



Test Report No. 8712253174-a

Customer details:

Customer name: Pazkar Ltd. – Attn. Dr. Nitza Galili
Address: Alon Tavor Ind. Est., Afula 18120, ISRAEL
Date of order: 07/10/2007 following Your order R6002668 dated 31/12/2006
The product was sampled by the: customer
and received in the Lab at: 11/03/2007 (in the frame of order 8712202369)

The test of:

Polymeric bitumenous sealing compound for drinking water supply and storage applications as follows(1):

Table with 3 columns: Model (RAPIDFLEX), Supplier (Pazkar Ltd, ISRAEL), Manufacturer (Pazkar Ltd, ISRAEL)

Nature of the test:

Full test for use with drinking water according to the Israeli Standard SI 5452 (2004) "Testing of products for use in contact with drinking water" – testing according to the method of the Australian Standard AS/NZS 4020 (2002) for cold water use only (Up to 40° C).

Results:

See further pages.

Summary:

The product in the configuration tested complies for use in the cold drinking water systems with maximum exposure ratio of 1000(2) mm2/L. This report is referencing to the test reports 8712202369-a and 8712236126-a.

Table with 2 columns: The test report contains 8 pages and may be used only in full. The test results in this document refer only to the item tested. Any changes in the material formulation, the process of manufacture, the method of application, or the surface area-to-volume ratio in the end use, could affect the suitability of the product for use in contact with drinking water

The name of the tester: E. Rosebloum
Position: Testing Engineer
Signature Date: [Signature]

The name of the supervisor: Dr. R. Ardi
Position: Head of Food, Wine & Environmental Section
Signature Date: [Signature]

Document printing date: 14/10/2007

(1) See the specification of the product at the page 2 of this document.
(2) See the description of these issues at the Appendix 1 attached to this document.

This is an abridged translation of the Hebrew original. In any case of discrepancy between the original Hebrew text and the English translation, the Hebrew version shall prevail.

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1. The specification of the product tested:

1.1 General Information:

| Tested product labelling / Commercial Name | RAPIDFLEX |
|--|---|
| Product designation | Sealing for the cold drinking water storage application |
| Product general composition | Bitumen, Polychlorobutadiene, Turpentine |
| Manufacturing date | 06/2006 |
| Manufacturing LOT | 066-27-6210 |
| Product specimen prepared by | Customer (appynig at 13/02/2007) |
| Product packaging manner | Silicon paper |
| Specimen status at the arrival to the laboratory | satisfactive |
| Laboratory storage conditions before the tests | Original packaging, room temperature, at the dark |
| Components of the products that come in contact with water | The whole product |
| Product family description: | The product has its one type only |
| Product model type for testing: | RAPIDFLEX |

1.2 Speciment structure and exposing parameters:

| | |
|--|--------------------------------------|
| Specimen configuration: structure | Plate casted from the material |
| Specimen configuration: sizes | 110 x 185 mm, thickness 3.4 - 5.0 mm |
| Specimen appearance: color | Black |
| Specimen appearance: finishing | smooth |
| Specimen appearance: additional description | soft and sticky compound |
| Exposure manner | immersion |
| Additional preparation procedures specified by the manufacturer: | n/a |

1.3 Complex completed products:

| | |
|--|-----|
| The description of the article / test system | n/a |
|--|-----|

1.4 Applicative products:

| | |
|-------------------------------|---|
| Specimen preparation method | spraying |
| Component mixing ratio | See the manufacture product specification, edition 210/01-02/06, attached to this document. |
| Application layers decription | |
| Specimen praparation site | |
| Curing conditions description | |
| Pretest condintioning details | 21 day at 22±4°C and 50-80 RH |

