

Appendix C - HVAS filter analysis results for PM₁₀ and metals

Appendix C contains summary of the laboratory HVAS results for PM₁₀ and metals

- The laboratory did not report PM₁₀ concentrations during the early stage of the campaign, which resulted in missing PM₁₀ data for the first five samples.
- Note that the average practical quantitation level (PQL, also known as the limit of detection) for each metal is listed for reference and '< PQL' is recorded for concentrations less than the PQL (i.e. the metal was not detected in the sample). For these samples, half of the PQL value was used for calculating the annual average.

Table C-1. HVAS filter analysis results for PM₁₀ and metals, all values in µg/m³

	PM ₁₀	Aluminium	Antimony	Arsenic	Barium	Bismuth	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
Annual guideline	25.00		0.03	0.003						0.10			0.50	0.15	0.20
Daily guideline	50.00			0.03					0.50	0.10	1.00			0.15	
PQL	0.071	0.0035	0.0071	0.0014	0.0014	0.0028	0.0004	0.0354	0.0014	0.0014	0.0014	0.0035	0.0035	0.0014	0.0001
Campaign average	16.69	0.09	0.003	0.001	0.0155	0.0013	0.0002	0.2965	0.0022	0.0007	0.0111	0.3260	0.0021	0.0032	0.00007
05/02/2023		0.08	<PQL	<PQL	0.008	<PQL	<PQL	0.26	<PQL	<PQL	0.006	0.23	<PQL	0.002	<PQL
11/02/2023		0.13	<PQL	<PQL	0.011	<PQL	<PQL	0.43	<PQL	<PQL	0.008	0.31	<PQL	0.002	<PQL
17/02/2023		0.13	<PQL	<PQL	0.015	<PQL	<PQL	0.40	0.002	<PQL	0.012	0.38	<PQL	0.003	<PQL
23/02/2023		0.16	<PQL	<PQL	0.015	<PQL	<PQL	0.82	0.002	<PQL	0.011	0.42	<PQL	0.004	<PQL
01/03/2023		0.33	<PQL	<PQL	0.022	<PQL	<PQL	1.38	0.003	<PQL	0.017	0.73	<PQL	0.007	<PQL
07/03/2023	16.99	0.11	<PQL	<PQL	0.011	<PQL	<PQL	0.28	<PQL	<PQL	0.009	0.31	<PQL	0.003	<PQL
13/03/2023	14.92	0.12	<PQL	<PQL	0.017	<PQL	<PQL	0.62	0.002	<PQL	0.013	0.38	0.004	0.004	<PQL
19/03/2023	13.64	0.08	<PQL	<PQL	0.008	<PQL	<PQL	0.16	<PQL	<PQL	0.006	0.21	<PQL	0.001	<PQL
25/03/2023	13.02	0.09	<PQL	<PQL	0.013	<PQL	<PQL	0.20	0.002	<PQL	0.009	0.29	<PQL	0.004	<PQL
31/03/2023	6.20	0.02	<PQL	<PQL	0.009	<PQL	<PQL	0.06	0.002	<PQL	0.007	0.16	<PQL	<PQL	<PQL
