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TEST REPORT

Report Number: 2418-17002

Report Issued March 16, 2017 **Project No.** 27965

Client: Tipa Tech Ltd.
Kibuts Yasur D.N.
Misgav, 20150, Israel
Contact: Baruch Ziser

Source of Samples: The samples were delivered to IAPMO R&T Lab by Tipa Tech Ltd. on January 23, 2017 and were received in good condition.

Date of Evaluation: February 14, 2017 to March 16, 2017

Sample Description: Model B-001 Whole House Water Filter

Scope of Testing: The purpose of this testing was to determine if the Model B-001 Whole House Water Filter the requirements of NSF/ANSI 42- 2015, Sections 4

CONCLUSION: **Samples tested of the Tipa Tech Ltd. Model B-001 Whole House Water Filter COMPLIED with NSF/ANSI 42 – 2015 Section 4. Please refer page 2 to 9 for more detail information.**

By our signatures below we certify that all the testing and sample preparation for this report was performed under continuous, direct supervision of IAPMO R&T Lab.

Tested by,

Lin Nguyen, Senior Chemist

Reviewed by,

Michael N. Briggs, Manager, Analytical Lab

Primary Standards: NSF/ANSI 42-2015, Section 4

Section 4: Materials:

Sample Preparation:

Samples was washed according to the manufacture instruction. Four (4) samples were exposed to exposure water.

Conditioning and Exposure

Conditioning and exposure were conducted as described in NSF/ANSI 42-2015, section 4.2.3. The samples were exposed to extraction water for conditioning and exposure for metal and organic evaluations.

Normalization

Normalized Concentration = Lab Concentration

Extraction Water

The extraction water was prepared as described in NSF/ANSI 42-2015, section 4.2.2

Collection/preservation of extraction water

Immediately following the exposure period, extraction waters collected for analysis were poured into previously prepared sample containers for storage until analysis, as specified in annex B, Section B.6 and Table B8.

Extracts for metal analysis were acidified with nitric acid as specified in EPA protocols.

Samples for volatile organic contaminants were preserved with sodium thiosulfate and HCl as outlined in EPA 524.2 protocol.

Samples for semi-volatile organic contaminants were preserved with sodium thiosulfate and sulfuric acid as described in EPA 525.2 and SW-846 protocol.

Evaluation of Contaminant Concentrations

Metal and organic contaminants, were determined as single point determinations. The normalized results were compared to MCL, TAC, or action level as applicable.

Analytical methodology

Metal determinations:	EPA 200.8, Metal determinations by iCAPQ ICP/MS
Volatile organic contaminants:	EPA 524.2, Volatile organic determinations by Purge and Trap, GCMS.
Semi-volatile contaminants:	EPA 525.2 SW-846 8270, Semi-volatile organic determinations by liquid/liquid extraction followed by GC/MS determinations.

Analytical Instrumentation

Metal determinations:	Thermo Electron iCAP Q ICP/MS
Volatile organic determinations:	Thermo Electron DSQII GC/MS with Tekmar Velocity Purge and Trap system.
Semi-volatile organic determinations:	Thermo Electron DSQII GC/MS with AS2000 auto sampler

Discussion:

The materials used in the system have been review by the TOX. Attach of the report has been appended to the attachment.

Nitrosamine contaminant should be monitored if N1510-2-240 is sulfur cure

To verify if the system will comply with NSF-ANSI-42 standard, regulated metals and organic compounds have been monitored on appropriate water system.

The normalized metals concentrations of all the analytes are well below the MCL, TAC or AL in both exposure waters.

VOCs were measured by GC/MS. Carbon disulfide, benzene, dibromochloromethane, tribromomethane were the only target analytes were observed in the resulting volatile GC/MS at normalized concentrations well below the MCL, TAC or AL set in the standard. No non-target analytes were observed in the resulting volatile GC/MS chromatogram.

Semi-volatile organic compounds were monitored by GC/MS. a,a,a'a'-Tetramethyl-1,4-benzenedimethanol, a,a,a'a'-Tetramethyl-1,3-benzenedimethanol, benzothizole, dibutoxyethoxyethyl_adipate, N-nitrosodiphenylamine, solfolane and tributylacetylcitrate were the analytes were observed in the resulting of semi-volatile GC/MS chromatogram. The estimate normalized concentrations of these compound well below MCL, or AL set in the standard. Four (4) non target analytes were observed in the resulting of semi-volatile GC/MS chromatogram. Only two (2) were identified as tribromomethane and 2-mercaptobenzothiazole with the estimate normalized concentration well below the MCL, or AL set in the standard.

