Analytical Report: ABG33830

Eurofins Sample Number: NJ23AA7602-1

Version: 2

Accreditation No: 15773

Accredited for compliance with ISO/IEC 17025 - Testing

WILO AUSTRALIA PTY LTD
2/29 Alexandra Place
Murarrie QLD, 4172
AU

Client Account Number: A00493572L0P

Eurofins Quote Number: NSF6PH23006001

Eurofins Sample Number NJ23AA7602-1

Original Received Date:	10-Jul-2023
Description:	Medana CH1-L 407-T 304 Horizontal Multistage Pump + Pipe from Medana CH1-L 407-T 304 Pump Casing + Medana CH1-L 402-T O-rings/sealing EPDM + Medana CH1-L 602-T mechanical seal SiC + Medana CH1-L 602-T mechanical seal Carbon Graphite Product Range: Medana CH1-L & CH3-LE
Containers Submitted:	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.

NATA accreditation is associated with the testing methods to which the GLP report relates.

Method: AS/NZS 4020, Appendix A and in-house method TMP 191100 & TMP 191101
Analysis Date: 18-Jul-2023

Sample Compliance Assessment

NJ23AA7602-1 meets the requirement(s) for all listed test(s) where specifications were applied.

Analytical Report: ABG33830

Eurofins Sample Number: NJ23AA7602-1

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Supplemental Information

Analytical Report Version 2 Comment: Certificate of Analysis supersedes Interim Report issued on 27/09/2023.

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)

179 Magowar Road, Girraween, NSW 2145 Australia
SampleReceiptAMS@eurofins.com

TGA Licence No: MI-2021-LI-08995-1 APVMA Licence No: 6241
Questions about this report should be directed to your project manager or the general email listed above.

Reviewed and electronically signed for Data Reviewer Approval by
Sandhya Singh, Department Manager -Chemistry & Toxicology
for Eurofins ams Laboratories Pty Ltd, on 26-Oct-2023 10:05:04 UTC+11:00

1. SAMPLE INFORMATION:

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

Cross Reference No.:	Not Applicable
Interim Reporting:	27/09/2023
Batch No./ Manufacturing Date:	Information not Provided
Product Manufacturer:	WILO SE WILOPARK 1, 44263 DORTMUND, GERMANY
Sampling Organisation:	Wilo Australia Pty. Ltd.
General Composition:	Refer to Section 9
Product Use:	In-Line
Temperature Range:	(0 - 95)°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 composite exposure of 1 x system (system = 'in-the-product' exposure of 1 x Medana CH1-L 407-T 304 (~1.85L) + 'total immersion' exposure of 1 x each Pipe from Medana CH1-L 407-T 304 Pump Casing + Medana CH1-L 402-T O-rings/sealing EPDM + Medana CH1-L 602-T mechanical seal SiC + Medana CH1-L 602-T mechanical seal Carbon Graphite / 200mL test water, with the extracts combined to make up 2.05L) with a scaling factor of 0.1 (1/10) applied at (95 ± 2)°C to cover a cold and hot water application up to ~95°C. NOTE: FINAL VOLUME OF DILUTED EXTRACTANT= 20.5L. Refer to Section 9 for product details.
Volume retention:	~1.85L per Medana CH1-L 407-T 304

2. SUMMARY OF RESULTS:

APPENDIX	RESULTS
C - TASTE (CLAUSE 6.2)	PASSED at composite exposure of 1 x system with a scaling factor of 0.1 (1/10) applied*
D – APPEARANCE (COLOUR AND TURBIDITY) (CLAUSE 6.3)	PASSED at composite exposure of 1 x system with a scaling factor of 0.1 (1/10) applied*
D – APPEARANCE (ORGANIC COMPOUNDS) (CLAUSE 6.8)	PASSED at composite exposure of 1 x system 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 composite exposure of 1 x system with a scaling factor of 0.1 (1/10) applied*
G - MUTAGENIC ACTIVITY (CLAUSE 6.6)	PASSED at composite exposure of 1 x system with a scaling factor of 0.1 (1/10) applied*
H - METALS (CLAUSE 6.7)	PASSED at composite exposure of 1 x system with a scaling factor of 0.1 (1/10) applied*

NOTE: *(Refer to Section 1: Testing Procedure for information on System)

