AQUA ANALYTICALS & TECHNOLOGY CENTRE

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TEST REPORT

Report No: AATC/LAB/PRTR/ 00120/23-24 **Date: December 28th 2023**

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
Name & Address : **Kind attn** M/s Eureka Forbes Limited **R&D Centre** **Bangalore**	**Sample received: 08.12.2023**	**Method: NSF/ANSI/CAN 61 section 7.0**
	Sample code no:AATC/00120/23-24	
	Sample Description: Aquaguard Water Softener ion exchange resin	
	Sample Quantity for Testing: 2 Kg approx	
	Submitted by : M/s Eureka Forbes Limited, Bangalore	
	Date of Analysis started : 13.12.2023	
	Date of Analysis Completed : 28.12.2023	
	Sample condition when received : Intact	

SAMPLE PARTICULARS: Ion Exchange Resin

TEST CONDITIONS:
Wetting and exposure water : Reagent grade water
Quantity used 625 gr/L x 2 Nos

OBSERVATIONS AND INFERENCE:
Tested Ion Exchange resin complied with section 7.0 requirements for material safety as per NSF/ANSI/CAN 61 standard. The leachates tested namely Regulated metals, VOCs, SVOCs and radionuclides were not detected in the exposed water of the test resin for 3 consecutive conditioning and exposure steps lasted for 60 min each. Hence the sample is PASSED.

As the exposed water did not contain any metallic elements, VOCs(Volatile organic compounds) and SVOCs (semi Volatile organic compounds) as well as radionuclides (below detection limits - not detected) , separate normalization was not needed.

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Methodology:

Wetting of the sample: The test sample of Ion exchange resin was taken in 2L beakers containing each 625 gr of resin and added with 1 Liter of Reagent grade water as per Table 7.2 of NSF/ANSI/CAN 61 standard (Process media exposure weight per volume ratios). The media was immersed completely (wetted) in reagent water prior to conditioning and exposure. The weight of the sample was equal (625 gr) to the amount of media required to perform the exposure at the specified weight-to-volume ratio. The wetting was performed for 60 min at room temperature. Following the specified wetting period, the sample was completely drained and the water discarded.

Conditioning and Exposure: After wetting, the media sample was exposed in an amber coloured 2L vessel. Exposure was conducted with 625 gr /L with Reagent grade water in two sets in order to collect 2L water required for analysis. The contents of the vessel were mixed to ensure that the entire sample is in contact with the exposure water. The vessel was closed ground glass stopper and the sample was conditioned and exposed according to the schedule outlined in Table 7.4 (Exposure schedule for process media of ≥ 0.25 mm in diameter) of NSF/ANSI/CAN 61 standard.

60 ± 5 min	23 ± 2 °C	Exposure water is drained / decanted and discarded; the exposure vessel is refilled and exposure is continued.
60 ± 5 min	23 ± 2 °C	Exposure water is drained / decanted and discarded; the exposure vessel is refilled and exposure is continued
60 ± 5 min	23 ± 2 °C	. Exposure water is collected and filtered for analyses.

The exposed water sample collected was subjected to following analytes as per Table 7.1 (Product-specific minimum test batteries for process media products) of NSF/ANSI/CAN 61 standard.

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Analytes : Metals, GC/MS (base neutral acid scans), VOCs and radionuclides,

Normalization: The concentration reported by the laboratory shall be normalized with the following equation: normalized contaminant concentration = laboratory contaminant concentration × weight per volume ratio (mg/L)

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laboratory evaluation ratio (mg/L)

This equation was applicable to normalize filtration media, ion exchange resins, synthetic media, and other media to the weight per volume ratios listed in Table 7.2 of NSF/ANSI/CAN 61 standard.

TEST DATA:

Extraction testing parameters : METALS

S.No	Element	CAS No	LAB RESULTS µg/L	Total Allowable Concentrations µg/L	**STATUS**
1	aluminum	7429905	ND<10ppb	9000	PASS
2	antimony	7440360	<1ppb	6	PASS
3	arsenic	7440382	ND<1ppb	10	PASS
4	barium	7440393	ND<50ppb	2000	PASS
5	beryllium	7440417	ND<1ppb	4	PASS
6	cadmium	7440439	ND<1ppb	5	PASS
7	chromium	7440473	ND<10ppb	100	PASS
8	copper	7440508	ND<10ppb	1300	PASS
9	lead	7439921	ND<1ppb	5	PASS
10	manganese	7439965	ND<50ppb	300	PASS
11	mercury	7439976	ND<0.5ppb	2	PASS
12	nickel	7440020	ND<10ppb	100	PASS
13	selenium	7782492	ND<1ppb	50	PASS
14	thallium	7440280	ND<1ppb	2	PASS

