



FINAL REPORT

REPORT ID 312170

REPORT INFORMATION

SUBMITTING ORGANISATION 00109358: Parchem Construction Supplies Pty Ltd.

ACCOUNT 130335: Parchem Construction Supplies Pty Ltd.

AWQC REFERENCE 130335-2020-CSR-1: Prod Test: Fosroc Expoband F + Fosroc Nitomortar AP System.

PROJECT REFERENCE PT-4273.

PRODUCT DESIGNATION Fosroc® Expoband F + Fosroc® Nitomortar AP.

COMPOSITION OF PRODUCT Band – Rubber (Concrete Grey Colour) and Adhesive – Epoxy/Amine (Concrete Grey Colour).

PRODUCT MANUFACTURER Parchem Construction Products, Wyong, NSW, AUSTRALIA.

USE OF PRODUCT In-Line/Waterproofing Concrete Joints.

SAMPLE SELECTION As provided by the submitting organisation.

TESTING REQUESTED **AS/NZS 4020:2018 TESTING OF PRODUCTS FOR USE IN CONTACT WITH DRINKING WATER**

PRODUCT TYPE Polymeric.

SAMPLES SAMPLES WERE PREPARED AND CONTROLLED AS DESCRIBED IN APPENDIX A OF AS/NZS 4020:2018.

EXTRACTS Extracts were prepared and controlled as described in Appendix/Clause C, D, E, F, G, H and 6.8.

PROJECT COMPLETION DATE 25/06/2021

PROJECT COMMENT Product sample received in the week 17-May-2020 and testing commenced 01-Jun-2020.

PLEASE NOTE THAT THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL.

THE RESULTS STATED IN THIS REPORT RELATE TO THE SAMPLE OF THE PRODUCT SUBMITTED FOR TESTING. ANY CHANGES IN THE MATERIAL FORMULATION, 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.

Michael Glasson
APPROVED SIGNATORY



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Summary of Results

APPENDIX	RESULTS
C - TASTE	Passed at an exposure of 1000mm ² per Litre (band) and 1000mm ² /L (adhesive) when tested independently.
D – APPEARANCE	Passed at an exposure of 5000mm ² per Litre (adhesive) and 15000mm ² per Litre (band).
E - GROWTH OF AQUATIC MICRO-ORGANISMS	Passed at an exposure of 5000mm ² per Litre (adhesive) and 15000mm ² per Litre (band).
F - CYTOTOXIC ACTIVITY	Passed at an exposure of 5000mm ² per Litre (adhesive) and 15000mm ² per Litre (band).
G - MUTAGENICITY	Passed at an exposure of 5000mm ² per Litre (adhesive) and 15000mm ² per Litre (band).
H – METALS	Passed at an exposure of 5000mm ² per Litre (adhesive) and 15000mm ² per Litre (band).
Clause 6.8 – ORGANIC COMPOUNDS	Passed at an exposure of 5000mm ² per Litre (adhesive) and 15000mm ² per Litre (band).

Test Methods

Test(s)	AWQC Test Method	Reference Method
C	T0320-1	AS/NZS 4020:2018
D	TO029-01 & TO018-01	APHA 21020c & APHA 2130b
E	TO014-03	APHA 4500 O G
F	TM-001	AS/NZS 4020:2018
H	TIC-006	EPA 200.8

Organic Test Methods

Test(s) in Clause	Test Method	Reference Method
Clause 6.8	TMZ-M36	USEPA524.2
	EP239	USEPA521
	EP132-LL	USEPA_SW846-8270D
	EP075C	USEPA_SW846-8270D
	EP075ASIM	USEPA_SW846-8270D

SUMMARY COMMENT: The Fosroc Nitomortar AP was applied at a mix ratio of 100g Base to 52g Hardener and cured for 7 days at 20°C prior to testing.



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CLAUSE 6.2 Taste

SAMPLE DESCRIPTION

The sample consisted of one panel coated with adhesive measuring 20mm x 40mm (coated to one side) providing a surface area of approximately 1000mm² per Litre and one panel of band measuring 20mm x 25mm providing a surface area of 1000mm² per Litre.