Based on completion and evaluation of all tests on 26/10/2023, the product, Medana CH1-L 407-T 304 Horizontal Multistage Pump + Pipe from Medana CH1-L 407-T 304 Pump Casing + Medana CH1-L 402-T O-rings/sealing EPDM + Medana CH1-L 602-T mechanical seal SiC + Medana CH1-L 602-T mechanical seal Carbon Graphite; fully complied with the test requirements of AS/NZS 4020:2018 to cover a cold and hot water application up to ~95°C, at the recommended composite exposure of 1 x system (system = 'in-the-product' exposure of 1 x Medana CH1-L 407-T 304 (~1.85L) + 'total immersion' exposure of 1 x each Pipe from Medana CH1-L 407-T 304 Pump Casing + Medana CH1-L 402-T O-rings/sealing EPDM + Medana CH1-L 602-T mechanical seal SiC + Medana CH1-L 602-T mechanical seal Carbon Graphite / 200mL test water, with the extracts combined to make up 2.05L) with a scaling factor of 0.1 (1/10) applied at (95 ± 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. TASTE:

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

Exposure: composite exposure of 1 x system (Refer to Section 1: Testing Procedure for information on System)

Extraction temperature: (95 ± 2)°C **Scaling factor:** 0.1 (1/10) **Number of Panellists:** 5

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

No. of samples for Chlorinated extract: 1 x system

Description	Extract	Test Water	Taste (+ / –)	Taste Description (No. of tasters)	Test Dilution *(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:
1. 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 have complied 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: composite exposure of 1 x system (Refer to Section 1: Testing Procedure for information on System)

Extraction temperature: (95 ± 2)°C **Scaling factor:** 0.1 (1/10)

No. of samples tested: 1 x system

	a) **TRUE COLOUR:** Hazen Units **(HU)**		b) **TURBIDITY:** Nephelometric Turbidity Units **(NTU)**	
	First 24h	Final 9-day	First 24h	Final 9-day
Sample Extract pH (9-day) = 5.47	NA	<2	NA	0.10
Test Blank pH (9-day) = 6.07	NA	<2	NA	0.06
FINAL RESULT	NA	<2	NA	0.04
AS/NZS 4020 Test sample requirements	**≤5**		**≤0.5**	

< = less than ≤ = less than or equal to NA Not applicable
First extract becomes final extract

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. 1012512-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*.

4.B. APPEARANCE: ORGANIC COMPOUNDS

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) **Extract:** 9-day

No.	Organic Compound	Drinking Water Guideline Maximum Allowable Concentration mg/L (ppm)	Limit of Reporting mg/L (ppm)	Test Blank mg/L (ppm)	Sample Extract I mg/L (ppm)	FINAL RESULT I mg/L (ppm
Volatiles						
1	[1] Benzene	0.001*	0.001	<0.001	<0.001	<0.001
2	[1] Carbon tetrachloride	0.003*	0.001	<0.001	<0.001	<0.001
3	[1] Chlorobenzene	0.3*	0.00001	<0.00001	<0.00001	<0.00001
4	[1] 1,2-dichloroethane	0.003*	0.00001	<0.00001	<0.00001	<0.00001
5	[1] 1,1-dichloroethene	0.03*	0.001	<0.001	<0.001	<0.001
6	[1] Cis 1,2-dichloroethene	0.06*	0.00001	<0.00001	<0.00001	<0.00001
7	[1] Trans 1,2-dichloroethene	0.06*	0.001	<0.001	<0.001	<0.001
8	[1] Dichloromethane (methylene chloride)	0.004*	0.00002	0.00002	<0.00002	<0.00002
9	[1] Ethylbenzene	0.3*	0.001	0.001	0.001	<0.001
10	[1] Styrene (Vinylbenzene)	0.03*	0.001	0.006	0.007	0.001
11	[1] Tetrachloroethene	0.05*	0.00002	<0.00002	<0.00002	<0.00002
12	[1] Toluene	0.8*	0.001	<0.001	<0.001	<0.001
13	[1] Trichlorobenzenes	0.03*	0.0005	<0.005	<0.005	<0.005
14	[1] Trichloroethene	0.02**	0.00001	<0.00001	<0.00001	<0.00001
15	[1] Vinyl chloride	0.0003*	0.00005	<0.00005	<0.00005	<0.00005
16	[1] Xylene	0.6*	0.003	<0.003	<0.003	<0.003
Volatiles (Trihalomethanes)						
17	[1] Bromodichloromethane***	0.06**	0.001	<0.001	<0.001	<0.001
18	[1] Bromoform***	0.1*	0.001	<0.001	<0.001	<0.001
19	[1] Chloroform***	0.25*	0.005	<0.005	<0.005	<0.005
20	[1] Dibromochloromethane***	0.15**	0.001	<0.001	<0.001	<0.001
Chlorinated Hydrocarbons						
21	[1] Hexachlorobutadiene	0.0007*	0.0005	<0.0005	<0.0005	<0.0005
22	[1] Plasticisers di(2-ethylhexyl) (Phthalate)	0.009**	0.0005	<0.005	<0.005	<0.005
23	[1] 2-chlorophenol	0.3*	0.00001	<0.00001	<0.00001	<0.00001
24	[1] 2, 4-dichlorophenol	0.2*	0.00001	<0.00001	<0.00001	<0.00001
25	[1] 2, 4, 6-trichlorophenol	0.02*	0.00002	<0.00002	<0.00002	<0.00002
26	[1] 1,2-dichlorobenzene	1.5*	0.0005	<0.005	<0.005	<0.005
27	[1] 1,4-dichlorobenzene	0.04*	0.0005	<0.005	<0.005	<0.005
28	[1] Benzo-(a)-pyrene (PAHs)	0.00001*	0.00001	<0.00001	<0.00001	<0.00001
Epichlorohydrin by EPA 524.2 Modified						
29	[2] Epichlorohydrin	0.0005 *	0.0004	<0.0004	<0.0004	<0.0004
Nitrosamines						
30	[3] N-Nitrosodimethylamine (NDMA)	0.0001*	0.00001	0.00604	0.000584	<0.00001

