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Certificate of Analysis

Page 1 of 13 Analytical Report: AAR84057 Eurofins Sample Number: NJ21AA7482-1 Version: 1



WILO AUSTRALIA PTY LTD 2/29 ALEXANDRA PLACE QLD 4172 QLD, AU Client Account Number: A00493572L0P Eurofins Quote Number: XC8UPH19011202

Eurofins Sample Number NJ21AA7482-1

Original Received Date: Description: Containers Submitted:

09-Jun-2021 Jet FWJ-201; Household Jet Pump with Controller 4 Unit(s)

Analysis

AS/NZS 4020:2018 Compliance Testing

Refer to Attachment # 1

Subcontracted Testing (if performed) is not covered under NATA Accreditation 15773. Method: AS/NZS 4020, Appendix A and in-house method TMP 191100 & TMP 191101 Analysis Date: 03-Aug-2021

Supplemental Information

Samples were tested as received. Specifications (if) reported are as provided by the client.

Accredited for compliance with ISO/IEC 17025:2017- Testing. NATA Accreditation Number 15773.

Contracted Company: Eurofins ams Laboratories (Sydney)

8, Rachael Close, Silverwater, NSW 2128 Australia SampleReceiptAMS@eurofins.com

TGA Licence No: MI-15112007-LI-002191-11 APVMA Licence No: 6139 Questions about this report should be directed to your project manager or the general email listed above.

1. <u>SAMPLE INFORMATION:</u>

Methodology: AS/NZS 4020, Appendix A and in-house method TMP-191100 & TMP-191101

Cross Reference No.:	Not Applicable
Interim Reporting:	Not Applicable
Batch No./ Manufacturing Date:	Information not Provided
Product Manufacturer:	(Pump) Guangdong Lingxiao Pump Industry Co. Ltd, 117 Chunjiang Road, Yangchun, Guangdong, China 529600 (Controller) Coelbo Control System, S.L, Ctra. De Rubi, 288 – P.I. Can Guitard – 08228 Terrassa, Spain
Sampling Organisation:	Wilo Australia Pty. Ltd.
General Composition:	Refer to Section 9
Product Use:	In-Line
Temperature Range:	(0 - 35)°C
Previous Testing:	Not Applicable
Sample selection for tests:	As provided by the Submitting Organisation

Sample storage conditions:	Prepared and controlled as per AS/NZS 4020, Appendix A
Extracts:	Prepared as per AS/NZS 4020, Appendices C, D, E, F, G & H
Testing procedure:	Testing is based on the recommended 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied at (20 ± 2)°C to cover a cold water application up to <40°C. Refer to Section 9 for product details.
Volume retention:	~1.5L

2. <u>SUMMARY OF RESULTS</u>:

APPENDIX	RESULTS			
C - TASTE (CLAUSE 6.2)	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied			
D – APPEARANCE (COLOUR AND TURBIDITY) (CLAUSE 6.3)	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied			
D – APPEARANCE (ORGANIC COMPOUNDS) (CLAUSE 6.8)	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied			
E - GROWTH OF AQUATIC MICRO- ORGANISMS (CLAUSE 6.4)	PASSED at 'total immersion' exposure			
F - CYTOTOXIC ACTIVITY (CLAUSE 6.5)	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied			
G - MUTAGENIC ACTIVITY (CLAUSE 6.6)	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied			
H - METALS (CLAUSE 6.7)	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied			

Based on completion and evaluation of all tests on 02/11/2021, the product, Jet FWJ-201, Household Jet Pump with Controller; <u>fully complied</u> with the test requirements of AS/NZS 4020:2018 to cover a cold water application up to <40°C, at the recommended 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied at (20 ± 2)°C.

Testing although determined by the relevant product Standard, is generally recognised for up to 5 years by the certifying body, providing the testing procedures remain the same, and the background information on all wetted parts and the product are adequately documented. Also, the results stated in the report relate to the samples of the product submitted for testing. Any changes in the material formulation and supplier/manufacturer of all wetted items, 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, and re-testing may be required before this actual time frame, governed by the completion and evaluation date.

3. <u>TASTE:</u>

Methodology: AS/NZS 4020, *Appendix C* and in-house method TMP-191130.

