

FINAL REPORT

Report ID : 198842

Report Information

Submitting Organisation : 00120949 : Hilti (Australia) Pty Ltd
Account : 141699 : Hilti (Australia) Pty Ltd
AWQC Reference : 141699-2016-CSR-1 : Prod Test: Hilti HIT-RE 500v3 Epoxy Adhesive
Project Reference : PT-3028
Product Designation : Hilti HIT-RE 500 V3 Epoxy Adhesive
Composition of Product : Two Component Epoxy Resin System (see attachments for further information).
Product Manufacturer : HILTI, EUROPE.
Use of Product : In-Line/Chemical Injection.
Sample Selection : As provided by the submitting organisation .
Testing Requested : **AS/NZS 4020:2005 TESTING OF PRODUCTS FOR USE IN CONTACT WITH DRINKING WATER**
Product Type : Composite
Samples : Samples were prepared and controlled as described in Appendix A of AS/NZS 4020:2005
Extracts : Extracts were prepared as described in Appendix C, D, E, F, G, H.
Project Completion Date : 22-Feb-2017
Project Comment : The results presented herein demonstrate compliance of Hilti HIT-RE 500 V3 Epoxy Adhesive to AS/NZS 4020:2005 when exposed at area to volume ratios up to 5000 mm²/L at 20°C ± 2°C.

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



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Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed at an exposure of 5000 mm ² per Litre.
D – Appearance of Water Extract	Passed at an exposure of 5000 mm ² per Litre.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 5000 mm ² per Litre.
F – Cytotoxic Activity of Water Extract	Passed at an exposure of 5000 mm ² per Litre.
G – Mutagenic Activity of Water Extract	Passed at an exposure of 5000 mm ² per Litre.
H – Extraction of Metals	Passed at an exposure of 5000 mm ² per Litre.

Test Methods

Test(s) in Appendix	AWQC Test Method	Reference Method
C	T0320-01	AS/NZS 4020:2005
D	TO029-01 & TO018-01	APHA 2130b
E	TO014-03	APHA 4500 O C
F	TM-001	AS/NZS 4020:2005
G	TM-002	AS/NZS 4020:2005
H	TIC-006	EPA 200.8

Summary Comment : Product was applied and cured by the submitting organisation.

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CLAUSE 6.2 Taste of Water Extract

Sample Description	The sample consisted of a glass slide (coated to one side) measuring 35 mm x 100 mm giving an approximate surface area of 5000 mm ² per Litre. Extracts were prepared using 700 mL volumes of 50 mg/L hardness water.
Extraction Temperatur	20°C ± 2°C.
Test Method	Taste of Water Extract (Appendix C)
Test Information	
Scaling Factor	Not applicable.
Results	Not Detected
Evaluation	The product passed the requirements of clause 6.2 when tested at an exposure of 5000 mm ² /L.
Number of Samples	2.
Test Comment	Not applicable.



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CLAUSE 6.3 Appearance of Water Extract

Sample Description The sample consisted of a glass slide (coated to one side) measuring 35 mm x 100 mm giving an approximate surface area of 5000 mm² per Litre. Extracts were prepared using 700 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20°C ± 2°C.

Test Method Appearance of Water Extract (Appendix D)

Scaling Factor Not applicable.

Results

	<u>Test (- Blank)</u>	<u>Maximum Allowed</u>	<u>Units</u>
Colour	<1	5	HU
Turbidity	<0.1	0.5	NTU

Evaluation The product passed the requirements of clause 6.3 when tested at an exposure of 5000 mm²/L.

Number of Samples 1.

Test Comment Not applicable.



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CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The sample consisted of a glass slide (coated to one side) measuring 35 mm x 100 mm giving an approximate surface area of 5000 mm² per Litre. Extracts were prepared using 700 mL volumes of test water.

Test Method Growth of Aquatic Micro-organisms (Appendix E)

Inoculum The volume of the inoculum was 100 mL

Scaling Factor Not applicable.

Results			
Mean Dissolved Oxygen	Control		7.2 mg/L
Mean Dissolved Oxygen Differenc	Positive Reference		5.5 mg/L
	Negative Reference		<0.1 mg/L
	Test		0.10 mg/L

Evaluation The product passed the requirements of clause 6.4 when tested at an exposure of 5000 mm²/L.

Number of Samples 1.

Test Comment Not applicable.