06/04/2023	12.79	0.09	<PQL	<PQL	0.018	<PQL	<PQL	0.17	0.002	<PQL	0.014	0.37	<PQL	0.004	<PQL
12/04/2023	6.21	0.01	<PQL	<PQL	0.016	<PQL	<PQL	0.11	0.002	<PQL	0.011	0.26	<PQL	0.004	<PQL
18/04/2023	22.71	0.05	<PQL	<PQL	0.017	<PQL	<PQL	0.19	0.002	<PQL	0.013	0.29	<PQL	0.002	<PQL
24/04/2023	10.07	0.01	<PQL	<PQL	0.010	<PQL	<PQL	0.19	<PQL	<PQL	0.008	0.16	<PQL	<PQL	<PQL
30/04/2023	16.50	0.05	<PQL	<PQL	0.016	<PQL	<PQL	0.13	0.001	<PQL	0.010	0.25	<PQL	0.002	<PQL
06/05/2023	21.88	0.04	<PQL	<PQL	0.007	<PQL	<PQL	0.09	0.002	<PQL	0.006	0.16	<PQL	0.002	<PQL
12/05/2023	18.70	0.05	<PQL	<PQL	0.030	<PQL	<PQL	0.20	0.003	<PQL	0.021	0.47	0.004	0.004	<PQL
18/05/2023	30.73	0.10	<PQL	<PQL	0.021	<PQL	<PQL	0.16	0.004	<PQL	0.014	0.42	<PQL	0.004	<PQL
24/05/2023	18.75	0.02	<PQL	<PQL	0.017	<PQL	<PQL	0.18	<PQL	<PQL	0.012	0.27	<PQL	0.002	<PQL
30/05/2023	21.95	0.05	<PQL	<PQL	0.023	<PQL	<PQL	0.22	0.002	<PQL	0.017	0.45	0.005	0.004	<PQL
05/06/2023	3.27	<PQL	<PQL	<PQL	0.004	<PQL	<PQL	0.08	<PQL	<PQL	0.004	0.05	<PQL	<PQL	<PQL
11/06/2023	13.63	0.01	<PQL	<PQL	0.008	<PQL	<PQL	0.14	<PQL	<PQL	0.006	0.11	<PQL	<PQL	<PQL
17/06/2023	14.42	0.02	<PQL	<PQL	0.030	<PQL	<PQL	0.15	<PQL	<PQL	0.022	0.39	<PQL	0.005	<PQL
23/06/2023	8.35	0.02	<PQL	<PQL	0.019	<PQL	<PQL	0.15	<PQL	<PQL	0.014	0.29	<PQL	0.003	<PQL
29/06/2023	5.67	0.03	<PQL	0.00	0.030	<PQL	<PQL	0.13	<PQL	<PQL	0.022	0.46	0.007	0.006	<PQL
05/07/2023	23.93	0.02	<PQL	<PQL	0.011	<PQL	<PQL	0.17	0.002	<PQL	0.008	0.19	<PQL	0.002	<PQL
11/07/2023	11.02	0.01	<PQL	<PQL	0.011	<PQL	<PQL	0.11	0.002	<PQL	0.008	0.20	<PQL	0.001	<PQL
17/07/2023	12.87	0.03	<PQL	<PQL	0.016	<PQL	<PQL	0.22	0.003	<PQL	0.012	0.33	<PQL	0.004	<PQL
23/07/2023	21.01	0.02	<PQL	<PQL	0.011	<PQL	<PQL	0.10	0.001	<PQL	0.007	0.17	<PQL	<PQL	<PQL
29/07/2023	16.85	0.01	<PQL	<PQL	0.014	<PQL	<PQL	0.13	0.004	<PQL	0.010	0.20	<PQL	<PQL	<PQL
04/08/2023	11.94	0.03	<PQL	<PQL	0.023	<PQL	<PQL	0.15	0.003	<PQL	0.016	0.38	<PQL	0.005	<PQL
10/08/2023	10.21	0.04	<PQL	<PQL	0.023	<PQL	<PQL	0.19	0.003	<PQL	0.017	0.40	<PQL	0.005	<PQL
16/08/2023	3.25	0.02	<PQL	<PQL	0.019	<PQL	<PQL	0.16	0.004	<PQL	0.013	0.33	<PQL	0.003	<PQL