Exposure: 'in-the-product'

Extraction temperature: (20 ± 2)°C **Scaling factor:** 0.1 (1/10) **Number of Panellists:** 5

No. of samples for Chlorine-free extract: 1 No. of

No. of samples for Chlorinated extract: 1

Description	Extract	Test Water	Taste	Taste Description	Test Dilution
			(+ / –)	(No. of tasters)	*(Taste
					intensity)
Test Blank	First 24h	Chlorine-free	NA	NA	NA
	Final 9-day	Chlorine-free	-	-	-
Sample	First 24h	Chlorine-free	NA	NA	NA
	Final 9-day	Chlorine-free	-	-	-
Test Blank	First 24h	Chlorinated	NA	NA	NA
	Final 9-day	Chlorinated	-	-	-
Sample	First 24h	Chlorinated	NA	NA	NA
	Final 9-day	Chlorinated	-	-	_

+ Taste detected – No taste detected NA Not applicable

AS/NZS 4020 test requirement: Minimum of 4 tasters with no discernible taste at the first 1/2 dilution.

Figure in brackets is the number of panellists detecting a taste at this dilution.

Note:

- Tasters are given a 14-point scale to describe its intensity, with minimum of 1 as extremely weak, and maximum of >14 as extremely strong. An average of all tasters represents taste intensity.
- 2. First extract becomes final extract.

EVALUATION:

On the basis of these results the samples of this product referred to in this report <u>have complied</u> with the test requirements of AS/NZS 4020:2018, Taste; *Appendix C*.

4.A. APPEARANCE: COLOUR AND TURBIDITY

Methodology: AS/NZS 4020, Appendix D and in-house methods TMP-191140 and TMP-191106.

Exposure: 'in-the-product'

Extraction temperature: (20 ± 2)°C Scaling factor: 0.1 (1/10)

No. of samples tested: 1

	Hazer	COLOUR: n Units U)	b) TURBIDITY: Nephelometric Turbidity Units (NTU)		
	First 24h	Final 9-day	First 24h	Final 9-day	
Sample Extract pH (24h) = 5.90	<5	NA	0.09	NA	
Test Blank pH (24h) = 6.99	<5	NA	0.08	NA	
FINAL RESULT	<5	NA	0.01	NA	
AS/NZS 4020 Test sample requirements	≤5		≤0.	5	

< = less than

First extract becomes final extract

 \leq = less than or equal to NA Not applicable

For test a), test extractions were performed by Eurofins | ams. The test extracts were subsequently subcontracted to Eurofins | Environment Testing for assessment (NATA Accreditation No. 1261), Report No. 21-14554-W. In-house Method based on APHA 2120 B.

EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Appearance (Colour & Turbidity); Appendix D.

Attachment #1 - AS/NZS 4020:2018 Compliance Testing Analytical Report: AAR84057, Eurofins Sample Number: NJ21AA7482-1, Version: 1 Page 6 of 13

4.B. <u>APPEARANCE: ORGANIC COMPOUNDS</u>

Methodology: AS/NZS 4020, Appendix D and in-house methods TMP-191140 and TMP-191106.

Refer to Section 4.A for testing conditions (Exposure, Extraction temperature, Scaling factor & No. of