*Australian Drinking Water Guideline **NZ Drinking Water Guideline

4.B. APPEARANCE: ORGANIC COMPOUNDS CONT.

[1] Test extractions were performed by Eurofins | ams. The test extracts were subsequently subcontracted to Eurofins | Environment Testing, NATA Accreditation No. 1261, Report No. 1015925-W-V2. 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. 380-58929-1. In-house Method based on USEPA 524.2 Modified.
[3] Test extractions were performed by Eurofins | ams. The test extracts were subsequently subcontracted to Sydney Water, NATA Accreditation No. 63, Report No. 289822. In-house Method based on USEPA 521.

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 (Organic Compounds); Appendix D.

5. GROWTH OF AQUATIC MICRO-ORGANISMS:

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

Incubation temperature: (30 ± 1)°C

Exposure: 'total immersion'

No. of Samples: 1

Component Name	Testing Exposure	Inoculum (mL)	* MEAN DISSOLVED OXYGEN DIFFERENCE (MDOD) in mg/L
i) Mechanical Seal (Part # 4210244) + Mechanical Seal O-ring (Part # 4236276)	1 of each / 0.5L	50	<0.01
ii) O-ring (Part # 4216207) + O-ring (Part # 4006137)	1 of each / 0.5L	50	0.33
iii) Bearing (Part # 4190795) + Shaft Sleeve (Part # 4191007) + Part # 4245853 + Part # 4245854	1 of each / 1L	100	<0.01
Negative Reference Control (glass plate)	~15,000mm^2 / 1L	100	<0.01
Positive Reference Control (paraffin waxed glass plate)	~15,000mm^2 / 1L	100	6.39
Test Blank	Blank / 1L	100	6.13 in mg/L as mean dissolved oxygen

* 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

In-house Method based on APHA 4500 OG.

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. CYTOTOXIC ACTIVITY:

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

Exposure: composite exposure of 1 x system (Refer to Section 1: Testing Procedure for information on System)

Extraction temperature: (95 ± 2)°C **Scaling factor:** 0.1 (1/10)

Extracts: 24h, 48h & 72h **No. of samples tested:** 1 x system

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%

NA = Not applicable
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 have complied with the test requirements of AS/NZS 4020:2018, Cytotoxic Activity; *Appendix F*.

7. MUTAGENIC ACTIVITY:

Methodology: AS/NZS 4020, *Appendix G* and in-house method TMP-191170.
Exposure: composite exposure of 1 x system (Refer to Section 1: Testing Procedure for information on System)
Extraction temperature: (95 ± 2)°C **Scaling factor:** 0.1 (1/10)
Extract: 24h **No. of samples tested:** 1 x system

-S9	*Salmonella typhimurium* TA98	Mean	Std Deviation	+ S9	*Salmonella typhimurium* TA98	Mean	Std Deviation
-ve c	64 66 64	65	1	-ve c	71 79 78	76	4
2,4-DNPH	150 174 158	161	12	2-AA	220 226 224	223	3
T.BLK	72 59 63	65	7	T.BLK	74 77 73	75	2
Sample	59 57 67	61	5	Sample	67 68 54	63	8

-S9	*Salmonella typhimurium* TA102	Mean	Std Deviation	+ S9	*Salmonella typhimurium* TA102	Mean	Std Deviation
-ve c	600 940 464	668	245	-ve c	536 648 640	608	62
2,4-DNPH	1176 1144 1040	1120	71	Benzo(a)pyrene	1056 1216 1056	1109	92
T.BLK	616 648 816	693	107	T.BLK	912 736 888	845	95
Sample	576 640 568	595	39	Sample	720 848 856	808	76