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VOLATILE ORGANIC COMPOUNDS

Target Analytes : EPA 524.2 Volatile Organic Compounds:	CAS#	Lab Result µg/L	TAC Value µg/L	STATUS
Chloromethane	74-87-3	ND<0.01µg/L	30	PASS
Vinyl chloride	75-01-4	ND<0.01µg/L	2	PASS
Bromomethane	74-83-9	ND<0.01µg/L	10	PASS
Trichlorofluoromethane	75-69-4	ND<0.01µg/L	2000	PASS
Acetone	67-64-1	ND<0.01µg/L	6000	PASS
Carbondisulfide	75-15-0	ND<0.01µg/L	700	PASS
t-Butanol	75-65-0	ND<0.01µg/L	9000	PASS
trans-1,2-Dichloroethene	156-60-5	ND<0.01µg/L	100	PASS
MethylTertButylEther	1634-04-4	ND<0.01µg/L	80000	PASS
Acrylonitrile	107-13-1	ND<0.01µg/L	0.6	PASS
1,1-Dichloroethane	75-34-3	ND<0.01µg/L	3	PASS
cis-1,2-Dichloroethene	156-59-2	ND<0.01µg/L	70	PASS
2-Butanone	78-93-3	ND<0.01µg/L	4000	PASS
Methyl Acrylate	96-33-3	ND<0.01µg/L	3	PASS
Bromochloromethane	74-97-5	ND<0.01µg/L	90	PASS
Tetrahydrofuran	109-99-9	ND<0.01µg/L	1000	PASS
Chloroform	67-66-3	ND<0.01µg/L	80	PASS
Bromoform	75-25-2	ND<0.01µg/L	80	PASS
1,1,1-Trichloroethane	71-55-6	ND<0.01µg/L	200	PASS
Carbon tetrachloride	56-23-5	ND<0.01µg/L	5	PASS

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continued/- (VOCs)

Target Analytes : EPA 524.2 Volatile Organic Compounds:	CAS#	Lab Result µg/L	TAC Value µg/L	STATUS
1,1-Dichloropropane	563-58-6	ND<0.01µg/L	3	PASS
Benzene	71-43-2	ND<0.01µg/L	5	PASS
1,2-Dichloroethane	107-06-2	ND<0.01µg/L	5	PASS
Trichloroethene	79-01-6	ND<0.01µg/L	5	PASS
Ethyl-acrylate	140-88-5	ND<0.01µg/L	100	PASS
1,2-Dichloropropane	78-87-5	ND<0.01µg/L	5	PASS
1,2-Dichlorobenzene	95-50-1	ND<0.01µg/L	600	PASS
Di bromomethane	74-95-3	ND<0.01µg/L	NA	PASS
Methyl Methacrylate	80-62-6	ND<0.01µg/L	10000	PASS
Bromodichloromethane	75-27-4	ND<0.01µg/L	80	PASS
cis-1,3-Dichloropropene	10061-01-5	ND<0.01µg/L	4	PASS
4-methyl-2-pentanone	108-10-1	ND<0.01µg/L	7000	PASS
Toluene	108-88-3	ND<0.01µg/L	60	PASS
trans-1,3-Dichloropropene	10061-02-6	ND<0.01µg/L	N/A	PASS
Tetrachloroethylene	127-18-4	ND<0.01µg/L	5	PASS
1,1,2-Trichloroethane	79-00-5	ND<0.01µg/L	5	PASS
Dibromochloromethane	124-48-1	ND<0.01µg/L	80	PASS
Butyl-acetate	123-86-4	ND<0.01µg/L	1000	PASS
1,2-Dibromoethane	106-93-4	ND<0.01µg/L	0.05	PASS
Chlorobenzene	108-90-7	ND<0.01µg/L	100	PASS
Ethylbenzene	100-41-4	ND<0.01µg/L	140	PASS
1,1,1,2-Tetrachloroethane	630-20-6	ND<0.01µg/L	10	PASS
m-Xylene	108-38-3	ND<0.01µg/L	90	PASS
p-Xylene	106-42-3	ND<0.01µg/L	90	PASS
o-Xylene	95-47-6	ND<0.01µg/L	90	PASS
Styrene	100-42-5	ND<0.01µg/L	100	PASS
n-Butylacrylate	141-32-2	ND<0.01µg/L	10	PASS