Samples tested)	E	xtract: 9-day			
Organic Compound	Drinking Water Guideline Maximum Allowable	Limit of Reporting mg/L	Test Blank mg/L	Sample Extract mg/L	FINAL RESULT mg/L (ppm)
	Concentration	(ppm)	(ppm)	(ppm)	
	mg/L				
	(ppm)				
¹ Benzene	0.001*	0.001	< 0.001	<0.001	< 0.001
¹ Bromodichloromethane	0.06**	0.001	< 0.001	<0.001	< 0.001
¹ Carbon tetrachloride	0.003*	0.001	<0.001	<0.001	< 0.001
¹ Chlorobenzene	0.3*	0.00001	< 0.00001	<0.00001	<0.00001
¹ 1,2-dichlorobenzene	1.5*	0.001	< 0.001	<0.001	< 0.001
¹ 1,4-dichlorobenzene	0.04*	0.00001	< 0.00001	< 0.00001	<0.00001
¹ 1,2-dichloroethane	0.003*	0.00001	< 0.00001	<0.00001	<0.00001
¹ 1,1-dichloroethene	0.03*	0.001	< 0.001	<0.001	< 0.001
¹ Cis 1,2-dichloroethene	0.06*	0.00001	< 0.00001	<0.00001	<0.00001
¹ Trans 1,2-dichloroethene	0.06*	0.001	< 0.001	<0.001	< 0.001
¹ Dibromochloromethane	0.15**	0.001	< 0.001	<0.001	< 0.001
¹ Dichloromethane (methylene chloride)	0.004*	0.00002	<0.00002	<0.00002	<0.00002
¹ 1,4-dioxane	0.05**	0.00005	0.00008	<0.00005	<0.00005
² Epichlorohydrin	0.0005*	0.0004	<0.0004	<0.0004	<0.0004
¹ Ethylbenzene	0.3*	0.001	<0.001	<0.001	<0.0004
¹ Hexachlorobutadiene	0.0007*	0.0005	<0.001	<0.001	< 0.001
³ N-Nitrosodimethylamine (NDMA)	0.0001*	0.00001	<0.00001	<0.00001	<0.00001
¹ Plasticisers di(2- ethylhexyl) (Phthalate)	0.009**	0.0005	0.0079	0.014	0.0061
¹ Benzo-(a)-pyrene (PAHs)	0.00001*	0.00001	< 0.00001	<0.00001	< 0.00001
¹ Styrene (Vinylbenzene)	0.03*	0.001	< 0.001	<0.001	< 0.001
¹ Tetrachloroethene	0.05*	0.00002	< 0.00002	<0.00002	< 0.00002
¹ Toluene	0.8*	0.001	< 0.001	<0.001	< 0.001
¹ Trichlorobenzenes	0.03*	0.0005	<0.0005	<0.0005	<0.0005
¹ Trichloroethene	0.02**	0.00001	< 0.00001	<0.00001	< 0.00001
¹ Vinyl chloride	0.0003*	0.00005	< 0.00005	<0.00005	<0.00005
¹ Xylene	0.6*	0.003	< 0.003	<0.003	< 0.003

*Australian Drinking Water Guideline **NZ Drinking Water Guideline

¹ Test extractions were performed by Eurofins | ams. The test extracts were subsequently subcontracted to Eurofins | Environment Testing, NATA Accreditation No. 1261, Report No. 817664-W. In-house Method based on USEPA 522, 8260D & 8270E.

² (Epichlorohydrin) Test extractions were performed by Eurofins | ams. The test extracts were subsequently subcontracted to Eurofins | Eaton, ANSI-ASQ National Accreditation Board/ANAB Accreditation No. AT 1807, Report No. 953732. In-house Method based on USEPA 524.2 Modified.

³Test extractions were performed by Eurofins |ams. The test extracts were subsequently subcontracted to Sydney Water, NATA Accreditation No. 63, Report No. 250121. In-house Method based on USEPA 521.

EVALUATION:

On the basis of these results the samples of this product referred to in this report <u>have complied</u> with the test requirements of AS/NZS 4020:2018, Appearance (Organic Compounds); Appendix D.

5. <u>GROWTH OF AQUATIC MICRO-ORGANISMS:</u>

Methodology: AS/NZS 4020, *Appendix E* and in-house method TMP-191150.

Incubation temperature: $(30 \pm 1)^{\circ}C$

Exposure: 'total immersion'

2

No. of Samples:

Component Name	Testing Exposure	Inoculum (mL)	* MEAN DISSOLVED OXYGEN DIFFERENCE (MDOD) in mg/L
i) O-ring (#6) + Mechnical Seal (#14)	2 of each / 1L	100	<0.01
ii) Ejector	~15,000mm²/ 1L	100	<0.01
Negative Reference Control (glass plate)	~15,000mm²/1L	100	<0.01
Positive Reference Control (paraffin waxed glass plate)	~15,000mm²/ 1L	100	3.81
Test Blank	Blank / 1L	100	5.26 in mg/L as mean dissolved oxygen

NA = Not applicable

* Difference from test blank and represents mean of five readings (weeks 5, 5 ½, 6, 6 ½ & 7) AS/NZS 4020 test sample requirements: Less than or equal to 2.4 for MDOD

EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with

the test requirements of AS/NZS 4020:2018, , Growth of Aquatic Micro-organisms; Appendix E.

6. <u>CYTOTOXIC ACTIVITY:</u>

Methodology: AS/NZS 4020, *Appendix F* and in-house method TMP-191160.

Exposure: 'in-the-product'

Extraction temperature: $(20 \pm 2)^{\circ}C$	Scaling factor: 0.1 (1/10)
Extracts: 24h, 48h & 72h	No. of samples tested: 1

The test sample extracts from the product, as well as the test blank (test water) were used to prepare a nutrient growth medium, subsequently utilised to grow a monkey kidney cell line (VERO ATCC CCL 81).

