

Test Report

REPORT NO. MA4237/Q

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anaerobic adhesives

a) Loctite 2400

b) Loctite 2700

CLIENT:

Henkel Ltd
Technologies House
Wood Lane End
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HP2 4RQ



**CHRISTOPHER CHAPMAN
MATERIALS CHEMIST**

DATE: 21 APRIL 2011



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CLIENT'S REFERENCE: 4591415057

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**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: 2000) SITE APPLIED PRODUCTS;
HIGH TEMPERATURE TESTS (BS6920: PART 3: 2000)**

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 products	urethane methacrylate
Trade names and references of materials	a) Loctite [®] 2400 b) Loctite [®] 2700
Materials manufacturer	Henkel Ireland Ltd
Submitting organisation	Henkel Ltd
Batch numbers of products	a) OJD2463 b) OJD2457
Dates of manufacture of products	September 2010
Description of samples	a) translucent glossy blue liquid b) translucent glossy green liquid Both liquids were applied to screw threads of a coupling fitting as per BS 6920-2.1 clause 7.7 except that the coupling was stainless steel.
Method of manufacture of samples	information not provided
Sampling procedure	stock items
Surface area of test pieces	N/A
Number of articles constituting a test piece	1
Calibration mark of test containers	1 litre
Date of receipt of test samples	15 December 2011
Condition of samples on receipt	satisfactory
Method of packaging	red plastic bottle with plastic nib and lid
Conditions of storage of the samples between receipt and testing	as instructed in BS6920-2.1: 2000: clause 5.2

Proposed use of the products

retaining cylindrical fittings

SITE APPLIED PRODUCTS

The samples were prepared in accordance with manufacturer's instructions to the user.

Samples prepared by

Intertek Leatherhead

Mode of preparation and application of the products

adhesive was applied to screw thread of stainless steel coupling and re-assembled

Nature of test plates

compression fitting prepared as described in BS 6920-2.1: 2000 clause 4.3 except the fittings were stainless steel

Application conditions

ambient (20-23) °C

Curing conditions

7 days at ambient (20-23) °C

2. ODOUR AND FLAVOUR OF WATER

Extraction temperature - 85°C

Date tests commenced – 8 February 2011

Number of tasters in the taste panel – 3

product a)

Extract 1

(i) chlorine free test water:

Taster	Odour description	Flavour description	Flavour dilution number
1	sweet	N/A	N/A
2	nil	N/A	N/A
3	nil	N/A	N/A

(ii) chlorinated test water:

Taster	Odour description	Flavour description	Flavour dilution number
1	musty	N/A	N/A
2	nil	N/A	N/A
3	nil	N/A	N/A

Extract 7 (final extract)

(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

product b)

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 these products have been found to comply with the requirements of BS 6920: Part 1: clause 4 when extracted at 85°C.

3. APPEARANCE OF WATER

Extraction temperature – 85°C

Date tests commenced – 8 February 2011

product a)

Extract 1

	Colour (Hazen units)	Turbidity (Formazine nephelometric units)
Test container (products)	<5	0.1
Blank	<5	0.05
Net Increase	nil	0.05

product b)

Extract 1

	Colour (Hazen units)	Turbidity (Formazine nephelometric units)
Test container (products)	<5	0.3
Blank	<5	0.05
Net Increase	nil	0.25

Comment - thus the samples of these products have been found to comply with the requirements of BS 6920: Part 1: clause 5 when extracted at 85°C.

4. GROWTH OF AQUATIC MICROORGANISMS

Date tests commenced – 4 January 2011

Mean dissolved oxygen differences –

Test containers (products)	a) 0.0mg/l b) 0.4mg/l
Negative reference (glass) sample	0.5mg/l
Positive reference (wax) sample	7.6mg/l
Metal fitting reference sample	0.2mg/l
Mean dissolved oxygen concentration of the negative control	8.3mg/l

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

Comments - thus the samples of these products have 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**

Extraction temperature - 85°C

Date tests commenced – 8 February 2011

Extracts were tested using African Green Monkey Cell Line (VERO ATCC CCL 81)

product a)

Extract	Growth of cell tissue (monolayer)
Reagent blank	healthy, confluent
Zinc Sulfate validation solution (cytotoxic)	cell death
sample	healthy, confluent

product b)

Extract	Growth of cell tissue (monolayer)
Reagent blank	healthy, confluent
Zinc Sulfate validation solution (cytotoxic)	cell death
sample	healthy, confluent

Comment - thus the samples of these products have been found to give a non-cytotoxic response and therefore they have been found to comply with the requirements of BS 6920: Part 1: clause 7 when extracted at 85°C.

6. THE EXTRACTION OF METALS

Extraction temperature -85°C

Date test commenced – 8 February 2011

Number of extracts - 1

All analyses carried out under UKAS accreditation number 1550 on duplicate samples of the product as specified below

Aluminium, Antimony, Arsenic, Barium, Cadmium, Chromium, Iron, Lead, Manganese, Mercury, Nickel, Selenium: Inductively coupled plasma emission spectroscopy (ICP-MS) method code ING113 ICP-MS

product a)

Extract 1

Metal	Expression of the results	Max. admissible concentration	Reporting Limit	Concentration Final Extract		Reagent Blank	Metal fitting blank
				I	II		
Aluminium	Al µg/L	200	20.0	< 20.0	< 20.0	< 20.0	< 20.0
Antimony	Sb µg/L	5	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Arsenic	As µg/L	10	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Barium	Ba µg/L	1000	100.0	< 100.0	< 100.0	<100.0	<100.0
Cadmium	Cd µg/L	5	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	Cr µg/L	50	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Iron	Fe µg/L	200	20.0	43.5	42.5	< 20.0	< 20.0
Lead	Pb µg/L	25	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Manganese	Mn µg/L	50	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Mercury	Hg µg/L	1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	Ni µg/L	20	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Selenium	Se µg/L	10	1.0	< 1.0	< 1.0	< 1.0	< 1.0

product b)

Extract 1

Metal	Expression of the results	Max. admissible concentration	Reporting Limit	Concentration Final Extract		Reagent Blank	Metal fitting blank
				I	II		
Aluminium	Al µg/L	200	20.0	< 20.0	< 20.0	< 20.0	< 20.0
Antimony	Sb µg/L	5	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Arsenic	As µg/L	10	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Barium	Ba µg/L	1000	100.0	< 100.0	< 100.0	<100.0	<100.0
Cadmium	Cd µg/L	5	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	Cr µg/L	50	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Iron	Fe µg/L	200	20.0	23.5	20.4	< 20.0	< 20.0
Lead	Pb µg/L	25	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Manganese	Mn µg/L	50	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Mercury	Hg µg/L	1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	Ni µg/L	20	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Selenium	Se µg/L	10	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Comment - thus the samples of these products have been found to comply with the requirements of BS 6920: Part 1: clause 8 when extracted at 85°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: 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: "Methods of test" (including High Temperature Tests in accordance with BS 6920: Part 3: 2000) and the requirements of the Water Regulations Advisory Scheme.

These products have satisfied the criteria set out in BS 6920: Part 1: 2000 "Specification" and thus comply with the requirements of the Water Regulations Advisory Scheme Tests of Effect on Water Quality (BS 6920: 2000): Site Applied Products / High Temperature Tests. They are suitable for use with hot water (up to 85°C) and cold water.

N.B The results specified in this report relate only to the samples of the products 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 products for use in contact with potable water.

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 set specified by the Drinking Water Inspectorate. These additional requirements are necessary to ensure legal compliance with Regulation 31 of Water Supply (Water Quality) Regulations 2000.

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