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2. Findings summary according to the standard's clauses:

| clause | The property | SI 5452 requirements | Test results |
|----------|---|---|---|
| 6 | Test Requirements. | | |
| 6.2 | Taste of water extract. | Whether product is tested in accordance with Appendix C, there shall not be a reportable taste detected by any member of the test panel in the first dilution of the chlorinated or unchlorinated extract from the first and/or seventh extraction or from the seventh retest extraction. | Passed for Exposure Ratio <u>1000</u> (mm²/liter)⁽¹⁾ |
| 6.3 | Appearance of water extract. | Whether product is tested in accordance with Appendix D, the increase in true colour of the extract shall not be more than 5 HU (Hazen Units) in first extraction or in the seventh retest extraction. | Passed for Exposure Ratio <u>10000</u> (mm²/liter)⁽¹⁾ |
| | | Whether product is tested in accordance with Appendix D, the increase in turbidity of the extract shall not be more than 0.5 NTU in first extraction or in the seventh retest extraction | Passed for Exposure Ratio <u>10000</u> (mm²/liter)⁽¹⁾ |
| 6.4 | Growth of aquatic microorganisms⁽²⁾ | Whether product is tested in accordance with Appendix E, the mean dissolved oxygen difference (MDOD) shall be less than or equal to 2.4 mg/l . | Passed for Exposure Ratio <u>1000</u> (mm²/liter)⁽¹⁾ |
| 6.5 | Cytotoxic activity of water extract.⁽²⁾ | Whether product is tested in accordance with Appendix F, the extract shall not cause a cytotoxic response. | No evidence of the Cytotoxic activity for Exposure Ratio <u>10000</u> (mm²/liter)⁽¹⁾ |
| 6.6 | Mutagenic activity of water extract.^{(3),(2)} | Whether product is tested in accordance with Appendix G, the results shall be reported. There shall not be cause for genetic mutation factors in the extraction. | No Mutagenic response caused for Exposure Ratio <u>10000</u> (mm²/liter)⁽¹⁾ |
| 6.7 | Extraction of metals. | Whether product is tested in accordance with Appendixes H to J, there shall not be in the first and/or seventh extraction content of Arsenic, Barium, Mercury, Chromium, Nickel, Selenium, Lead, Cadmium and Silver more than one-tenth of the values specified in the Public Health Law that in charge, and the content of Molybdenum, Antimony and Lithium more than specified in the Table 2 of this standard. | Passed for Exposure Ratio <u>10000</u> (mm²/liter)⁽¹⁾ |
| 7 | Hot water tests. | Products that pass the test required in Appendix I, J or K meet the requirements for hot water exposure up to temperature used in the testing. | n/a |

⁽¹⁾ See results detailed in the tables in the further of the document. ⁽²⁾ Accomplished in an external laboratory.

⁽³⁾ For now the test is for data accumulation only. The test result should not at this time form the basis for overall failure of the sample.

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3. The details of the results according to the tests made on the product are as follows:

3.1 Taste of water extract:

- test parameters and findings are as follows:

| Tested product labelling / Commercial Name | Polymeric bitumen sealing system Rapidflex | |
|--|---|----------------|
| <i>Tested property / mentioned</i> | <i>Test details for the abovementioned model</i> | |
| Exposure ratio of the product in the test (mm ² /liter) | 1000 | |
| Scaling Factor | 7.500 | |
| Testing the extraction from the: | First (24 hours) | Final (9 days) |
| Taste panel composition: | 8 tasters | - - - |
| The test conclusion for the unchlorinated extraction: | Passes the test | - - - |
| The test conclusion for the chlorinated extraction: | Passes the test | - - - |

| | |
|---------------------|---|
| <u>Test Result:</u> | Passes the requirements for the chlorinated and unchlorinated extraction |
|---------------------|---|

3.2 Appearance of water extract :

- test parameters are as follows:

| Tested product labelling / Commercial Name | Polymeric bitumen sealing system Rapidflex | |
|--|---|--|
| <i>Property</i> | <i>Test details for the abovementioned model</i> | |
| Exposure ratio of the product in the test (mm ² /liter) | 10000 | |
| Scaling Factor | 2.000 | |
| Number of specimen for the extraction | 2 | |

test findings are as follows:

| Tested property | Measuring Units | Method detection limit | Maximum Allowed Value | Report Result | |
|------------------------------------|-----------------|------------------------|-----------------------|--------------------------|----------------------------------|
| | | | | First Extract (24 hours) | 7 th Extract (9 Days) |
| Extraction water real color change | Hazen Units | 1 | 5 | Less than 1 | n/a |
| Extract water turbidity growth | NTU | 0.10 | 0.50 | <u>0.10</u> | Less than <u>0.10</u> |

| | |
|-------------------------|---|
| <u>Test Conclusion:</u> | Passes the requirements for Color and Turbidity growth |
|-------------------------|---|

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3.3 Growth of aquatic microorganisms :