Metal Evaluation:

Metal	MCL (ug/L)	Analytical Data (ug/L)	Static Normalized (ug/L)	Test Methods
Aluminum	9000	5.240	5.240	EPA 200.8
Antimony	6	0.107	0.107	EPA 200.8
Arsenic	10	ND (< 0.092)	ND (< 0.092)	EPA 200.8
Barium	2000	0.605	0.605	EPA 200.8
Beryllium	4	ND (< 0.209)	ND (< 0.209)	EPA 200.8
Bismuth	100	ND (< 0.050)	ND (< 0.050)	EPA 200.8
Cadmium	5	ND (< 0.084)	ND (< 0.084)	EPA 200.8
Chromium	20	0.636	0.636	EPA 200.8
Copper	1300 (AL)	ND (< 0.304)	ND (< 0.304)	EPA 200.8
manganese	300 (TAC)	0.828	0.828	EPA 200.8
Mercury	2	ND (< 0.111)	ND (< 0.111)	EPA 200.8
Nickel	100 (TAC)	5.272	5.272	EPA 200.8
Selenium	50	ND (< 0.435)	ND (< 0.435)	EPA 200.8
Strontium	4000	0.238	0.238	EPA 200.8
Thallium	2	ND (< 0.027)	ND (< 0.027)	EPA 200.8
Tin	4000	ND (< 0.110)	ND (< 0.110)	EPA 200.8
Zinc	3000 (TAC)	101.822	101.822	EPA 200.8
Lead	5 (AL)	0.151	0.151	EPA 200.8

Test Result of Organics:

Target Analyte	Test Method	Result	Normalized
Volatile Organic Compounds:	**EPA 524.2**	**(ug/L)**	**Result (ug/L)**
Difluorodichloromethane		ND < 0.4	ND < 0.4000
Chloromethane		ND < 0.2	ND < 0.2000
Vinylchloride		ND < 0.2	ND < 0.2000
1,3-Butadiene		ND < 0.4	ND < 0.4000
Bromomethane		ND < 0.3	ND < 0.3000
Chloroethane		ND < 2.0	ND < 2.0000
Trichlorofluoromethane		ND < 0.6	ND < 0.6000
1,1-Dichloro-1-fluorethane		ND < 0.5	ND < 0.5000
1,1-Dichloroethene		ND < 0.5	ND < 0.5000
Acetone		ND < 5.0	ND < 5.0000
Carbon_disulfide		9.68	9.680
Dichloromethane		ND < 0.2	ND < 0.2000
MtBE		ND < 0.5	ND < 0.5000
t-Butanol		ND < 6.0	ND < 6.0000
trans-1,2-Dichloroethene		ND < 0.4	ND < 0.4000
Acrylonitrile		ND < 0.5	ND < 0.5000
1,1-Dichloroethane		ND < 0.4	ND < 0.4000
Vinylacetate		ND < 0.5	ND < 0.5000
Chloroprene		ND < 0.5	ND < 0.5000
2,2-Dichloropropane		ND < 0.4	ND < 0.4000
cis-1,2-Dichloroethene		ND < 0.5	ND < 0.5000
2-Butanone		ND < 23.0	ND < 23.0000
Methyl_acrylate		ND < 1.0	ND < 1.0000
Bromochloromethane		ND < 0.7	ND < 0.7000
Tetrahydrofuran		ND < 20.0	ND < 20.0000
Chloroform		ND < 0.1	ND < 0.1000
1,1,1-Trichloroethane		ND < 0.5	ND < 0.5000
Carbon_tetrachloride		ND < 0.3	ND < 0.3000
1,1-Dichloropropene		ND < 0.3	ND < 0.3000
Benzene		1.15	1.150
1,2-Dichloroethane		ND < 0.4	ND < 0.4000
Isopropylacetate		ND < 0.7	ND < 0.7000
Trichloroethene		ND < 0.3	ND < 0.3000
Ethyl_acrylate		ND < 0.1	ND < 0.1000
1,2-Dichloropropane		ND < 0.2	ND < 0.2000
Methylmethacrylate		ND < 0.2	ND < 0.2000
Dibromomethane		ND < 0.3	ND < 0.3000
Bromodichloromethane		ND < 0.1	ND < 0.1000
cis-1,3-Dichloropropene		ND < 0.1	ND < 0.1000
4-Methyl-2-pentanone		ND < 0.3	ND < 0.1000
Toluene		ND < 0.3	ND < 0.3000

