUR (HAZEN UNITS) | TURBIDITY (FORMAZINE NEPHELOMETRIC UNITS) |
|--------------------------|-------------------------|--|
| Test container (product) | <2.5 | 0.05 |
| Blank | <2.5 | 0.03 |
| Net increase | nil | 0.02 |

Comment - thus the sample of this product has been found to comply with the requirements of BS 6920: Part 1: clause 5 when extracted at 23°C.

4. GROWTH OF AQUATIC MICROORGANISMS

Date test commenced – 11 June 2019

Mean dissolved oxygen differences –

| Test container (product) | 0.3mg/l |
|---|---------|
| Negative reference (glass) sample | 0.2mg/l |
| Positive reference (wax) sample | 7.0mg/l |
| Mean dissolved oxygen concentration of the test control | 7.9mg/l |

Note - At the end of this test the test piece showed no changes in colour and appearance.

Comment - thus the sample of this product has been found to comply with the requirements of BS 6920: Part 1: clause 6.

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

Extracts were tested using Monkey African Green Kidney CITES (Lot 10F019)

Extraction temperature – 23°C

Date test commenced – 16 July 2019

| EXTRACT | GROWTH OF CELL TISSUE (MONOLAYER) |
|---|--------------------------------------|
| Reagent blank | healthy, confluent |
| Zinc sulphate validation solution (cytotoxic) | cell death |
| Sample | healthy, confluent |

Comment - thus the sample of this product has been found to give a non-cytotoxic response and therefore it has been found to comply with the requirements of BS 6920: Part 1: clause 7 when extracted at 23°C.

6. THE EXTRACTION OF METALS

Extraction temperature – 23°C

Date test commenced – 2 July 2019

Number of extracts – 1

All analyses carried out on duplicate samples of the product as specified below

Aluminium, Antimony, Arsenic, Boron, Cadmium, Chromium, Iron, Lead, Manganese, Mercury, Nickel, Selenium:
Inductively coupled plasma – mass spectrometry (ICP-MS)

Extract 1

| METAL | EXPRESSION OF THE RESULTS | MAX. ADMISSIBLE CONCENTRATION | REPORTING LIMIT | CONCENTRATION FINAL EXTRACT | | DETERMINED REAGENT BLANKS |
|-----------|---------------------------|-------------------------------|-----------------|-----------------------------|---------|---------------------------|
| | | | | I | II | |
| Aluminium | Al µg/L | 200 | 20.0 | < 20.0 | < 20.0 | < 20.0 |
| Antimony | Sb µg/L | 5 | 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Arsenic | As µg/L | 10 | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Boron | B µg/L | 1000 | 100.0 | < 100.0 | < 100.0 | <100.0 |
| Cadmium | Cd µg/L | 5 | 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chromium | Cr µg/L | 50 | 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Iron | Fe µg/L | 200 | 20.0 | < 20.0 | < 20.0 | < 20.0 |
| Lead | Pb µg/L | 10 | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Manganese | Mn µg/L | 50 | 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Mercury | Hg µg/L | 1 | 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Nickel | Ni µg/L | 20 | 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Selenium | Se µg/L | 10 | 1.0 | < 1.0 | < 1.0 | < 1.0 |

Comment - thus the samples of this product have been found to comply with the requirements of BS 6920: Part 1: clause 8 when extracted at 23°C

CONCLUSION

The samples of the products referred to in this report have been tested in accordance with the methods specified in BS 6920: Part 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" and the requirements of the Water Regulations Advisory Scheme 'WRAS Materials Guidance, Version 4.4 dated 21 November 2016'.

This product has satisfied the criteria set out in BS 6920: Part 1: 2014 "Specification" and thus complies with the requirements of the Water Regulations Advisory Scheme Tests of Effect on Water Quality (BS 6920: 2014): Cold Water Tests (23°C). It is suitable for use with cold but not hot water.

N.B The results specified in this report relate only to the sample of the product submitted for testing. Any changes in the nature or source of ingredients and the process of manufacture or application could affect the suitability of the product for use in contact with potable water.

NOTE FOR WRAS

This product has not been tested for use in conjunction with any other products, including primers and undercoats and has not been shown to be suitable for use with any other coatings or material.

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