Table C-1. HVAS filter analysis results for PM₁₀ and metals, all values in µg/m³ (continued)

	PM ₁₀	Aluminium	Antimony	Arsenic	Barium	Bismuth	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
Annual guideline	25.00		0.03	0.003						0.10			0.50	0.15	0.20
Daily guideline	50.00			0.03					0.50	0.10	1.00			0.15	
PQL	0.071	0.0035	0.0071	0.0014	0.0014	0.0028	0.0004	0.0354	0.0014	0.0014	0.0014	0.0035	0.0035	0.0014	0.0001
Campaign average	16.69	0.09	0.003	0.001	0.0155	0.0013	0.0002	0.2965	0.0022	0.0007	0.0111	0.3260	0.0021	0.0032	0.00007
22/08/2023	19.74	0.06	<PQL	<PQL	0.024	<PQL	<PQL	0.27	0.005	<PQL	0.018	0.50	<PQL	0.010	<PQL
28/08/2023	13.67	0.02	<PQL	<PQL	0.017	<PQL	<PQL	0.13	0.003	<PQL	0.012	0.29	<PQL	0.002	<PQL
03/09/2023	15.42	0.01	<PQL	<PQL	0.007	<PQL	<PQL	0.18	0.001	<PQL	0.006	0.09	<PQL	<PQL	<PQL
09/09/2023	10.35	0.03	<PQL	<PQL	0.012	<PQL	<PQL	0.15	<PQL	<PQL	0.007	0.19	<PQL	0.002	<PQL
15/09/2023	18.90	0.01	<PQL	<PQL	0.017	<PQL	<PQL	0.18	<PQL	<PQL	0.014	0.26	<PQL	0.002	<PQL
21/09/2023	24.67	0.13	<PQL	<PQL	0.029	<PQL	<PQL	0.42	<PQL	<PQL	0.019	0.55	<PQL	0.007	<PQL
27/09/2023	27.83	0.15	<PQL	<PQL	0.031	<PQL	<PQL	0.40	0.001	<PQL	0.020	0.62	<PQL	0.007	<PQL
03/10/2023	14.37	0.03	<PQL	<PQL	0.015	<PQL	<PQL	0.19	0.003	<PQL	0.010	0.24	<PQL	0.002	<PQL
09/10/2023	15.29	0.09	<PQL	<PQL	0.014	<PQL	<PQL	0.26	0.003	<PQL	0.009	0.28	<PQL	0.003	<PQL
15/10/2023	30.90	0.15	<PQL	<PQL	0.013	<PQL	<PQL	0.31	0.005	<PQL	0.007	0.32	<PQL	0.003	<PQL
21/10/2023	22.17	0.23	<PQL	<PQL	0.024	<PQL	<PQL	0.39	0.004	<PQL	0.016	0.55	<PQL	0.005	<PQL
27/10/2023	18.97	0.13	<PQL	<PQL	0.016	<PQL	<PQL	0.43	0.004	<PQL	0.010	0.32	<PQL	0.002	<PQL
02/11/2023	19.68	0.28	<PQL	<PQL	0.021	<PQL	<PQL	0.62	0.005	<PQL	0.015	0.61	<PQL	0.007	<PQL
08/11/2023	17.01	0.16	<PQL	<PQL	0.017	<PQL	<PQL	0.41	0.004	<PQL	0.011	0.46	<PQL	0.006	<PQL
14/11/2023	19.67	0.09	<PQL	<PQL	0.010	<PQL	<PQL	0.26	0.004	<PQL	0.007	0.28	<PQL	0.003	<PQL
20/11/2023	19.82	0.26	<PQL	<PQL	0.013	<PQL	<PQL	0.41	0.004	<PQL	0.009	0.49	<PQL	0.004	<PQL
26/11/2023	19.98	0.15	<PQL	<PQL	0.007	<PQL	<PQL	0.32	0.003	<PQL	0.005	0.29	<PQL	0.002	<PQL
02/12/2023	15.60	0.04	<PQL	<PQL	0.008	<PQL	<PQL	0.13	0.003	<PQL	0.006	0.15	<PQL	<PQL	<PQL
08/12/2023	24.42	0.18	<PQL	<PQL	0.012	<PQL	<PQL	0.88	0.004	<PQL	0.009	0.35	<PQL	0.003	<PQL
14/12/2023	23.33	0.12	<PQL	<PQL	0.011	<PQL	<PQL	0.38	0.002	<PQL	0.008	0.30	<PQL	0.003	<PQL
20/12/2023	17.76	0.12	<PQL	<PQL	0.011	<PQL	<PQL	0.33	0.002	<PQL	0.008	0.32	<PQL	0.003	<PQL
07/01/2024	11.15	0.11	<PQL	<PQL	0.009	<PQL	<PQL	0.19	0.002	<PQL	0.006	0.22	<PQL	0.001	<PQL
13/01/2024	16.88	0.14	<PQL	<PQL	0.014	<PQL	<PQL	0.29	0.001	<PQL	0.010	0.32	<PQL	0.004	<PQL
19/01/2024	7.67	0.06	<PQL	<PQL	0.013	<PQL	<PQL	0.28	0.002	<PQL	0.009	0.21	<PQL	0.002	<PQL
25/01/2024	31.63	0.28	<PQL	<PQL	0.013	<PQL	<PQL	0.78	0.003	<PQL	0.009	0.45	<PQL	0.004	<PQL
31/01/2024	24.23	0.24	<PQL	<PQL	0.021	<PQL	<PQL	0.59	0.001	<PQL	0.014	0.54	<PQL	0.006	<PQL
06/02/2024	15.56	0.19	<PQL	<PQL	0.013	<PQL	<PQL	0.48	0.002	<PQL	0.009	0.38	<PQL	0.004	<PQL

