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Result	PASS	Report Date	21-NOV-2018
Customer Name	Optimum Holdings (Pty) Ltd		
Tested To	NSF/ANSI 60		
Description	For Life Solid		
Trade Designation	For Life		
Test Type	Qualification		
Job Number	J-00308666		
Project Number	W0467208		
Project Manager	Isabelle Tchen		

This report documents the testing of the referenced product to the requirements of NSF/ANSI Standard 60 (Drinking Water Treatment Chemicals - Health Effects). This standard establishes minimum requirements for chemicals, the chemical contaminants, and impurities that are added to drinking water from drinking water treatment chemicals. Contaminants produced as by-products through reaction of the treatment chemical with a constituent of the drinking water are not covered by this Standard. Reference the "About the Standard" section at the end of this report for additional information about NSF/ANSI Standard 60 and the products covered under this Standard.

Thank you for having your product tested by NSF International.

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization

Amanda Phelka - Director, Toxicology Services

Date

21-NOV-2018



General Information

Standard: NSF/ANSI 60
Chemical Name: Miscellaneous treatment applications
Physical Description of Sample: Solid
Tested DCC Number: DA09645
Trade Designation/Model Number: For Life

Sample Id: **S-0001543909**
Description: For Life | Solid
Sampled Date: 13-Nov-2018
Received Date: 07-Nov-2018

Tox Normalization Information:		Lab Normalization Information:	
Calculated NF	0.0961	Date exposure completed	13-NOV-2018
Preparation method used	K	Final volume of solution	2 L
MUL	80 mg/L	Mass of material used	1665 mg
Compound Reference Key:	SPAC		

Normalization Calculation:

Normalized Result = Test Result (ug/L) * NF Where NF = MUL (mg/L) * $\frac{\text{Final Volume Of Solution (L)}}{\text{Mass of Material Used (mg)}}$

- MUL = Maximum Use Level;
- Mass of Material Used = The mass of sample analyzed in the laboratory;
- Final Volume of Solution = The volume of water used to dilute the sample;
- An additional factor may be used to adjust the analytical result to field use conditions to account for product carryover, flushing, or other assumptions stipulated with the use of the product. If an additional factor is used, it is included in the information above.

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab							
Gross Alpha and Beta Radioactivity in Drinking Water (Ref: EPA 900.0)							
P1 Gross Alpha	pCi/L	ND(3)	ND(3)	ND(3)	ND(0.3)		
P1 Gross Beta	pCi/L	ND(4)	ND(4)	ND(4)	ND(0.4)		
Alpha Variance +/-	pCi/L	2	2	0			
Beta Variance +/-	pCi/L	1	1	ND(0)			
Date Analyzed	19-NOV-2018						
Metals II in water by ICPMS (Ref: EPA 200.8)							
Arsenic	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	1	Pass
Barium	ug/L	70	3	67	6.4	200	Pass
Beryllium	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.4	Pass
Cadmium	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.5	Pass
Chromium	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)		
Copper	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	130	Pass
Mercury	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.2	Pass
Lead	ug/L	1.4	ND(0.5)	1.4	0.13	0.5	Pass
Antimony	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.6	Pass
Selenium	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	5	Pass
Thallium	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.2	Pass
BASE/NEUTRAL/ACID EPA METHOD 625 Scan for Tentatively Identified Compounds							



Sample Id: **S-0001543909**

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
p-Toluenesulfonamide	ug/L	100		100	10	10	Pass
Scan Control Complete		TRUE					
Semivolatle Compounds, Base/Neutral/Acid Target 625, Data Workup							
Pyridine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Nitrosodimethylamine (N-)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
N-Nitrosomethylethylamine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.002	Pass
5-Methyl-2-hexanone (MIAK)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	6	Pass
1-Methoxy-2-propanol acetate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	70	Pass
2-Heptanone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	50	Pass
Cyclohexanone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Nitrosodiethylamine (N-)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Isobutylisobutyrate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
Aniline	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Phenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Di(chloroethyl) ether	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.03	Pass
2-Chlorophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	3	Pass
2,3-Benzofuran	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
1,3-Dichlorobenzene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	60	Pass
1,4-Dichlorobenzene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	7.5	Pass
3-Cyclohexene-1-carbonitrile	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
2-Ethylhexanol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	80	Pass
Benzyl alcohol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	3000	Pass
1,2-Dichlorobenzene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	60	Pass
bis(2-Chloroisopropyl)ether	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
2-Methylphenol (o-Cresol)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	40	Pass
N-Methylaniline	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
Acetophenone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
N-Nitrosodi-n-propylamine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.005	Pass
N-Nitrosopyrrolidine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.02	Pass
3- and 4-Methylphenol (m&p-Cresol)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Hexachloroethane	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.9	Pass
2-Phenyl-2-propanol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
N-Nitrosomorpholine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.004	Pass
Nitrobenzene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	1	Pass
2,6-Dimethylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.4	Pass
N-Vinylpyrrolidinone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
N-Nitrosopiperidine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.005	Pass
Triethylphosphate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		