Each extract was prepared using 1000 mL volumes of 50 mg/L hardness water.

EXTRACTION TEMPERATURE 20°C ± 2°C.

TEST METHOD TASTE (APPENDIX C)

SCALING FACTOR Not applicable.

RESULTS Not detected (sample and controls).

EVALUATION The product passed the requirements of clause 6.2 when tested at an exposure of 1000mm² per Litre for each material independent of each other.

NUMBER OF SAMPLES Six samples tested.

TEST COMMENT The 24 hour extracts were not analysed in this test.

Panellists detected chemical, medicinal and paint-like tastes in the final (7th) extracts when tested as a system at 15000mm²/L (band) and 5000mm²/L (adhesive).

Test repeated at 2500mm²/L (band) and 2500mm²/L (adhesive) as a system where panellists continued to detect paint-like tastes in the final (7th) extracts.

Final repeat test separated band and adhesive from system and tested independently at 1000mm²/L (band) and 1000mm²/L (adhesive) where no tastes were detected in the final (7th) extracts.

Peter Christopoulos - Senior Technical Officer Product Testing (AWQC Signatory)

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CLAUSE 6.4 Growth of Aquatic Micro-organisms

SAMPLE DESCRIPTION The adhesive/band scheme provided a surface area of approximately 5000/15000 mm² per Litre.

Extracts were prepared using 1000 mL volumes of test water.

EXTRACTION TEMPERATURE 30°C ± 2°C.

TEST METHOD GROWTH OF AQUATIC MICRO-ORGANISMS (APPENDIX E)

INOCULUM The volume of inoculum was 100 mL

SCALING FACTOR Not applied.

RESULTS

Mean Dissolved Oxygen	Control	7.6 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	1.6 mg/L
	Negative Reference	< 0.1 mg/L
	Test	< 0.1 mg/L

EVALUATION The product passed the requirements of clause 6.4 when tested at an exposure of 5000 mm² (adhesive) and 15000 mm² (band) per litre.

NUMBER OF SAMPLES One sample tested.

TEST COMMENT Not applicable.

Thuy Diep - Technical Officer Chemistry (AWQC Signatory)

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CLAUSE 6.5 Cytotoxic Activity

SAMPLE DESCRIPTION The adhesive/band scheme provided a surface area of approximately 5000/15000 mm² per Litre.

Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

EXTRACTION TEMPERATURE 20°C ± 2°C.

TEST METHOD CYTOTOXIC ACTIVITY (APPENDIX F)

SCALING FACTOR Not applied.

RESULTS Non cytotoxic (sample and controls).

EVALUATION The product passed the requirements of clause 6.5 when tested at an exposure of 5000 mm² (adhesive) and 15000 mm² (band) per litre.

NUMBER OF SAMPLES One sample tested.

TEST COMMENT The test extracts and blank extracts were used to prepare nutrient growth medium and subsequently used to grow a cell line (ATCC Number CCL 81) in the analysis. In addition, zinc sulphate (0.4 mmol) was used for the positive control in the analysis.

Mira Maric - Senior Technical Officer Protozoology (AWQC Signatory)

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CLAUSE 6.6 Mutagenic Activity

SAMPLE DESCRIPTION The adhesive/band scheme provided a surface area of approximately 5000/15000 mm² per Litre.

Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

EXTRACTION TEMPERATURE 20°C ± 2°C.

TEST METHOD MUTAGENIC ACTIVITY OF WATER EXTRACT (APPENDIX G)

SCALING FACTOR Not applied.