Table C-1. HVAS filter analysis results for PM₁₀ and metals, all values in µg/m³ (continued)

	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sulfur	Thallium	Tin	Titanium	Vanadium	Zinc	Bromide	Chloride
Annual guideline	0.02										1.00			
Daily guideline	0.14										1.00	50.00		
PQL	0.0014	0.0142	0.0354	0.0028	0.0354	0.0035	0.0354	0.0028	0.0071	0.0014	0.0014	0.0035	0.0708	0.1416
Campaign average	0.0007	0.0069	0.0981	0.00133	0.0700	0.0021	0.2808	0.0013	0.003	0.006	0.0007	0.0089	0.0331	2.1939
05/02/2023	<PQL	<PQL	0.15	<PQL	0.08	<PQL	0.60	<PQL	<PQL	0.005	<PQL	0.004	<PQL	4.43
11/02/2023	<PQL	<PQL	0.14	<PQL	0.05	<PQL	0.50	<PQL	<PQL	0.006	<PQL	0.008	<PQL	5.85
17/02/2023	<PQL	<PQL	0.09	<PQL	0.04	<PQL	0.45	<PQL	<PQL	0.008	<PQL	0.010	<PQL	1.93
23/02/2023	<PQL	<PQL	0.11	<PQL	0.10	<PQL	0.39	<PQL	<PQL	0.008	<PQL	0.010	<PQL	3.93
01/03/2023	<PQL	<PQL	0.07	<PQL	0.22	<PQL	0.20	<PQL	<PQL	0.012	<PQL	0.014	<PQL	0.88
07/03/2023	<PQL	<PQL	0.07	<PQL	0.09	<PQL	0.23	<PQL	<PQL	0.005	<PQL	0.009	<PQL	2.68
13/03/2023	<PQL	<PQL	0.06	<PQL	0.08	<PQL	0.37	<PQL	<PQL	0.008	<PQL	0.010	<PQL	1.27
19/03/2023	<PQL	<PQL	<PQL	<PQL	0.07	<PQL	0.12	<PQL	<PQL	0.003	<PQL	<PQL	<PQL	0.51
25/03/2023	<PQL	<PQL	0.22	<PQL	0.10	<PQL	0.29	<PQL	<PQL	0.005	<PQL	0.014	<PQL	<PQL
31/03/2023	<PQL	<PQL	<PQL	<PQL	0.05	<PQL	0.11	<PQL	<PQL	0.003	<PQL	0.004	<PQL	<PQL
06/04/2023	<PQL	<PQL	0.08	<PQL	0.08	<PQL	0.14	<PQL	<PQL	0.007	<PQL	0.012	<PQL	0.44
12/04/2023	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.16	<PQL	<PQL	0.006	<PQL	0.008	<PQL	0.79
18/04/2023	<PQL	<PQL	0.14	<PQL	0.06	<PQL	0.33	<PQL	<PQL	0.005	<PQL	0.020	<PQL	5.21