Sample Id: **S-0001543909**

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
Isophorone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	40	Pass
2-Nitrophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
2,4-Dimethylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
bis(2-Chloroethoxy)methane	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
2,4-Dichlorophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	5	Pass
Trichlorobenzene (1,2,4-)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	7	Pass
Naphthalene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	10	Pass
4-Chloroaniline	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
1,1,3,3,-Tetramethyl-2-thiourea	ug/L	ND(4)	ND(4)	ND(4)	ND(0.4)	1	Pass
Hexachlorobutadiene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.4	Pass
Benzothiazole	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	50	Pass
N-Nitrosodi-n-butylamine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.006	Pass
4-Chloro-3-methylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
p-tert-Butylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	50	Pass
2-Ethylhexyl glycidyl ether	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
2,6-Di-t-butyl-4-methylphenol(BHT)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	10	Pass
Methylnaphthalene, 2-	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	3	Pass
Cyclododecane	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
2,4,5-Trichlorophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	70	Pass
2,4,6-trichlorophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
1(3H)-Isobenzofuranone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
2-Chloronaphthalene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
2-Nitroaniline	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
1,1'-(1,3-Phenylene)bis ethanone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	10	Pass
2,6-Di-tert-butylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	50	Pass
Dimethylphthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	50	Pass
1,1'-(1,4-Phenylene)bis ethanone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
Acenaphthylene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
Benzenedimethanol, a,a,a',a'-tetramethyl-1,3-	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	5	Pass
2,6-Dinitrotoluene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
2,4-Dinitrotoluene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Benzenedimethanol, a,a,a',a'-Tetramethyl-1,4-	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	5	Pass
2,4-Di-tert-butylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	10	Pass
Dimethyl terephthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	300	Pass
Acenaphthene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Dibenzofuran	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Ethyl-4-ethoxybenzoate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	50	Pass
4-Nitrophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	6	Pass



Sample Id: **S-0001543909**

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
Cyclododecanone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Diethyl Phthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	600	Pass
p-tert-Octylphenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	10	Pass
Fluorene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	30	Pass
4-Chlorophenylphenylether	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
3-Nitroaniline	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
4-Nitroaniline	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	4	Pass
Nitrosodiphenylamine (N-)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Azobenzene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
4-Bromophenylphenylether	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Hexachlorobenzene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Pentachlorophenol	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Phenanthrene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Anthracene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Diisobutyl phthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	80	Pass
Dibutyl phthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	70	Pass
Diphenyl sulfone	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.3	Pass
Hydroxymethylphenylbenzotriazole	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Fluoranthene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Pyrene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Butyl benzyl phthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	100	Pass
Di(2-ethylhexyl)adipate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
3,3-Dichlorobenzidine	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Benzo(a)anthracene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Di(2-ethylhexyl)phthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Chrysene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.02	Pass
Di-n-octylphthalate	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Benzo(b)fluoranthene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)	0.02	Pass
Benzo(k)fluoranthene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Benzo(a)Pyrene (PAH)	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Dibenzo(a,h)anthracene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Indeno(1,2,3-cd)pyrene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
Benzo(g,h,i)perylene	ug/L	ND(2)	ND(2)	ND(2)	ND(0.2)		
1 - If the acceptance criteria is blank and the evaluation status is "Fail", then the criteria used will be noted on the letter accompanying these results.							



Common Terms and Acronyms Used:

- Sample..... Test result on the submitted product sample after prepared or exposed in accordance with the standard.
- Control..... Test result on a laboratory blank sample analyzed in parallel with the sample.
- Result..... Sample test result minus the Control test result.
- Normalized Result... Result normalized in accordance with the test standard to reflect potential at-the-tap concentrations
- ND()..... Result is below the detection level of the analytical procedure as identified in the parenthesis.
- DCC Number..... NSF document control code of the registered formulation of the product tested
- ug/L..... Microgram per liter = 0.001 milligram per liter (mg/L)
- SPAC..... Acceptance criteria of the standard (Single Product Allowable Concentration)

References to Testing Procedures:

NSF Reference	Parameter / Test Description
C0842	Gross Alpha and Beta Radioactivity in Drinking Water (Ref: EPA 900.0)
C1183	Metals II in water by ICPMS (Ref: EPA 200.8)
C2023	BASE/NEUTRAL/ACID EPA METHOD 625 Scan for Tentatively Identified Compounds (TICs)
C2024	Semivolatile Compounds, Base/Neutral/Acid Target 625, Data Workup

Test descriptions preceded by an asterisk "*" indicate that testing has been performed per NSF International requirements but is not within its scope of accreditation.

Testing Laboratories:

	Id	Address
All work performed at: →	NSF_AA	NSF International 789 N. Dixboro Road Ann Arbor MI 48105



About the Standard:

NSF/ANSI Standard 60: Drinking Water Treatment Chemicals - Health Effects

NSF/ANSI 60 establishes minimum health effects requirements for the chemicals, the chemical contaminants, and the impurities that are directly added to drinking water from drinking water treatment chemicals. It does not establish performance or taste and odor requirements. The standard contains requirements for chemicals that are directly added to water and are intended to be present in the finished water as well as other chemical products that are added to water but are not intended to be present in the finished water. Chemicals covered by this Standard include, but are not limited to, coagulation and flocculation chemicals, softening, precipitation, sequestering, pH adjustment, and corrosion/scale control chemicals, disinfection and oxidation chemicals, miscellaneous treatment chemicals, and miscellaneous water supply chemicals.

The testing performed to this standard is done to estimate the level of contaminants or impurities added to drinking water when the chemical is used at the "Maximum Use Level" under attestation. Prior to testing, information is obtained on the formulation and sources of supply used to manufacture the chemical. This information is then reviewed along with the minimum requirements of the standard to establish the potential contaminants of concern. A representative sample of chemical is obtained for testing. The chemical sample is prepared for analysis through specific methods established in the standard based on the type of chemical and then is analyzed for potential contaminants determined during the formulation review. The laboratory results are normalized to represent potential at-the-tap values and then compared to the "single product allowable concentration" (SPAC) established by the standard. The product is found in compliance with the standard if the normalized value is less than or equal to the allowable concentration.