+ S9 = * Metabolic Activator NA = Not applicable > = greater than
2,4-DNPH = 2, 4-dinitrophenylhydrazine 2-AA = 2-aminoanthracene -ve c = Negative Control
TA98 & TA102: Base-pair substitution type

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. METALS:

Methodology: AS/NZS 4020, *Appendix H* and in-house methods TMP-191180 and TMP-191230.
Exposure: composite exposure of 1 x system (Refer to Section 1: Testing Procedure for information on System)
Extraction temperature: (95 ± 2)°C **Scaling factor:** 0.1 (1/10) **Extracts:** 9-day
No. of samples for I: 1 x system **No. of samples for II:** 1 x system

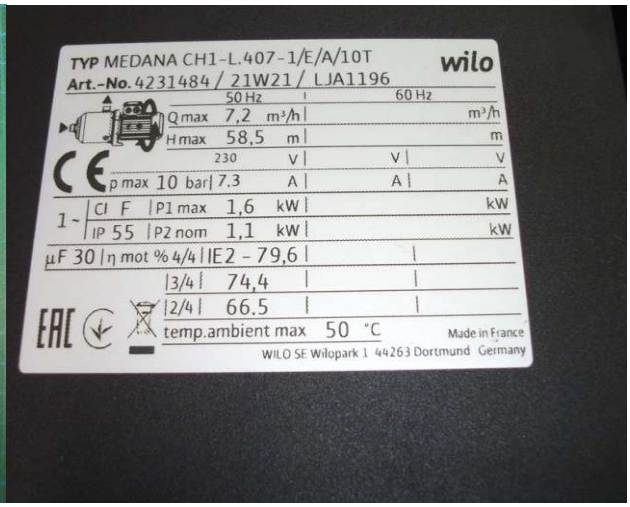
Element	AS/NZS 4020: Maximum Allowable Concentration mg/L (ppm)	Limit of Reporting mg/L (ppm)	Test Blank mg/L (ppm)	Sample Extract I mg/L (ppm)	Sample Extract II mg/L (ppm)	FINAL RESULT I mg/L (ppm)	FINAL RESULT II mg/L (ppm)
Aluminium[1] (Al)	0.2	0.05	0.08	<0.05	<0.05	<0.05	<0.05
Antimony[1] (Sb)	0.003	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	0.25	<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	0.005	0.005	0.005	0.005
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	0.006	0.005	0.006	0.005
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

< = 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 Laboratories Pty. Ltd. The test extracts were subsequently subcontracted to Eurofins | Environment Testing for assessment (NATA Accreditation No. 1261), Report No. 1012512-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 have complied with the test requirements of AS/NZS 4020:2018, Metals; *Appendix H*.

9.I. PHOTOS OF TEST SAMPLE:



9.II. BILL OF MATERIAL (BOM):

Variante	Reference Article	CH1-L BOM	CH3-LE BOM	Désignation (FR)	Désignation (EN)
304	4209970	Yes	Yes	OPTI H : CORPS FINI_207_407	PUMP HOUSING
304	4208757	Yes	Yes	CORPS D'ETAGE AVEC CANAL DE RETOUR_COM2-4	STAGE CASING WITH RETURN GUIDE VANE
304	4208759	Yes	Yes	BAGUE JOINT DE ROUE COM2/4	NECK RING
304	4208766	Yes	Yes	CENTREUR D'ETAGE AVEC CANAL DE RETOUR_COM2-4	DISCHARGE CHAMBER WITH RETURN GUIDE VANE
304	4208762	Yes	Yes	CORPS D'ETAGE SANS CANAL DE RETOUR_COM2-4	STAGE CASING WITHOUT RETURN GUIDE VANE
304	4208759	Yes	Yes	BAGUE JOINT DE ROUE COM2/4	NECK RING
304	4206128	Yes	Yes	ENTRETOISE DE ROUE_COM2-4	SPACER
304	4208770	Yes	Yes	ROUE_COM4	IMPELLER
304	4222621	Yes	Yes	ENTRETOISE CHEMISE D'ARBRE_COM2-4	SLEEVE-SPACER
304	4222623	Yes	Yes	BAGUE D'APPUI ROUE/JONC COM2-4	THRUST RING IMPELLER/RUSH
304	4222622	Yes	Yes	RONDELLE BOUT D'ARBRE Ø12	SHAFT END WASHER
304	4208760	Yes	Yes	CORPS D'ETAGE PALIER AVEC CANAL DE RETOUR_COM2-4	BEARING STAGE CASING WITH RETURN GUIDE VANE
304	4208759	Yes	Yes	BAGUE JOINT DE ROUE COM2/4	NECK RING
304	4190795	Yes	Yes	COUSSINET-D16xD21,5x8	BEARING
304	4191007	Yes	Yes	CHEMISE D'ARBRE Ø12	SHAFT-SLEEVE
304	4209019	Yes	Yes	FOND PORTE GRAIN-ANTI-VORTEX 2/4	RING-COVER OPTI-H+V 5"-304
304	4210242	Yes	Yes	GRAIN MOBILE GARNITURE MECANIQUE Ø12 PN10 : RESSORT+COUPELLE	MECANICAL SEAL spring + cup
304	4210242	Yes	Yes	GRAIN MOBILE GARNITURE MECANIQUE Ø12 PN10 : SOUFFLET	MECANICAL SEAL bellows
304	4210242	Yes	Yes	GRAIN MOBILE GARNITURE MECANIQUE Ø12 PN10 : GRAIN MOBILE	MECANICAL SEAL rotating seal
304	4236275	Yes	Yes	GRAIN FIXE GARNITURE MECANIQUE Ø12 PN10 : GRAIN FIXE	MECANICAL SEAL stationary seal
304	4236275	Yes	Yes	GRAIN FIXE GARNITURE MECANIQUE Ø12 PN10 : JOINT	MECANICAL SEAL ring
304	4006137	Yes	Yes	JOINT TORIQUE Ø13,1xØ2,62 bouchon/corps	O' RING
304	4216207	Yes	Yes	JOINT TORIQUE Ø139,3xØ3,53 corps & tube/lanterne	O' RING
304	4150038	Yes	Yes	1/2 JONC D'ARRET Ø12	1/2 STOP RUSH
304	63502	Yes	Yes	ECROU HM8 Inox - bout d'arbre	SHAFT END NUT
304	4209874	Yes	Yes	BOUCHON 3/8" remplissage/vidange	DRAIN AND FILING PLUG G3/8"
304	4209874	Yes	Yes	BOUCHON 3/8" remplissage/vidange	DRAIN AND FILING PLUG G3/8"