24/04/2023	<PQL	<PQL	0.06	<PQL	<PQL	<PQL	0.17	<PQL	<PQL	0.003	<PQL	0.004	<PQL	2.42
30/04/2023	<PQL	<PQL	0.11	<PQL	0.06	<PQL	0.28	<PQL	<PQL	0.005	<PQL	0.007	<PQL	0.65
06/05/2023	<PQL	<PQL	0.05	<PQL	0.07	<PQL	0.11	<PQL	<PQL	0.002	<PQL	0.004	<PQL	0.58
12/05/2023	<PQL	<PQL	0.09	<PQL	0.10	<PQL	0.26	<PQL	<PQL	0.010	<PQL	0.009	<PQL	1.94
18/05/2023	<PQL	<PQL	0.23	<PQL	0.17	<PQL	0.14	<PQL	<PQL	0.007	<PQL	0.008	<PQL	<PQL
24/05/2023	<PQL	<PQL	0.11	<PQL	0.03	<PQL	0.26	<PQL	<PQL	0.004	<PQL	0.005	<PQL	3.70
30/05/2023	<PQL	<PQL	0.11	<PQL	0.07	<PQL	0.18	<PQL	<PQL	0.007	<PQL	0.015	<PQL	1.89
05/06/2023	<PQL	<PQL	0.06	<PQL	<PQL	<PQL	0.15	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	2.81
11/06/2023	<PQL	<PQL	0.11	<PQL	<PQL	<PQL	0.28	<PQL	<PQL	0.001	<PQL	<PQL	<PQL	6.30
17/06/2023	<PQL	<PQL	0.12	<PQL	<PQL	<PQL	0.21	<PQL	<PQL	0.007	<PQL	0.015	<PQL	2.68
23/06/2023	<PQL	<PQL	0.08	<PQL	<PQL	<PQL	0.20	<PQL	<PQL	0.004	<PQL	0.008	<PQL	3.60
29/06/2023	<PQL	<PQL	0.05	<PQL	0.04	<PQL	0.09	<PQL	<PQL	0.006	<PQL	0.021	<PQL	<PQL
05/07/2023	<PQL	<PQL	0.09	<PQL	<PQL	<PQL	0.20	<PQL	<PQL	0.003	<PQL	0.006	<PQL	4.66
11/07/2023	<PQL	<PQL	0.05	<PQL	<PQL	<PQL	0.11	<PQL	<PQL	0.003	<PQL	0.005	<PQL	1.36
17/07/2023	<PQL	<PQL	0.07	<PQL	0.04	<PQL	0.12	<PQL	<PQL	0.005	<PQL	0.010	<PQL	0.65
23/07/2023	<PQL	<PQL	0.07	<PQL	<PQL	<PQL	0.14	<PQL	<PQL	0.003	<PQL	0.004	<PQL	2.81
29/07/2023	<PQL	<PQL	0.08	<PQL	<PQL	<PQL	0.18	<PQL	<PQL	0.004	<PQL	0.004	<PQL	3.89
04/08/2023	<PQL	<PQL	0.06	<PQL	0.04	<PQL	0.11	<PQL	<PQL	0.006	<PQL	0.014	<PQL	0.32
10/08/2023	<PQL	<PQL	0.05	<PQL	0.04	<PQL	0.17	<PQL	<PQL	0.006	<PQL	0.026	<PQL	0.50
16/08/2023	<PQL	<PQL	0.05	<PQL	0.03	<PQL	0.16	<PQL	<PQL	0.005	<PQL	0.013	<PQL	1.80