RESULTS

BACTERIAL STRAIN

NUMBER OF REVERTANTS per PLATE

	S9	Blank	Sample Extract	Positive Controls	
				NPD (20ug)	2-AF (20ug)
<i>Salmonella typhimurium</i> TA98	-	19, 28, 33	21, 24, 25	3180, 3356, 1352	
Mean ± Standard deviation		26.7 ± 7.1	23.3 ± 2.1	2629.3 ± 1109.7	
	+	25, 32, 25	29, 22, 40	-	3746, 3567, 3748
Mean ± Standard deviation		27.3 ± 4.0	30.3 ± 9.1	-	3687.0 ± 103.9

MITOMYCIN C (10ug)

<i>Salmonella typhimurium</i> TA102	-	542, 579, 509	543, 522, 588	3943, 4113, 4288
Mean ± Standard deviation		543.3 ± 35.0	551.0 ± 33.7	4114.7 ± 172.5
	+	483, 469, 546	637, 614, 548	2793, 2674, 2537
Mean ± Standard deviation		499.3 ± 41.0	599.7 ± 46.2	2668.0 ± 128.1



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CLAUSE 6.6 **Mutagenic Activity**

COMMENTS S9 was used as a metabolic activator. NPD (4-nitro- α -phenylenediamine), Azide, and Mitomycin C are specific positive controls for strains TA 98 and TA102 respectively while 2 - AF (2-aminofluorene) when used in conjunction with S9 is a positive control for TA98.

EVALUATION The product passed the requirements of clause 6.6 when tested at an exposure of 5000 mm² (adhesive) and 15000 mm² (band) per litre.

NUMBER OF SAMPLES One sample tested.

TEST COMMENT The differences in the mean number of revertants between the blank and test extracts do not exceed two standard deviations; accordingly there is no evidence of a mutagenic response.

Peter Christopoulos - Senior Technical Officer Product Testing (AWQC Signatory)



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CLAUSE 6.7 **Metals**

SAMPLE DESCRIPTION The adhesive/band scheme provided a surface area of approximately 5000/15000 mm² per Litre.

Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

EXTRACTION TEMPERATURE 20°C ± 2°C.

TEST METHOD METALS (APPENDIX H)

SCALING FACTOR Not applied.

METHODS OF ANALYSIS All methods used to determine concentrations of metals are based on those described in US EPA method 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry. The methods have been adapted for the instrumentation in use at the Australian Water Quality Centre.

Concentrations of the metals described in Table 2 of the AS/NZS 4020:2018 are determined as follows:

Aluminium, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium and Silver by Inductively Coupled Plasma Mass Spectrometry

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CLAUSE 6.7 **Metals**

RESULTS

Final Extract

	Limit of reporting mg/L	Blank mg/L	Test 1 mg/L	Test 2 mg/L	Max. Allowed mg/L
Aluminium	0.001	0.003	0.003	0.003	0.2
Antimony	0.0005	< 0.0005	< 0.0005	< 0.0005	0.003
Arsenic	0.0003	< 0.0003	< 0.0003	< 0.0003	0.01
Barium	0.0005	< 0.0005	< 0.0005	< 0.0005	0.7
Boron	0.020	< 0.020	< 0.020	0.021	1.4
Cadmium	0.0001	< 0.0001	< 0.0001	< 0.0001	0.002
Chromium	0.0001	< 0.0001	< 0.0001	< 0.0001	0.05
Copper	0.0001	< 0.0001	< 0.0001	< 0.0001	2.0
Iron	0.0005	< 0.0005	< 0.0005	< 0.0005	0.3
Lead	0.0001	< 0.0001	< 0.0001	< 0.0001	0.01
Manganese	0.0001	< 0.0001	< 0.0001	< 0.0001	0.1
Mercury	0.00003	< 0.00003	< 0.00003	< 0.00003	0.001
Molybdenum	0.0001	< 0.0001	< 0.0001	< 0.0001	0.05
Nickel	0.0001	< 0.0001	< 0.0001	< 0.0001	0.02
Selenium	0.0001	< 0.0001	< 0.0001	< 0.0001	0.01
Silver	0.00003	< 0.00003	< 0.00003	< 0.00003	0.1

EVALUATION

The product passed the requirements of clause 6.7 when tested at an exposure of 5000 mm² (adhesive) and 15000 mm² (band) per litre.

NUMBER OF SAMPLES

One sample tested.