Variante	Reference Article	CH1-L BOM	CH3-LE BOM	Nature matériaux	Code Matiere	Désignation Matiere	Conformité	Code fournisseur	Nom Fournisseur piece
304	4209970	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		261280	WILO SALMSON France
304	4208757	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		261280	WILO SALMSON France
304	4208759	Yes	Yes	Org	PPS_02	FORTRON 1140-L6 SF3001	ACS	511647	THOMAS FRANCE PLASTIC SAS
304	4208766	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		261280	WILO SALMSON France
304	4208762	Yes	Yes	Met	INOX_03	INOX AISI 304L / 1.4307 / X2CrNi18-9 / EN10088/2-95		261280	WILO SALMSON France
304	4208759	Yes	Yes	Org	PPS_02	FORTRON 1140-L6 SF3001	ACS	511647	THOMAS FRANCE PLASTIC SAS
304	4206128	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		379768	BALZARIN SRL
304	4208770	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		261280	WILO SALMSON France
304	4222621	Yes	Yes	Met	INOX_07	INOX AISI 316L / 1.4404 / X2CrNiMo17-12-2		501369	PMT SRL
304	4222623	Yes	Yes	Met	INOX_07	INOX AISI 316L / 1.4404 / X2CrNiMo17-12-2		501369	PMT SRL
304	4222622	Yes	Yes	Met	INOX_07	INOX AISI 316L / 1.4404 / X2CrNiMo17-12-2		501369	PMT SRL
304	4208760	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		261280	WILO SALMSON France
304	4208759	Yes	Yes	Org	PPS_02	FORTRON 1140-L6 SF3001	ACS	511647	THOMAS FRANCE PLASTIC SAS
304	4190795	Yes	Yes	Min	ALU_OXY_06	Hilox 961	WRAS	233920	MORGAN TECHNICAL CERAMICS LTD
304	4191007	Yes	Yes	Min	CAR_TUN_02	C9M		529078	HYPERION MATERIALS & TECHNOLOGIES
304	4209019	Yes	Yes	Met	INOX_03	INOX AISI 304L / 1.4307 / X2CrNi18-9 / EN10088/2-95		362734	STEMMA S.R.L.
304	4210242	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		351092	EAGLE BURGMANN FRANCE SAS
304	4210242	Yes	Yes	Org	EPDM_15	E2 - Timo 3-70	WRAS	351092	EAGLE BURGMANN FRANCE SAS
304	4210242	Yes	Yes	Min	CAR_RES_08	CARBONE + RESINE "B" AG21 P/T	WRAS	351092	EAGLE BURGMANN FRANCE SAS
304	4236275	Yes	Yes	Min	CAR_SIL_02	CARBURE DE SILICIUM Buka22-02 = Hexoloy SA	WRAS	351092	EAGLE BURGMANN FRANCE SAS
304	4236275	Yes	Yes	Org	EPDM_15	E2 - Timo 3-70	WRAS	351092	EAGLE BURGMANN FRANCE SAS
304	4006137	Yes	Yes	Org	EPDM_05	EP1/1/5	ACS	350718	SUPERIOR SEALS LIMITED
304	4216207	Yes	Yes	Org	EPDM_17	EP856	ACS	357172	LE JOINT Français
304	4150038	Yes	Yes	Met	INOX_07	INOX AISI 316L / 1.4404 / X2CrNiMo17-12-2		351327	MDP
304	63502	Yes	Yes	Met	INOX_04	INOX AISI 316 / INOX CLASSE A4.70			WURTH INDUSTRIE France SAS
304	4209874	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		351169	DECARMOR
304	4209874	Yes	Yes	Met	INOX_05	INOX AISI 304 / 1.4301 / X5CrNi18-10		351169	DECARMOR