- test parameters were as follows:

| Tested product labelling / Commercial Name | Polymeric bitumen sealing system Rapidflex |
|--|--|
| Tested property / information | Test details for the abovementioned model |
| Exposure ratio of the product in the test (mm ² /liter) | 1000 |
| Control sample: no releasing of organic matter | Tap water with glass plate system |
| Control sample: releasing of organic matter | Tap water with paraffine oil system having exposure ratio as above |
| Toxicity or inhibition on the test bacteria by the sample material | Not observed |
| Finishing incubation date | 07/2007 |
| Starting incubation | 09/2007 |

- test results are as follows:

| Sample Description | Measuring units | D.O. content in extraction water | | | Average value | MDOD report value |
|--|-----------------|----------------------------------|--------|--------|---------------|-------------------|
| | | Week 5 | Week 6 | Week 7 | | |
| Blank sample (negative control) | mg/l | 7.10 | 7.43 | 7.09 | 7.21 | n/a |
| Control sample: no releasing of organic matter | mg/l | 7.12 | 7.40 | 7.03 | 7.18 | 0.03 |
| Test sample – replicate 1 | mg/l | 6.55 | 6.83 | 6.20 | 6.53 | <u>0.68</u> |
| Test sample – replicate 2 | mg/l | 6.67 | 6.10 | 6.18 | 6.32 | <u>0.89</u> |
| Test sample – replicate 3 | mg/l | 6.70 | 6.23 | 6.18 | 6.37 | <u>0.84</u> |
| Control sample: releasing of organic matter | mg/l | 0.80 | 0.80 | 0.70 | 0.77 | 6.44 |
| Control sample: Positive control: test sample with paraffine oil | mg/l | 0.25 | 0.90 | 0.50 | 0.55 | 6.66 |

| | |
|------------------|---|
| Test Conclusion: | Passes the standards requirements for the abovementioned test configuration. |
| Comment: | Maximum allowed MDOD value is 2.40 mg/L. |

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3.4 Cytotoxic activity of water extract :

- test parameters were as follows:

| Tested product labelling / Commercial Name | Polymeric bitumen sealing system Rapidflex |
|--|---|
| <i>Tested property / mentioned</i> | <i>Test details for the abovementioned model</i> |
| Exposure ratio of the product in the test (mm ² /liter) | 10000 |
| Incubation temperature (°C) | 30 |
| The description of the substrate for the culture growth | VERO / M-199 |
| Control sample description – Blank | Cell culture prepared with extraction water without sample |
| Control sample description Positive control | Cell culture prepared with extraction water without sample adding zinc sulphate with the concentration 8 microgram in litre |
| Culture growing waiting period | 48 hours ⁽¹⁾ |

- test results are as follows:

| Findings in the culture prepared based on the extract from the first extraction (24 hours) | | | | | | |
|---|------------------------|--------------|---------------------------------|----------------|----------------|-------------------------|
| Tested property | Findings type | Blank sample | Extraction from the test sample | | | Positive control sample |
| | | | Replicate 1 | Replicate 2 | Replicate 3 | |
| Cell morphology | Microscopic evaluation | satisfactive | satisfactive | satisfactive | satisfactive | Cell death |
| Culture Medium | Medium color | OK | OK (red basic) | OK (red basic) | OK (red basic) | Not OK |
| Monolayer confluence | Microscopic evaluation | presents | presents | presents | presents | Does not present |

| Findings in the culture prepared based on the extract from the first extraction (48 hours) | | | | | | |
|---|------------------------|--------------|---------------------------------|----------------|----------------|-------------------------|
| Tested property | Findings type | Blank sample | Extraction from the test sample | | | Positive control sample |
| | | | Replicate 1 | Replicate 2 | Replicate 3 | |
| Cell morphology | Microscopic evaluation | satisfactive | satisfactive | satisfactive | satisfactive | Cell death |
| Culture Medium | Medium color | OK | OK (red basic) | OK (red basic) | OK (red basic) | Not OK |
| Monolayer confluence | Microscopic evaluation | presents | presents | presents | presents | Does not present |

| Findings in the culture prepared based on the extract from the first extraction (72 hours) | | | | | | |
|---|------------------------|--------------|---------------------------------|----------------|----------------|-------------------------|
| Tested property | Findings type | Blank sample | Extraction from the test sample | | | Positive control sample |
| | | | Replicate 1 | Replicate 2 | Replicate 3 | |
| Cell morphology | Microscopic evaluation | satisfactive | satisfactive | satisfactive | satisfactive | Cell death |
| Culture Medium | Medium color | OK | OK (red basic) | OK (red basic) | OK (red basic) | Not OK |
| Monolayer confluence | Microscopic evaluation | presents | presents | presents | presents | Does not present |