Microscopic Examination	Test Sample Extract (24h, 48h and 72h)	Test Blank (24h, 48h and 72h)
Cell Morphology:	Satisfactory	Satisfactory
Monolayer: Confluence/Healthy Growth as ~%	100%	100%

Cytotoxicity was detected with Zinc Sulphate, used as a positive control and analysed at 0.4mM of Zinc. Water for Irrigation was included with the test blank as negative control.

AS/NZS 4020 test sample requirements: 1) Non-cytotoxic response- confluent monolayer similar to test blank.

2) Cytotoxic response- irregularly shaped cells & cell death similar to positive control 0.4mM Zinc Sulphate.

EVALUATION:

On the basis of these results the samples of this product referred to in this report <u>have complied</u> with the test requirements of AS/NZS 4020:2018, Cytotoxic Activity; *Appendix F*.

7. <u>MUTAGENIC ACTIVITY:</u>

Methodology: AS/NZS 4020, Appendix G and in-house method TMP-191170.Exposure: 'in-the-product'Extraction temperature: $(20 \pm 2)^{\circ}$ CScaling factor: 0.1 (1/10)Extract: 24hNo. of samples tested: 1

	Salmonella				Salmonella		
	typhimurium		Std		typhimurium		Std
-S9	TA98	Mean	Deviation	+ S9	TA98	Mean	Deviation
-ve c	20			-ve c	25		
	30	26	5		31	29	3
	27				30		
2,4-DNPH	160			2-AA	152		
	153	153	7		160	154	5
	147				151		
T.BLK	27			T.BLK	31		
	31	28	3		23	33	11
	25				44		
Sample	24			Sample	41		
	31	28	4		48	43	4
	30				41		

	Salmonella typhimurium		Std		Salmonella typhimurium		Std
-S9	TA102	Mean	Deviation	+ S9	TA102	Mean	Deviation
-ve c	350			-ve c	402		
	340	331	25		411	406	5
	302				405		
2,4-DNPH	940			Benzo(a)pyrene	902		
	812	856	73		911	907	5
	817				907		
T.BLK	312			T.BLK	400		
	312	321	16		449	430	26
	340				440		
Sample	372			Sample	410		
-	310	333	34		417	409	9
	318				400		

+ S9 = * Metabolic Activator

NA = Not applicable

> = greater than

2,4-DNPH = 2, 4-dinitrophenylhydrazine

2-AA = 2-aminoanthracene

-ve c = Negative Control

AS/NZS 4020 test sample requirements: (The differences in the mean number of revertants between either of the negative controls and test sample extracts should not exceed two standard deviations (for triplicate analysis)).

Positive response: If mean revertants for sample extract outside the range of spontaneous revertants for test strain.

EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with

the test requirements of AS/NZS 4020:2018, Mutagenic Activity; Appendix G.

8. <u>METALS:</u>

-	y: AS/NZS 4020, A h-the-product'	Extraction ter No. of sample	mperature: (Scaling fact	Scaling factor: 0.1 (1/10) No. of samples for II: 1		
Element	AS/NZS 4020: Maximum Allowable Concentration mg/L (ppm)	Limit of Reporting mg/L (ppm)	Test Blank mg/L (ppm)	Sample Extract I mg/L (ppm)	Sample Extract II mg/L (ppm)	FINAL RESULT I mg/L (ppm)	FINAL RESULT II mg/L (ppm)	
Aluminium ¹ (Al)	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Antimony ¹ (Sb)	0.003	0.001	<0.001	0.001	0.001	0.001	0.001	
Arsenic ¹ (As)	0.01	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Barium ¹ (Ba)	0.7	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Boron ¹ (B)	1.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Cadmium ¹ (Cd)	0.002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Chromium ¹ (Cr)	0.05	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper ¹ (Cu)	2	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Iron ¹ (Fe)	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Lead ¹ (Pb)	0.01	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Manganese ¹ (Mn)	0.1	0.005	<0.005	<0.005	0.005	<0.005	0.005	
Mercury ¹ (Hg)	0.001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Molybdenum ¹ (Mo)	0.05	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
Nickel ¹ (Ni)	0.02	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Selenium ¹ (Se)	0.01	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Silver ¹ (Ag)	0.1	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	

Methodology: AS/NZS 4020, *Appendix H* and in-house methods TMP-191180 and TMP-191230.