9.II. PRODUCT SPECIFICATION:

Wilo-Medana CH1-L Single Phase					Price
Type	Old Reference	Nominal Motor	Gross Weight	Mains Connection	Article No.
		P2 KW	KG		
Medana CH1-L 203-1/E/A/10T	MHI 202	0.37	10.6	1~ 230V 50 Hz	4231464
Medana CH1-L 205-1/E/A/10T	MHI 204	0.55	11.6	1~ 230V 50 Hz	4231468
Medana CH1-L 207-1/E/A/10T	MHI 206	0.75	15.9	1~ 230V 50 Hz	4231472
Medana CH1-L 403-1/E/A/10T	MHI 402	0.55	11.2	1~ 230V 50 Hz	4231476
Medana CH1-L 405-1/E/A/10T	MHI 404	0.75	14.4	1~ 230V 50 Hz	4231480
Medana CH1-L 407-1/E/A/10T	MHI 406	1.10	15.9	1~ 230V 50 Hz	4231484
Medana CH1-L 1002-1/E/A/10T	MHI 802	1.10	14.4	1~ 230V 50 Hz	4231494
Type	Old Reference	Nominal Motor Power	Gross Weight	Mains Connection	Article No.
		P2 KW	KG		
Medana CH1-L 203-1/E/E/10T	MHI 202	0.37	10.9	3~ 400V 50 Hz	4231465
Medana CH1-L 205-1/E/E/10T	MHI 204	0.55	13.0	3~ 400V 50 Hz	4231469
Medana CH1-L 207-1/E/E/10T	MHI 206	0.75	13.8	3~ 400V 50 Hz	4231473
Medana CH1-L 403-1/E/E/10T	MHI 402	0.37	10.9	3~ 400V 50 Hz	4231477
Medana CH1-L 405-1/E/E/10T	MHI 404	0.75	13.0	3~ 400V 50 Hz	4231481
Medana CH1-L 407-1/E/E/10T	MHI 406	1.1	15.7	3~ 400V 50 Hz	4231485
Medana CH1-L 1002-1/E/E/10T	MHI 802	1.1	14.1	3~ 400V 50 Hz	4231495
Medana CH1-L 1004-1/E/E/10T	MHI 804	1.85	22.0	3~ 400V 50 Hz	4231498
Medana CH1-L 1005-1/E/E/10T	MHI 805	2.50	22.7	3~ 400V 50 Hz	4231499
Medana CH1-L 1602-1/E/E/10T	MHI 1602	1.5	17.5	3~ 400V 50 Hz	4239730
MedanaCH1-L 1603-1/E/E/10T	MHI 1603	1.85	20.4	3~ 400V 50 Hz	4239783
Medana CH1-L 1604-1/E/E/10T	MHI 1604	2.50	22.4	3~ 400V 50 Hz	4243625

9.III. METALLURGICAL TEST REPORT:

UNIVERSAL SCIENTIFIC LABORATORY PTY LTD
ABN 78 093 281 764
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: WIL NJ23AA7602-1
ORDER NO: 7900
ALLOY CODE UNS S30400 **COLOUR CODE**

REPORT NO: 23/2440
REPORT DATE 07 /08/23
LOG BOOK NO: 230119
HEAT NO:

Sample No. **UNITS** W/W %

	C	S	P	Si	Mn	Cr	Ni	Cu	Mo	V	Ti
#6	.02	.02	.02	.45	1.4	18.0	8.0	.45	.36	.07	.01
SPECIFICATION LIMITS											
MAX:	.08	.030	.045	1.00	2.00	20.0	10.5				
MIN:						18.0	8.0				
ANALYTICAL TECHNIQUE(S)											
Method	P016	P016	E353	M100	M100	M100	M100	M100	M100	M100	M100
MU						.2	.1				

MU= Measurement Uncertainty

REMARKS:
Part#4210333 Connection Coupling.