(1) Waiting period mentioned in the test standard is a 24 hours maximum. The results reported are the findings for 48 hour period that take into account observations made at a 24 hour period point as well.

| | |
|------------------|--|
| Test Conclusion: | No evidence of the Cytotoxic activity |
|------------------|--|

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3.5 Mutagenic activity of water extract :

- test parameters are as follows:

| Tested product labelling / Commercial Name | Polymeric bitumen sealing system Rapidflex |
|--|--|
| <i>Tested property / information</i> | <i>Test details for the abovementioned model</i> |
| Exposure ratio of the product in the test (mm ² /liter) | 10000 |
| Incubation temperature (°C) | 30 |
| Scaling Factor | 1.000 |
| Metabolic activator additive | Liver animal cell (rat, signed "S9") |
| Negative control sample (blank) | Untreated tap water system |
| Number of the bacteria chains tested | 3 |

- test results without metabolic activator additive are as follows:

| Bacteria strains tested | Maximum allowed average number of the revertants in the species based on the negative control sample | Average number of the revertants in the species for the extraction water sample |
|---------------------------------|--|---|
| Salmonella typhimurium - TA 98 | 20 | 13 |
| Salmonella typhimurium - TA 100 | 183 | 100 |
| Salmonella typhimurium - TA 102 | 185 | 123 |

- test results with metabolic activator additive are as follows:

| Bacteria strains tested | Maximum allowed average number of the revertants in the species based on the negative control sample | Average number of the revertants in the species for the extraction water sample |
|---------------------------------|--|---|
| Salmonella typhimurium - TA 98 | 55 | 30 |
| Salmonella typhimurium - TA 100 | 151 | 99 |
| Salmonella typhimurium - TA 102 | 228 | 215 |

Summary:

The difference in the number of the revertants colonies (repeated mutations) between the negative control sample and extracted water sample does not exceed two standard deviation above the average number of the repeated mutations in the negative control sample with or without addition of S9 and therefore **there is no evidence of the mitagenic effect caused by the sample extraction process.**

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3.6 Extraction of Metals:

- test parameters are as follows:

| Tested product labelling / Commercial Name | Polymeric bitumen sealing system Rapidflex |
|--|--|
| <i>Tested property / mentioned</i> | <i>Test details for the abovementioned model</i> |
| Exposure ratio of the product in the test (mm ² /liter) | 10000 |
| Scaling Factor | 2.000 |
| Number of specimen for the extraction | 2 |
| Determination methods according to | Standard Methods for the Examination of Water and Wastewater 21 th edition (2005) |
| The detection limit value listed for each element is related only to the product tested by the above method | |

- test results are as follows:

| Tested element | Detection method | Measuring units | Method Quantification limit | Maximum allowed migration value | Element migration from the sample to the extraction water | | | |
|-----------------|------------------|-----------------|-----------------------------|---------------------------------|---|------------------|----------------------------------|------------------|
| | | | | | First Extract (24 hours) | | 7 th Extract (9 Days) | |
| | | | | | Blank Sample | Product sample | Blank Sample | Product sample |
| Lithium (Li) | SM3120 | mg/l | 0.01 | 2.5 | Less than 0.01 | Less than 0.01 | n/a | n/a |
| Barium (Ba) | SM3120 | mg/l | 0.01 | 0.1 | Less than 0.01 | Less than 0.01 | n/a | n/a |
| Molybdenum (Mo) | SM3120 | mg/l | 0.01 | 0.07 | Less than 0.01 | Less than 0.01 | n/a | n/a |
| Chromium (Cr) | SM3113 | mg/l | 0.001 | 0.005 | Less than 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 |
| Nickel (Ni) | SM3113 | mg/l | 0.001 | 0.005 | Less than 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 |
| Antimony (Sb) | SM3113 | mg/l | 0.001 | 0.005 | Less than 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 |
| Arsenic (As) | SM3113 | mg/l | 0.001 | 0.005 | Less than 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 |
| Selenium (Se) | SM3113 | mg/l | 0.001 | 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 |
| Lead (Pb) | SM3113 | mg/l | 0.001 | 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 | Less than 0.001 |
| Silver (Ag) | SM3113 | mg/l | 0.0005 | 0.001 | Less than 0.0005 | Less than 0.0005 | Less than 0.0005 | Less than 0.0005 |
| Cadmium (Cd) | SM3113 | mg/l | 0.0001 | 0.0005 | Less than 0.0001 | Less than 0.0001 | Less than 0.0001 | Less than 0.0001 |
| Mercury (Hg) | SM3112 | mg/l | 0.0001 | 0.0001 | Less than 0.0001 | Less than 0.0001 | Less than 0.0001 | Less than 0.0001 |