< = less than mg/L = milligram per litre ¹ = ICPMS – In-house Method Code: LTM-MET 3040 First extract becomes final extract. NA = Not applicable

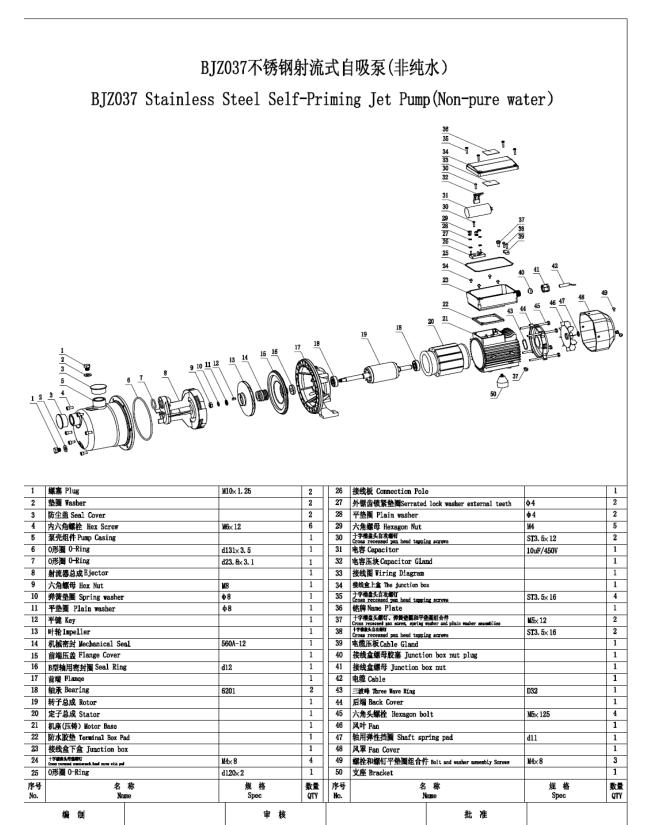
Test extractions were performed by Eurofins | ams. The test extracts were subsequently subcontracted to Eurofins | Environment Testing for assessment (NATA Accreditation No. 1261), Report No. 814995-W. In-house Method based on US EPA Method 3010A & US EPA Method 6020B.

EVALUATION:

On the basis of these results the samples of this product referred to in this report <u>have complied</u> with the test requirements of AS/NZS 4020:2018, Metals; *Appendix H*.

9.I. PHOTO OF TEST SAMPLE:





9.III. METALLURGICAL TEST REPORT:



UNIVERSAL SCIENTIFIC LABORATORY PTY LTD

ABN 76 093 281 764 UNIT 12, 65 MARIGOLD STREET, REVESBY NSW 2212, AUSTRALIA PO BOX 49, MILPERRA NSW 2214, AUSTRALIA TELEPHONE: +61(2) 9771 5592 • FACSIMILE: +61(2) 9771 2482 EMAIL: info@usl.com.au WEBSITE: www.usl.com.au

ANALYSIS REPORT

ORIGIN: AMS LABORATORIES P/L DESCRIPTION: Pump Casing #5. ORDER NO: 7866 ALLOY CODE UNS S30400. Sample No.						COLOUR CODE					REPORT DATE 03 /09/21 LOG BOOK NO: 210316 HEAT NO:
	С	S	Р	Si	Mn	Cr	Ni	Cu	Мо	V	Ti
1	.04	<.01	.02	.50	1.0	18.0	8.1	.44	.11	.06	<.01
						SPEC	IFICATI	ION LIN	MITS		
MAX:	.08	.030	.045	1.00	2.00	20.0	10.5				
MIN:		and a second				18.0	8.0				
						ANALY	TICAL	TECHN	IQUE(S)		
Method	P016	P016	E353	M100	M100	M100	M100	M100	M100	M100	M100
MU						.2	.1				

REMARKS:

WIL NJ21AA7482-1

suffed ss oblighter

This analysis was performed at:

12. 65 Marigold St., Revesby

To the best knowledge of the company the results on this report are correct, however no legal responsibility will be accepted for or arising from their use. Samples were tested as received unless stated otherwise. The report shall not be reproduced unless in full. Measurement ancertainty data are available on request.



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WILLIAM TING AUTHORISING OFFICER