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(VOCs) contd/-

Target Analytes : EPA 524.2 Volatile Organic Compounds:	CAS#	Lab Result µg/L	TAC Value µg/L	STATUS
Bromobenzene	108-86-1	ND<0.01µg/L	3	PASS
1,2,3-Trichloropropane	96-18-4	ND<0.01µg/L	40	PASS
1,3,5-Trimethylbenzene	108-67-8	ND<0.01µg/L	200	PASS
4-Chlorotoluene	106-43-4	ND<0.01µg/L	100	PASS
sec-Butylbenzene	135-98-8	ND<0.01µg/L	200	PASS
1,3-Dichlorobenzene	541-73-1	ND<0.01µg/L	600	PASS
bis(2-chloroethyl)ether	111-44-4	ND<0.01µg/L	0.3	PASS
p-Isopropyl toluene	99-87-6	ND<0.01µg/L	200	PASS
1,4-Dichlorobenzene	106-46-7	ND<0.01µg/L	75	PASS
2-Ethyl-1-hexanol	104-76-7	ND<0.01µg/L	800	PASS
n-Butylbenzene	104-51-8	ND<0.01µg/L	200	PASS
1,2-Dichlorobenzene	90-50-1	ND<0.01µg/L	NA	PASS
1,2-Dibromo-3-chloropropane	96-12-8	ND<0.01µg/L	0.2	PASS
1,2,4-Trichlorobenzene	120-82-1	ND<0.01µg/L	70	PASS
Naphthalene	91-20-3	ND<0.01µg/L	100	PASS
1,2,3-Trichlorobenzene	87-61-6	ND<0.01µg/L	3	PASS

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SEMI VOLATILE COMPOUNDS

Target Analytes: EPA 8270/EPA 625 Semi-Volatile Organics	CAS #	Lab Result µg/L	TAC Value µg/L	STATUS
2,4,6-Trichlorophenol	88-06-2	ND<0.01µg/L	5	PASS
2,4-Dichlorophenol	120-83-2	ND<0.01µg/L	50	PASS
2,4-Dimethylphenol	105-67-9	ND<0.01µg/L	100	PASS
2,6-Dichlorophenol	87-65-0	ND<0.01µg/L	3	PASS
2,6-Dinitrotoluene	606-20-2	ND<0.01µg/L	0.5	PASS
2,6-Di-tert-butyl-4-methoxyphenol	489-01-0	ND<0.01µg/L	3	PASS
2-Methylnaphthalene	91-57-6	ND<0.01µg/L	30	PASS
2-Nitrophenol	88-75-5	ND<0.01µg/L	3	PASS
2-Phenyl2-Propanol	617-94-7	ND<0.01µg/L	300	PASS
3,3'Dichlorobenzidine	91-94-1	ND<0.01µg/L	0.8	PASS
4,6-Dinitro-2-methylphenol	534-52-1	ND<0.01µg/L	NA	PASS
4-tert-butylphenol	98-54-4	ND<0.01µg/L	500	PASS
Acenaphthene	83-32-9	ND<0.01µg/L	3	PASS
Acenaphthalene	208-96-8	ND<0.01µg/L	3	PASS
Acetophenone	98-86-2	ND<0.01µg/L	200	PASS
Anthracene	120-12-7	ND<0.01µg/L	3	PASS
Benzo(a)pyrene	50-32-8	ND<0.01µg/L	0.04	PASS
Benzothiazole	95-16-9	ND<0.01µg/L	50	PASS
Bis(2-ethylhexyl)adipate	103-23-1	ND<0.01µg/L	400	PASS
Chrysene	218-01-9	ND<0.01µg/L	3	PASS

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SVOCs (contd/-)

Target Analytes: EPA 8270/EPA 625 Semi-Volatile Organics	CAS #	Lab Result µg/L	TAC Value µg/L	STATUS
Diethylphthalate	84-66-2	ND<0.01µg/L	6000	PASS
Dimethylphthalate	131-11-3	ND<0.01µg/L	50	PASS
Diphenylamine	122-39-4	ND<0.01µg/L	200	PASS
Di-n-butylphthalate	84-74-2	ND<0.01µg/L	700	PASS
Fluoranthene	206-44-0	ND<0.01µg/L	3	PASS
Isophorone	78-59-1	ND<0.01µg/L	400	PASS
N-Nitrosodi-n-propylamine	621-64-7	ND<0.01µg/L	0.05	PASS
Pentachlorophenol	87-86-5	ND<0.01µg/L	1	PASS
Phenanthrene	85-01-8	ND<0.01µg/L	3	PASS
Phenol	108-95-2	ND<0.01µg/L	2000	PASS
Phenylsulfone	127-63-9	ND<0.01µg/L	NA	PASS
Pyrene	129-00-0	ND<0.01µg/L	3	PASS

RADIO ACTIVE ELEMENTS

S.No	Radio active element	Lab Result	Tac value	STATUS
1	Alpha emitters	ND <0.017Bq.l^{-1}	0.1017Bq.l^{-1}	PASS
2	Beta emitters	ND <0.119Bq.l^{-1}	1.0017Bq.l^{-1}	PASS

Analysis : Metals – ICPMS
VOCs and SVOCs : GCMS
Radionuclides : IS14194 Part 1:2020

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Date.....02/01/2024.

Authorised signatory

Dr.S.Muralidhara Rao

00—End of the Test Report---00

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