Test Conclusion:
Passes the requirements for regulated elements migration

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Appendix for Test Report No. 8712253174-a

Detailing of the features concerned with the Exposure Ratio – Information for User / Planner.

Finished product – article having final dimension and volume (partly or fully boundared)

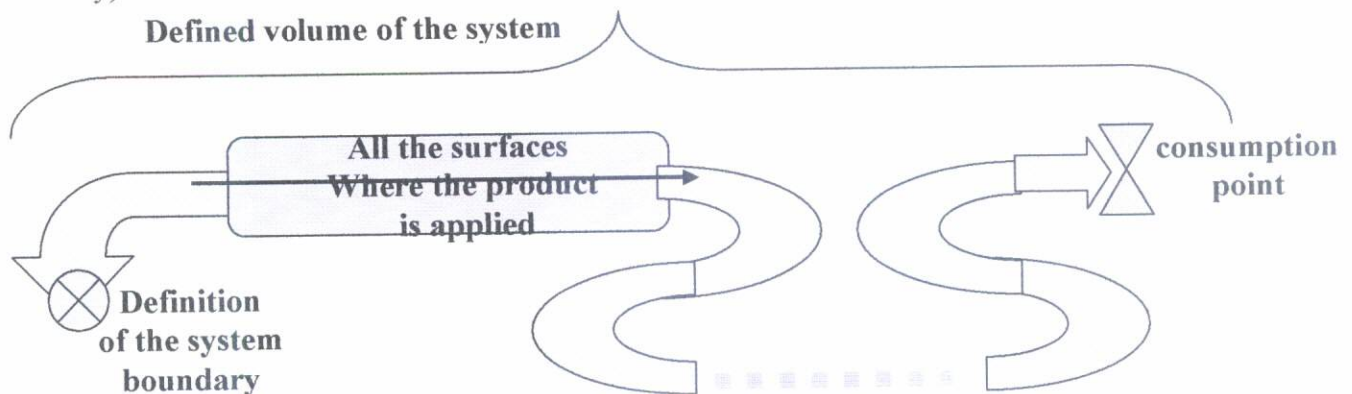
Applicative product – article that is a compound to be applicated onto substrate or casted without defined volume value.

The system – defined environment or set where the tested product functions in its end use.

1. Declared End-Use surface-to-area Exposure Ratio (mm^2/L) – is the ratio declared by the manufacture of all product`s wetted area to its inside volume. Not applicable to coating, because it already applied.
2. According to the test findings - the product tested complies to the requirements of the abovementioned standard for the Exposure Ratio 1000 (mm^2/L). This statement is related for application of the product in the defined system. This value set the maximum ratio between all surface area in the system intended for the product application to the overall system volume. The amount of the substances extracted from the tested product into the volume of the system satisfies the requirements of the standard for this ratio.
3. The overall volume of the system (for the calculation of the exposure ratio) is the minimal denined volume in the product environment (whereas one side of the system is the “end point-of-use”) where:
 - the edges of the coated area could be also treated as the system boundaries – under condition that there is no reverse flow in the system.
 - The “end point-of-use” of the system may be edge of the coated area or pouring point for user or start point of the next (consequent) system where the water of the initial system serves/functions as a “product-water”.

The determination of the system volume must be made according to the case and type of the system where product tested is to fuction. This document does not comes to determine the system. This obligation is the task of the user / planner.

4. Here is a schematic description of the system for applicative product functioning (for illustration only)



-end of appendix-