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 uncertainty data are available on request.

WILLIAM TING
AUTHORISING OFFICER

NATA
Accredited for compliance to ISO/IEC 17025 testing
NATA accredited laboratory No. 492
This report must not be reproduced except in full.

08/08/23

Analytical Report: ABI05029
Eurofins Sample Number: NJ25AA1287-1
Version: 1

Accreditation No: 15773
Accredited for compliance with ISO/IEC 17025 - Testing

WILO France_t_a_WILO SE
80 Bd de l'Industrie - CS 90527
53005 Laval Cedex
FR

Client Account Number: A0161078661OAP
Eurofins Quote Number: NSF63725000501

Eurofins Sample Number NJ25AA1287-1

Original Received Date:	20-Jan-2025
Description:	Medana CH1-L & Medana CH3-LE; 4191007 (Shaft sleeve)
Containers Submitted:	1 Bag(s)

Analysis

AS/NZS 4020:2018 Compliance Testing

Refer to Attachment # 1

Subcontracted Testing (if performed) is not covered under NATA Accreditation 15773.
NATA accreditation is associated with the testing methods to which the GLP report relates.
Method: AS/NZS 4020, Appendix A and in-house method TMP 191100 & TMP 191101
Analysis Date: 18-Feb-2025

Sample Compliance Assessment

NJ25AA1287-1 meets the requirement(s) for all listed test(s) where specifications were applied.

Supplemental Information

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

Contracted Company: Eurofins ams Laboratories (Sydney)

179 Magowar Road, Girraween, NSW 2145 Australia
SampleReceiptAMS@eurofins.com

Accreditation No: 15773

Accredited for compliance with
ISO/IEC 17025 - Testing

1. SAMPLE INFORMATION:

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:	0010307968 / Nov.2024
Product Manufacturer:	Wilo France 80, boulevard de l'Industrie 53000 Laval
Sampling Organisation:	Wilo France
General Composition:	Refer to Section 7
Product Use:	In-Line
Product Range:	Refer to Eurofins ams Batch Reference Number: NJ23AA7602-1
Temperature Range:	(0-95)°C
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, F & H*
Testing procedure:	4191007 – Shaft Sleeve with total surface area of ~1,407mm^2 was submitted for testing by Wilo France. For the testing, 1 x 4191007 – Shaft Sleeve was immersed in 0.25L of test water to give a total testing exposure of ~5,628mm^2 / 1L. Testing is based on the recommended 'total immersion' exposure of 1 x 4191007 – Shaft Sleeve / 0.25L test water (=~5,628mm^2 4191007 – Shaft Sleeve / 1L) at (95 ± 2)°C to cover a cold and hot water application up to ~95°C. Tests for Organic Compounds, Growth of Aquatic Micro-organisms and Mutagenic Activity, *Appendices D, E & G*, were not required due to the product being wholly metallic with no non-metallic wetted component. Refer to Section 7 for product details.
Volume retention:	Not Applicable

2. SUMMARY OF RESULTS:

APPENDIX	RESULTS
C - TASTE (CLAUSE 6.2)	PASSED at 'total immersion' exposure of 1 x 4191007 – Shaft Sleeve / 0.25L test water (=~5,628mm^2 4191007 – Shaft Sleeve / 1L)
D – APPEARANCE (COLOUR AND TURBIDITY) (CLAUSE 6.3)	PASSED at 'total immersion' exposure of 1 x 4191007 – Shaft Sleeve / 0.25L test water (=~5,628mm^2 4191007 – Shaft Sleeve / 1L)
D – APPEARANCE (ORGANIC COMPOUNDS) (CLAUSE 6.8)	Not Required (Wholly metallic product with no non-metallic wetted component)
E - GROWTH OF AQUATIC MICRO-ORGANISMS (CLAUSE 6.4)	Not Required (Wholly metallic product with no non-metallic wetted component)
F - CYTOTOXIC ACTIVITY (CLAUSE 6.5)	PASSED at 'total immersion' exposure with a scaling factor of 0.01 (1/100) applied
G - MUTAGENIC ACTIVITY (CLAUSE 6.6)	Not Required (Wholly metallic product with no non-metallic wetted component)
H - METALS (CLAUSE 6.7)	PASSED at 'total immersion' exposure of 1 x 4191007 – Shaft Sleeve / 0.25L test water (=~5,628mm^2 4191007 – Shaft Sleeve / 1L)

Based on completion and evaluation of all tests on 27/05/2025, the product, 4191007 – Shaft Sleeve; fully complied with the test requirements of AS/NZS 4020:2018 to cover a cold and hot water application up to ~95°C, at the recommended 'total immersion' exposure of 1 x 4191007 – Shaft Sleeve / 0.25L test water (=~5,628mm^2 4191007 – Shaft Sleeve / 1L) at (95 ± 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. TASTE:

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

Exposure: 'total immersion'; 1 x 4191007 – Shaft Sleeve / 0.25L test water
(=~5,628mm^2 4191007 – Shaft Sleeve / 1L)

Extraction temperature: (95 ± 2)°C **Scaling factor:** NA **Number of Panellists:** 5

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

Description	Extract	Test Water	Taste (+ / –)	Taste Description (No. of tasters)	Test Dilution *(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:
1. 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 have complied with the test requirements of AS/NZS 4020:2018, Taste; *Appendix C*.

4. APPEARANCE: COLOUR AND TURBIDITY

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

Exposure: 'total immersion'; 1 x 4191007 – Shaft Sleeve / 0.25L test water
(=~5,628mm^2 4191007 – Shaft Sleeve / 1L)

Extraction temperature: (95 ± 2)°C **Scaling factor:** NA

No. of samples tested: 1

	a) TRUE COLOUR: Hazen Units (HU)		**b) TURBIDITY: Nephelometric Turbidity Units (NTU)**	
	First 24h	Final 9-day	First 24h	Final 9-day
Sample Extract	NA	<2	NA	0.25
Test Blank	NA	5.1	NA	0.19
FINAL RESULT	NA	<2	NA	0.06
AS/NZS 4020 Test sample requirements	**≤5**		**≤0.5**	

< = less than ≤ = less than or equal to NA Not applicable
First extract becomes final extract

For test a), test extractions were performed by Eurofins ams Laboratories Pty. Ltd. The test extracts were subsequently subcontracted to Eurofins │Environment Testing for assessment (NATA Accreditation No. 1261), Report No. 1193993-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*.

5. CYTOTOXIC ACTIVITY:

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

Exposure: 'total immersion'; 1 x 4191007 – Shaft Sleeve / 0.25L test water
(=~5,628mm^2 4191007 – Shaft Sleeve / 1L)

Extraction temperature: (95 ± 2)°C **Scaling factor:** NA

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%

NA = Not applicable

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 have complied with the test requirements of AS/NZS 4020:2018, Cytotoxic Activity; *Appendix F*.

6. METALS:

Methodology: AS/NZS 4020, *Appendix H* and in-house methods TMP-191180 and TMP-191230.
Exposure: 'total immersion'; 1 x 4191007 – Shaft Sleeve / 0.25L test water
(=~5,628mm^2 4191007 – Shaft Sleeve / 1L)
Extraction temperature: (95 ± 2)°C **Scaling factor:** NA **Extracts:** 9-day
No. of samples for I: 1 **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	0.005	0.375	0.369	0.385	<0.005	0.010
Antimony[1] (Sb)	0.003	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Arsenic[1] (As)	0.01	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Barium[1] (Ba)	0.7	0.0005	0.0009	0.0010	0.0055	<0.0005	0.0046
Boron[1] (B)	1.4	0.001	1.21	1.26	1.23	0.05	0.02
Cadmium[1] (Cd)	0.002	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium[1] (Cr)	0.05	0.0002	0.0002	0.0006	0.0004	0.0004	0.0002
Copper[1] (Cu)	2	0.0005	0.0022	0.0012	0.0018	<0.0005	<0.0005
Iron[1] (Fe)	0.3	0.005	0.006	0.005	<0.005	<0.005	<0.005
Lead[1] (Pb)	0.01	0.0001	0.0004	0.0002	0.0003	<0.0001	<0.0001
Manganese[1] (Mn)	0.1	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Mercury[1] (Hg)	0.001	0.0003/ 0.0001	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum[1] (Mo)	0.05	0.0001	0.0001	0.0092	0.0102	0.0091	0.0101
Nickel[1] (Ni)	0.02	0.0002	<0.0002	0.0024	0.0033	0.0024	0.0033
Selenium[1] (Se)	0.01	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silver[1] (Ag)	0.1	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

< = 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 Laboratories Pty. Ltd. The test extracts were subsequently subcontracted to Sydney Water for assessment (NATA Accreditation No. 63), Report No. 321974.
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 have complied with the test requirements of AS/NZS 4020:2018, Metals; *Appendix H*.

7.I. PHOTOS OF TEST SAMPLE:

7.II. BILL OF MATERIAL (BOM):

Part #	Description of Component	Description of Sub-components (assemblies)	Material Composition	Total Surface Area (mm^2)	Wetted Surface Area (mm^2)	Raw Material Manufacturer	Component Manufacturer
4191007	Shaft-sleeve		Tungstene carbide	1407	1407		FILMS