TEST COMMENT

Not applicable.

Dzung Bui – Supervisor Metals and Physical (AWQC Signatory)



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CLAUSE 6.8 Organic Compounds

SAMPLE DESCRIPTION The adhesive/band scheme provided a surface area of approximately 5000/15000 mm² per Litre.

Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

EXTRACTION TEMPERATURE 20°C ± 2°C.

TEST METHOD Organic Compounds (Clause 6.8). Max allowed values are taken from the Australian Drinking Water Guidelines and Drinking-water Standards for New Zealand. Please note, some reported compounds have no guideline value.

SCALING FACTOR Not applicable.

RESULTS

Organic Compound

Nitrosamines	Blank µg/L	Test µg/L	Max Allowed
External Lab Report No.	ES2020302	ES2020302	
1-Nitrosopiperidine (NPip)	<0.003	<0.003	
1-Nitrosopyrrolidone (NPyr)	<0.01	<0.01	
Nitrosomorpholine (NMorA)	<0.003	<0.003	
N-Nitrosodiethylamine (NDEA)	<0.01	<0.01	
N-Nitrosodimethylamine (NDMA)	0.003	0.010	0.1 µg/L
N-Nitrosodi-n-propylamine (NDPA)	<0.003	<0.003	
N-Nitrosomethylethylamine (NMEA)	<0.003	<0.003	

Organic Compound

Phenols	Blank µg/L	Test µg/L	Max Allowed
External Lab Report No.	ES2020302	ES2020302	
2 4 5-trichlorophenol	<1.0	<1.0	
2 4 6-trichlorophenol	<1.0	<1.0	20 µg/L
2 4-dichlorophenol	<1.0	<1.0	200 µg/L
2 4-dimethylphenol	<1.0	<1.0	
2 6-dichlorophenol	<1.0	<1.0	
2-chlorophenol	<1.0	<1.0	300 µg/L
2-nitrophenol	<1.0	<1.0	
4-chloro-3-methylphenol	<1.0	<1.0	
m+p cresol	<2.0	<2.0	
o-cresol	<1.0	<1.0	



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Organic Compound Phenols

	Blank µg/L	Test µg/L	Max Allowed
pentachlorophenol	<2.0	<2.0	9 µg/L
phenol	<1.0	<1.0	

Organic Compound Phthalate Esters

	Blank µg/L	Test µg/L	Max Allowed
External Lab Report No.	ES2020302	ES2020302	
Bis(2-ethylhexyl) phthalate	<10	<10	10µg/L
Butyl benzyl phthalate	<2	<2	
Di(2-ethylhexyl) adipate	<2	<2	
Diethyl phthalate	<2	<2	
Dimethyl phthalate	<2	<2	
Di-n-butyl phthalate	<2	<2	
Di-n-octyl phthalate	<2	<2	

Organic Compound Polycyclic Aromatic Hydrocarbons

	Blank µg/L	Test µg/L	Max Allowed
External Lab Report No.	ES2020302	ES2020302	
Acenaphthene	<0.02	<0.02	
Acenaphthylene	<0.02	<0.02	
Anthracene	<0.02	<0.02	
Benzo(a)anthracene	<0.02	<0.02	
Benzo(a)pyrene	<0.005	<0.005	0.01 µg/L
Benzo(a)pyrene TEQ	<0.005	<0.005	
Benzo(b+j)fluoranthene	<0.02	<0.02	
Benzo(ghi)perylene	<0.02	<0.02	
Benzo(k)fluoranthene	<0.02	<0.02	
Chrysene	<0.02	<0.02	
Dibenzo(a-h)anthracene	<0.02	<0.02	
Fluoranthene	<0.02	<0.02	
Fluorene	<0.02	<0.02	
Indeno(123-cd)pyrene	<0.02	<0.02	
Napthalene	<0.02	<0.02	
PAH-Total	<0.005	<0.005	
Phenanthrene	<0.02	<0.02	
Pyrene	<0.02	<0.02	



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Organic Compound Volatile Organic Compounds GCMS