Thuy Diep
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample consisted of a glass slide (coated to one side) measuring 35 mm x 100 mm giving an approximate surface area of 5000 mm ² per Litre. Extracts were prepared using 700 mL volumes of 50 mg/L hardness water.
Extraction Temperatur	20°C ± 2°C.
Test Method	Cytotoxic Activity of Water Extract (Appendix F)
Scaling Factor	Not applicable.
Results	Non-cytotoxic.
Evaluation	The product passed the requirements of clause 6.5 when tested at an exposure of 5000 mm ² /L.
Number of Samples	1.
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.



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CLAUSE 6.6 Mutagenic Activity of Water Extract

Sample Description The sample consisted of a glass slide (coated to one side) measuring 35 mm x 100 mm giving an approximate surface area of 5000 mm² per Litre. Extracts were prepared using 700 mL volumes of 50 mg/L hardness water.

Extraction Temperatur 20°C ± 2°C.

Test Method Mutagenic Activity of Water Extract (Appendix G)

Scaling Factor Not applicable.

Results

	<u>Bacteria Strain</u>		<u>Number of Revertants per Plate</u>			
	S9	Blank	Sample Extract	Positive Controls		
<i>Salmonella typhimurium</i> TA98	-	23, 30, 22	26, 26, 16	2542, 2844, 2190		<u>NPD</u> (20µg)
Mean ± Standard deviation		25.0 ± 4.4	22.7 ± 5.8	2525.3 ± 327.3		
	+	11, 22, 13	16, 24, 28	1599, 1801, 2090		<u>2-AF</u> (20µg)
Mean ± Standard deviation		15.3 ± 5.9	22.7 ± 6.1	1830.0 ± 246.8		
<i>Salmonella typhimurium</i> TA100	-	367, 374, 373	358, 376, 371	1066, 1070, 1105		<u>Azide</u> (1.0µg)
Mean ± Standard deviation		371.3 ± 3.8	368.3 ± 9.3	1080.3 ± 21.5		
	+	226, 212, 234	220, 219, 240	1236, 1307, 1395		<u>2-AF</u> (20µg)
Mean ± Standard deviation		224.0 ± 11.1	226.3 ± 11.8	1312.7 ± 79.7		
<i>Salmonella typhimurium</i> TA102	-	925, 919, 870	938, 946, 848	2781, 1940, 2361		<u>Mitomycin C</u> (10µg)
Mean ± Standard deviation		904.7 ± 30.2	910.7 ± 54.4	2360.7 ± 420.5		
	+	608, 756, 633	812, 823, 763	2609, 2436, 2655		
Mean ± Standard deviation		665.7 ± 79.2	799.3 ± 31.9	2566.7 ± 115.5		

Comments S9 was used as a metabolic activator. NPD (4-nitro-o-phenylenediamine), Azide, and Mitomycin C are specific positive controls for strains TA98, TA100 and TA102 respectively while 2 - AF (2-aminofluorene) when used in conjunction with S9 is a positive control for both TA98 and TA100

Evaluation The product passed the requirements of clause 6.6 when tested at an exposure of 5000 mm²/L.

Number of Samples 1.

Test Comment Not applicable.



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CLAUSE 6.7 Extraction of Metals

Sample Description The sample consisted of a glass slide (coated to one side) measuring 35 mm x 100 mm giving an approximate surface area of 5000 mm² per Litre. Extracts were prepared using 700 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20°C ± 2°C.

Test Method Extraction of Metals (Appendix H)

Scaling Factor Not applicable.

Method of Analysis All methods used to determine concentrations of metals are based on those described in the 21st edition of Standard Methods for the Examination of Water and Wastewater published by the APHA, AWWA and WEF (2005). The methods have been adapted for the instrumentation in use at the Australian Water Quality Centre. Concentration of the metals described in Table 2 of the AS/NZS 4020:2005 are determined as follows:

Antimony, Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium and Silver by Inductively Coupled Plasma Mass

Results	Limit of Reporting mg/L	Blank mg/L	Test 1 mg/L	Test 2 mg/L	Max Allowed mg/L
Final Extract					
Antimony	0.0005	<0.0005	<0.0005	<0.0005	0.003
Arsenic	0.0003	<0.0003	<0.0003	<0.0003	0.007
Barium	0.0005	<0.0005	<0.0005	<0.0005	0.7
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	0.0028	0.0026	0.0025	2.0
Lead	0.0001	<0.0001	<0.0001	<0.0001	0.01
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/L.

Number of Samples 1.

Test Comment Not applicable.



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