Test Result of Organics:

Target Analyte	Test Method	Normalized
Volatile Organic Compounds:	**EPA 524.2**	**Result (ug/L)**
Ethylmethacrylate	ND < 0.3	ND < 0.3000
trans-1,3-Dichloropropene	ND < 0.1	ND < 0.1000
1,1,2-Trichloroethane	ND < 0.2	ND < 0.2000
Tetrachloroethene	ND < 0.4	ND < 0.4000
1,3-Dichloropropane	ND < 0.3	ND < 0.3000
Butylacetate	ND < 0.2	ND < 0.2000
Dibromochloromethane	2.13	2.130
1,2-Dibromoethane	ND < 0.2	ND < 0.2000
Chlorobenzene	ND < 0.3	ND < 0.3000
Ethylbenzene	ND < 0.4	ND < 0.4000
1,1,1,2-Tetrachloroethane	ND < 0.3	ND < 0.3000
mp_Xylenes	ND < 0.3	ND < 0.3000
n-Butyl_acrylate	ND < 0.3	ND < 0.3000
o-Xylene	ND < 0.3	ND < 0.3000
Styrene	ND < 0.3	ND < 0.3000
Tribromomethane	4.39	4.390
Isopropylbenzene	ND < 0.3	ND < 0.3000
cyclohexaneone	ND < 20.0	ND < 20.0000
1,1,2,2-Tetrachloroethane	ND < 0.3	ND < 0.3000
Propylbenzene	ND < 0.3	ND < 0.3000
Bromobenzene	ND < 0.3	ND < 0.3000
1,2,3-Trichloropropane	ND < 0.4	ND < 0.4000
1,3,5-Trimethylbenzene	ND < 0.3	ND < 0.3000
2-Chlorotoluene	ND < 0.4	ND < 0.4000
4-Chlorotoluene	ND < 0.3	ND < 0.3000
t-Butylbenzene	ND < 0.4	ND < 0.4000
1,2,4-Trimethylbenzene	ND < 0.4	ND < 0.4000
sec-Butylbenzene	ND < 0.3	ND < 0.3000
bis(2-chloroethyl)ether	ND < 0.3	ND < 0.3000
p-Isopropyltoluen	ND < 0.4	ND < 0.4000
1,3-Dichlorobenzene	ND < 0.4	ND < 0.4000
2-Ethyl-1-hexanol	ND < 4.0	ND < 4.0000
1,4-Dichlorobenzene	ND < 0.3	ND < 0.3000
n-Butylbenzene	ND < 0.3	ND < 0.3000
1,2-Dichlorobenzene	ND < 0.4	ND < 0.4000
1,2-Dibromo-3-chloropropane	ND < 0.2	ND < 0.2000
1,2,4-Trichlorobenzene	ND < 0.2	ND < 0.2000
Hexachlorobutadiene	ND < 0.6	ND < 0.6000
Naphthalene	ND < 0.3	ND < 0.3000
1,2,3-Trichlorobenzene	ND < 0.4	ND < 0.4000

No non-target analytes observed in the chromatogram

Test Result of Organics :