	Blank µg/L	Test µg/L	Max Allowed
1 1 1 2-Tetrachloroethane	<1	<1	
1 1 1-Trichloroethane	<1	<1	
1 1 2 2-Tetrachloroethane	<1	<1	
1 1 2-Trichloroethane	<1	<1	
1 1-Dichloropropene	<1	<1	
1 2 3-Trichlorobenzene	<1	<1	
1 2 3-Trichloropropane	<1	<1	
1 2 4-Trichlorobenzene	<1	<1	
1 2 4-Trimethylbenzene	<1	<1	
1 2-Dibromo-3-chloropropane	<1	<1	1 µg/L
1 2-Dibromoethane	<1	<1	1 µg/L
1 2-Dichlorobenzene	<1	<1	1500 µg/L
1 2 -Dichloroethane	<1	<1	3 µg/L
1 2-Dichloropropane	<1	<1	
1 3 5-Trimethylbenzene	<1	<1	
1 3-Dichlorobenzene	<1	<1	
1 3-Dichloropropane	<1	<1	
1 4-Dichlorobenzene	<1	<1	40 µg/L
1,1-Dichloroethane	<1	<1	
1,1-Dichloroethene	<1	<1	30 µg/L
2,2-Dichloropropane	<1	<1	
2-Chlorotoluene	<1	<1	
4-Chlorotoluene	<1	<1	
4-Isopropyltoluene	<1	<1	
Benzene	<1	<1	1 µg/L
Bromobenzene	<1	<1	
Bromochloromethane	<1	<1	
Bromodichloromethane	<1	<1	60 µg/L
Bromoform	<1	<1	100µg/L
Bromomethane	<4	<4	
Carbon tetrachloride	<1	<1	3 µg/L
Chlorobenzene	<1	<1	300 µg/L
Chloroethane	<4	<4	
Chloroform	<1	<1	400 µg/L
Chloromethane	<4	<4	
cis-1 3-Dichloropropene	<1	<1	
cis-1,2-Dichloroethene	<1	<1	
Dibromochloromethane	<1	<1	150 µg/L
Dibromomethane	<1	<1	

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Organic Compound Volatile Organic Compounds GCMS

	Blank µg/L	Test µg/L	Max Allowed
Dichlorodifluoromethane	<1	<1	
Dichloromethane	<4	<4	4 µg/L
Ethylbenzene	<1	<1	300 µg/L
Hexachlorobutadiene	<0.7	<0.7	0.7 µg/L
Isopropylbenzene	<1	<1	
m+p-Xylenes – Total	<2	<2	
Naphthalene	<1	<1	
n-Butylbenzene	<1	<1	
n-Propylbenzene	<1	<1	
o-Xylene	<1	<1	
sec-Butylbenzene	<1	<1	
Styrene	<1	<1	30 µg/L
tert-Butylbenzene	<1	<1	
Tetrachloroethene	<1	<1	50 µg/L
Toluene	<1	<1	800 µg/L
Total 1 2-dichloroethene	<2	<2	60 µg/L
Total 1 3-dichloropropene	<2	<2	20 µg/L
Total Trichlorobenzene	<2	<2	30 µg/L
Total Xylene	<3	<3	600 µg/L
trans-1 3-Dichloropropene	<1	<1	
trans-1,2-Dichloroethene	<1	<1	
Trichloroethene	<1	<1	
Trichlorofluoromethane	<1	<1	
Trihalomethanes – Total	<4	<4	250 µg/L
Vinyl chloride	<0.3	<0.3	0.3 µg/L

EVALUATION

The product passed the requirements of clause 6.8 when tested at an exposure of 5000 mm² (adhesive) and 15000 mm² (band) per litre.

NUMBER OF SAMPLES

One sample tested.

TEST COMMENT

Subcontracted testing conducted by ALS, Environmental Division, NATA accreditation no. 825 site no. 10911 and ALS Scoresby, NATA accreditation no. 992, site no. 989

Qiong Huang - Senior Chemist (AWQC Signatory)



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