

Supplementary Materials

Table S1: Minimum detection limits (MDL) and analytical uncertainties of the of the applied analytical methods.

	MDL (ng/m3)	Anal. uncertainty (%)	Method
PM_{2.5}	1000	5	gravimerty
PM_{coarse}	1000	5	gravimerty
BC	100	10	light reflection
Al	5.04	10	PIXE
Si	2.48	5	PIXE
P	0.94	10	PIXE
S	1.32	3	PIXE
Cl	0.77	3	PIXE
K	0.58	3	PIXE
Ca	0.89	3	PIXE
Ti	0.32	5	PIXE
V	0.35	8	PIXE
Cr	0.27	8	PIXE
Mn	0.34	5	PIXE
Fe	0.96	3	PIXE
Co	0.42	10	PIXE
Ni	0.18	10	PIXE
Cu	0.21	3	PIXE
Zn	0.25	3	PIXE
As	0.71	8	PIXE
Br	0.61	8	PIXE
Sr	1.16	10	PIXE
Ba	1.65	10	PIXE
Pb	0.92	8	PIXE

Table S2: Absolute (in $\mu\text{g}/\text{m}^3$) and relative (in%) source contributions.

Debrecen PM _{2.5}						
	secondary sulphate	traffic	biomass burning	Cl	soil	road dust
whole period	7.5	1.5	3.7	1.6	1.2	1.1
(rel. contribution)	45%	9%	22%	9%	7%	7%
working days	7.3	1.5	3.9	1.7	1.3	1.2
(rel. contribution)	43%	9%	23%	10%	8%	7%
weekends	8.3	1.6	3	1.2	0.8	0.8
(rel. contribution)	54%	10%	19%	8%	5%	5%
AQ limit exceedances	14.4	3	6.1	3.6	0.9	1.4
(rel. contribution)	49%	10%	21%	12%	3%	5%
Budapest PM _{2.5}						
	secondary sulphate	traffic	biomass burning	Cl	soil	asphalt
whole period	7.6	3.9	5.9	0.6	2.7	0.3
(rel. contribution)	36%	19%	28%	3%	13%	1.2%
working days	7.5	4.3	6.1	0.7	2.8	0.3
(rel. contribution)	34%	20%	28%	3%	13%	1.4%
weekends	7.7	3	5.5	0.3	2.4	0.1
(rel. contribution)	40%	16%	29%	2	13%	0.7%
AQ limit exceedances	13.4	5.7	8.8	0.6	2.4	0.2
(rel. contribution)	43%	18%	28%	2	8%	0.7%
Debrecen PM _{coarse}						
	combustion	traffic		Cl	soil	
whole period	1.5	1		0.4	2.3	
(rel. contribution)	29%	19%		8%	44%	
working days	1.5	1		0.5	2.5	
(rel. contribution)	27%	19%		9%	46%	
weekends	1.4	0.7		0.3	1.4	
(rel. contribution)	28%	20%		7%	36%	
Budapest PM _{coarse}						
	combustion	traffic		Cl	soil	road dust
whole period	2.3	0.9		0.4	1.7	3
(rel. contribution)	28%	11%		5%	21%	36%
working days	2.6	1		0.3	2.1	3.4
(rel. contribution)	28%	11%		4%	22%	36%
weekends	1.5	0.5		0.5	0.9	2
(rel. contribution)	28%	9%		9%	18%	37%