Table C-1. HVAS filter analysis results for PM₁₀ and metals, all values in µg/m³ (continued)

	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sulfur	Thallium	Tin	Titanium	Vanadium	Zinc	Bromide	Chloride
Annual guideline	0.02										1.00			
Daily guideline	0.14										1.00	50.00		
PQL	0.0014	0.0142	0.0354	0.0028	0.0354	0.0035	0.0354	0.0028	0.0071	0.0014	0.0014	0.0035	0.0708	0.1416
Campaign average	0.0007	0.0069	0.0981	0.00133	0.0700	0.0021	0.2808	0.0013	0.003	0.006	0.0007	0.0089	0.0331	2.1939
22/08/2023	<PQL	<PQL	0.13	<PQL	0.06	<PQL	0.30	<PQL	<PQL	0.008	<PQL	0.019	<PQL	3.16
28/08/2023	<PQL	<PQL	0.06	<PQL	0.04	<PQL	0.16	<PQL	<PQL	0.005	<PQL	0.008	<PQL	1.17
03/09/2023	<PQL	<PQL	0.13	<PQL	<PQL	0.00	0.28	<PQL	<PQL	0.002	<PQL	<PQL	<PQL	4.75
09/09/2023	<PQL	<PQL	0.07	<PQL	0.04	<PQL	0.19	<PQL	<PQL	0.003	<PQL	0.005	<PQL	2.11
15/09/2023	<PQL	<PQL	0.19	<PQL	<PQL	<PQL	0.42	<PQL	<PQL	0.004	<PQL	0.005	<PQL	5.60
21/09/2023	0.0018	<PQL	0.13	<PQL	0.14	<PQL	0.35	<PQL	<PQL	0.009	<PQL	0.018	<PQL	0.24
27/09/2023	<PQL	<PQL	0.14	<PQL	0.15	<PQL	0.31	<PQL	<PQL	0.010	<PQL	0.018	<PQL	0.34
03/10/2023	<PQL	<PQL	0.09	<PQL	<PQL	0.01	0.27	<PQL	<PQL	0.005	<PQL	0.009	<PQL	3.80
09/10/2023	<PQL	<PQL	0.08	<PQL	0.04	0.01	0.55	<PQL	<PQL	0.005	<PQL	0.010	<PQL	1.31
15/10/2023	<PQL	<PQL	0.44	<PQL	0.14	0.01	0.29	<PQL	<PQL	0.006	<PQL	0.007	<PQL	0.56
21/10/2023	<PQL	<PQL	0.10	<PQL	0.05	0.01	0.44	<PQL	<PQL	0.012	<PQL	0.012	<PQL	1.13
27/10/2023	<PQL	<PQL	0.09	<PQL	0.04	<PQL	0.35	<PQL	<PQL	0.006	<PQL	0.006	<PQL	3.82
02/11/2023	<PQL	<PQL	0.10	<PQL	0.07	<PQL	0.30	<PQL	<PQL	0.011	<PQL	0.013	<PQL	1.54
08/11/2023	<PQL	<PQL	0.08	<PQL	0.08	<PQL	0.27	<PQL	<PQL	0.008	<PQL	0.016	<PQL	0.74
14/11/2023	<PQL	<PQL	0.12	<PQL	0.04	<PQL	0.45	<PQL	<PQL	0.004	<PQL	0.009	<PQL	2.40
20/11/2023	0.0013	<PQL	0.10	<PQL	0.08	<PQL	0.29	<PQL	<PQL	0.007	<PQL	0.010	<PQL	1.35
26/11/2023	<PQL	<PQL	0.10	<PQL	0.06	<PQL	0.38	<PQL	<PQL	0.003	<PQL	0.004	<PQL	2.24
02/12/2023	<PQL	<PQL	0.05	<PQL	<PQL	<PQL	0.27	<PQL	<PQL	0.003	<PQL	0.004	<PQL	2.08
08/12/2023	0.0020	<PQL	0.10	<PQL	0.08	<PQL	0.36	<PQL	<PQL	0.005	<PQL	0.008	<PQL	2.11
14/12/2023	<PQL	<PQL	0.10	<PQL	0.08	<PQL	0.45	<PQL	<PQL	0.004	<PQL	0.008	<PQL	1.73
20/12/2023	<PQL	<PQL	0.06	<PQL	0.10	<PQL	0.22	<PQL	<PQL	0.003	<PQL	0.005	<PQL	0.68
07/01/2024	<PQL	<PQL	0.04	<PQL	0.10	<PQL	0.29	<PQL	<PQL	0.004	<PQL	<PQL	<PQL	1.02
13/01/2024	<PQL	<PQL	0.10	<PQL	0.15	<PQL	0.49	<PQL	<PQL	0.006	<PQL	0.004	<PQL	2.14
19/01/2024	<PQL	<PQL	0.04	<PQL	0.07	<PQL	0.25	<PQL	<PQL	0.005	<PQL	0.004	<PQL	1.35
25/01/2024	<PQL	<PQL	0.20	<PQL	0.16	<PQL	0.72	<PQL	<PQL	0.008	<PQL	0.006	<PQL	8.61
31/01/2024	<PQL	<PQL	0.12	<PQL	0.22	<PQL	0.50	<PQL	<PQL	0.009	<PQL	0.010	<PQL	3.42
06/02/2024	<PQL	<PQL	0.06	<PQL	0.18	<PQL	0.32	<PQL	<PQL	0.007	<PQL	0.006	<PQL	1.46