Target Analyte	**EPA 8270/EPA 625**	**Result**	**Normalized**
Semi-Volatile Organics	C.A.S. Number	**(ug/L)**	**Result (ug/L)**
1,1-(1,4-Phenylene)bis-ethanone	1009-61-6	ND < 0.50	ND < 0.5000
1,2,3-Trioxane	110-88-3	ND < 0.50	ND < 0.5000
1,2,4-Trichlorobenzene	120-82-1	ND < 0.50	ND < 0.5000
1,3-Dichlorobenzene	541-73-1	ND < 0.50	ND < 0.5000
1,4-Dichlorobenzene	106-46-7	ND < 0.50	ND < 0.5000
1,2-Dichlorobenzene	95-50-1	ND < 0.50	ND < 0.5000
2,3,4,6-Tetrachlorophenol	58-90-2	ND < 1.20	ND < 1.2000
2,4,5-Trichlorophenol	95-95-4	ND < 1.00	ND < 1.0000
2,4,6-Trichlorophenol	88-06-2	ND < 1.00	ND < 1.0000
2,4 Dichlorobenzoic_acid	50-84-0	ND < 0.50	ND < 0.5000
2,4-Dichlorophenol	120-83-2	ND < 0.50	ND < 0.5000
2,4-Dimethylphenol	105-67-9	ND < 0.50	ND < 0.5000
2,4-Dinitrophenol	51-28-5	ND < 0.50	ND < 0.5000
2,4-Dinitrotoluene	121-14-2	ND < 0.50	ND < 0.5000
2,6-Dichlorophenol	87-65-0	ND < 0.50	ND < 0.5000
2,6-Dinitrotoluene	606-20-2	ND < 0.50	ND < 0.5000
2,6 Di-tert-butyl-4-methoxyphenol	489-01-0	ND < 0.50	ND < 0.5000
2-Chlorophenol	95-57-8	ND < 0.50	ND < 0.5000
2-Chloronaphthalene	91-58-7	ND < 0.50	ND < 0.5000
2-Ethylhexylmethacrylate	688-84-6	ND < 10.00	ND < 10.0000
2-Methylnaphthalene	91-57-6	ND < 0.50	ND < 0.5000
2-Methylphenol	95-48-7	ND < 1.00	ND < 1.0000
2-Nitrophenol	88-75-5	ND < 1.00	ND < 1.0000
2-Phenyl 2-Propanol	617-94-7	ND < 0.50	ND < 0.5000
3,3'-Dichlorobenzidine	91-94-1	ND < 0.50	ND < 0.5000
3-and 4-Methylphenol	108-39-4, 106-44-5	ND < 0.50	ND < 0.5000
4,6-Dinitro-2-methylphenol	534-52-1	ND < 10.00	ND < 10.0000
4-Bromophenylphenylether	101-55-3	ND < 0.50	ND < 0.5000
4-Chloro-3-methylphenol	59-50-7	ND < 0.50	ND < 0.5000
4-Chlorophenyl phenyl ether	7005-72-3	ND < 0.50	ND < 0.5000
4-Nitrophenol	100-02-7	ND < 0.50	ND < 0.5000
4-tert-butylphenol	98-54-4	ND < 0.50	ND < 0.5000
a,a,a'a'-Tetramethyl-1,4-benzenedimethanol	2948-46-1	0.90	0.9000
a,a,a'a'-Tetramethyl-1,3-benzenedimethanol	1999-85-5	0.80	0.8000
Acenaphthene	83-32-9	ND < 0.50	ND < 0.5000
Acenaphthylene	208-96-8	ND < 0.20	ND < 0.5000
Acetophenone	98-86-2	ND < 0.50	ND < 0.5000
Anthracene	120-12-7	ND < 0.20	ND < 0.2000
Azobenzene	103-33-3	ND < 0.50	ND < 0.5000
Benzo(a)anthracene	56-55-3	ND < 0.50	ND < 0.2000

Test Result of Organics:

Target Analyte	**EPA 8270/EPA 625**	**Result**	**Normalized**
Semi-Volatile Organics	C.A.S.Number	**(ug/L)**	**Result (ug/L)**
Benzo(a)pyrene	50-32-8	ND < 0.20	ND < 0.2000
Benzo(b)fluoranthene	205-99-2	ND < 0.50	ND < 0.5000
Benzo(ghi)perylene	191-24-2	ND < 0.50	ND < 0.5000
Benzo(k)fluorantheene	207-08-9	ND < 0.50	ND < 0.5000
Benzoic acid	65-85-0	ND < 0.50	ND < 0.5000
Benzothiazole	95-16-9	7.40	7.4000
Benzyl alcohol	100-51-6	ND < 0.50	ND < 0.5000
Benzylbutylphthalate	85-68-7	ND < 0.50	ND < 0.5000
Bis(2-Ethylhexyl)adipate	103-23-1	ND < 0.50	ND < 0.5000
bis-2-Chloroethoxy methane	111-91-1	ND < 0.50	ND < 0.5000
bis-2-Chloroehtyl ether	111-44-4	ND < 0.50	ND < 0.5000
bis-2-Chloroisopropyl ether	108-60-1	ND < 0.50	ND < 0.5000
bis-2-ethylhexyl phthalate	117-81-7	ND < 0.50	ND < 0.5000
Bisphenol A	80-05-7	2.90	2.900
Caprolactam	105-60-2	2620.00	2620.000
Carbaryl	63-25-2	ND < 0.50	ND < 0.5000
Carbazole	86-74-8	ND < 0.50	ND < 0.5000
Chrysene	218-01-9	ND < 0.50	ND < 0.5000
Dibenz(ah)anthracene	53-70-3	ND < 0.50	ND < 0.5000
Dibutoxyethoxyethyl_adipate	141-17-3	66.60	66.600
Diethylphthalate	84-66-2	ND < 0.50	ND < 0.5000
Dimethylphthalate	131-11-3	ND < 0.50	ND < 0.5000
Di-n-butylphthalate	84-74-2	ND < 0.50	ND < 0.5000
Di-n-octylphthalate	117-84-0	ND < 0.50	ND < 0.5000
Dinoseb	88-85-7	ND < 0.50	ND < 0.5000
Fluoranthene	206-44-0	ND < 0.20	ND < 0.2000
Fluorene	86-73-7	ND < 0.50	ND < 0.5000
Hexachlorobenzene	118-74-1	ND < 0.50	ND < 0.5000
Hexachlorobutadiene	87-68-3	ND < 0.50	ND < 0.5000
Hexachlorocyclopentadiene	77-47-4	ND < 0.50	ND < 0.5000
Hexachloroethane	67-72-1	ND < 0.50	ND < 0.5000
Indeno(1,2,3-cd)pyrene	193-39-5	ND < 0.50	ND < 0.5000
Isophorone	78-58-1	ND < 0.50	ND < 0.5000
Methyl 4-methoxysalicylate	5446-02-6	ND < 0.50	ND < 0.5000
Naphthalene	91-20-3	ND < 0.50	ND < 0.5000
Nitrobenzene	98-95-3	ND < 0.50	ND < 0.5000
N-Nitrosodimethylamine	62-75-9	ND < 0.50	ND < 0.5000
N-Nitrosodi-n-butylamine	924-16-3	ND < 0.50	ND < 0.5000
N-Nitroso-di-n-propylamine	86-30-6	ND < 0.50	ND < 0.5000
N-Nitrosodiphenylamine	86-30-6	2.10	2.100
Pentachlorophenol	87-86-5	ND < 0.50	ND < 0.5000
Phenanthrene	85-01-8	ND < 0.30	ND < 0.3000
Phenol	108-95-2	0.50	0.500
Phenyl sufone	127-63-9	ND < 0.50	ND < 0.5000
Pyrene	129-00-0	ND < 0.50	ND < 0.5000
Solfolane	126-33-0	2.20	2.200
Tributylacetylcitrate	77-90-7	3.40	3.400

Semi-Volatile TIC:

RT	CAS	ID	Estimated Concentration	Normalized Concentration
6.56	75-25-2	Tribromomethane	0.35	0.348
8.97		Unknown	3.52	3.519
13.13	149-30-4	2-Mercaptobenzothiazole	3.36	3.361
13.28		Unknown	2.05	2.046

RT 8.97: Apparent MW 125. The probability of fit between the spectrum of the compound observed at 8.97 and the spectrum of the best fit chemical in the reference library is 40.39 which is less than the threshold value above which the ID is considered acceptable of 70%. The forward and reverse fits are below 900 showing differences in the 2 spectra. The base or most abundant mass fragment is different for the spectrum of the compound at 8.97 than for the spectrum of the best fit compound in the reference library. The spectrum of the best fit compound in the reference library contains mass fragments not observed in the spectrum of the compound at 8.97. The characteristic isotopic abundance for chlorine and bromine are not observed in the spectrum of the compound at 8.97. This compound is not identified.

RT 13.28: Apparent MW 253 The probability of fit between the spectrum of the compound observed at 13.28 and the spectrum of the best fit chemical in the reference library is 14.61 which is less than the threshold value above which the ID is considered acceptable of 70%. The forward and reverse fits are below 900 showing differences in the 2 spectra. The relative abundance of the mass fragments to the base or most abundant mass fragment is different for the spectrum of the compound at 13.28 than for the spectrum of the best fit compound in the reference library. The spectrum of the compound at 13.28 contains mass fragments not observed in the spectrum of the best fit compound in the reference library. The spectrum of the best fit compound in the reference library contains mass fragments not observed in the spectrum of the compound at 13.28. The characteristic isotopic abundance for chlorine and bromine are not observed in the spectrum of the compound at 13.28. This compound is not identified.