

Supplementary Tables

Agronomic Evaluation of Recycled Polyurethane Foam-Based Growing Media for Green Roofs

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Table S1. Contents in trace metals, volatile organic compounds (VOC), sum of 7 polychlorinated biphenyls (PCB), sum of 16 polycyclic aromatic hydrocarbons (PAH) and decabromodiphenyl ethers (BDE) of the GM at the end of the experiment.

	GM1-EU		GM1-HY		GM1-ST		GM1-LP		GM2-EU		GM2-HY		GM2-ST		GM2-LP		GM3-EU		GM3-HY		GM3-ST		GM3-LP		Recommendation
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
As (mg kg ⁻¹)	17.3	0.4	16.7	2.0	17.7	0.4	16.3	0.4	18.3	3.3	19.7	2.5	17.7	0.4	18.3	0.8	21.3	1.5	21.3	0.8	21.0	0.7	22.3	1.1	<18 [49]
Cd (mg kg ⁻¹)	0.3	0.0	0.3	0.0	0.3	0.0	0.4	0.0	0.3	0.1	0.4	0.1	0.3	0.0	0.3	0.1	0.2	0.0	0.2	0.0	0.2	0.0	0.2	0.0	<3 [49]
Cr (mg kg ⁻¹)	34.2	1.4	33.2	0.8	33.6	0.4	32.0	0.5	37.5	4.5	37.1	0.7	36.6	1.0	36.9	0.7	39.8	0.6	39.8	0.3	39.4	0.5	40.5	1.1	<120 [49]
Cu (mg kg ⁻¹)	90.2	6.3	96.3	7.0	98.1	4.3	103.9	3.5	86.6	3.7	89.3	2.5	90.1	3.4	91.7	2.1	73.7	8.3	73.2	3.3	76.7	0.9	74.0	2.3	<300 [49]
Hg (mg kg ⁻¹)	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	<2 [49]
Ni (mg kg ⁻¹)	23.4	1.5	22.9	1.0	23.7	0.5	23.8	0.7	24.7	2.8	27.0	2.4	25.4	1.1	25.2	0.9	28.7	0.8	28.5	0.8	27.4	0.1	30.1	1.5	<60 [49]
Pb (mg kg ⁻¹)	17.9	0.6	19.1	0.9	18.9	0.3	19.6	1.0	18.2	1.1	31.5	13.6	18.9	0.7	20.1	1.8	17.7	1.0	18.1	0.8	17.3	0.0	18.7	1.4	<180 [49]
Zn (mg kg ⁻¹)	220.2	39.5	232.2	35.0	199.8	22.0	223.7	11.7	218.1	17.0	217.2	6.8	210.1	13.7	214.6	11.5	119.4	14.6	455.1	398.7	147.6	10.7	123.6	5.3	<600 [49]
VOC (µg kg ⁻¹)	16.7	20.4	30.7	37.6	0.0	0.0	79.3	97.2	10.3	12.7	0.0	0.0	23.7	16.3	12.7	15.5	24.3	21.3	46.3	56.7	100.3	122.9	71.3	52.0	
Sum of 7 PCB (µg kg ⁻¹)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<800 [25]
Sum of 16 PAH (µg kg ⁻¹)	158.7	30.2	230.7	40.9	304.0	73.1	206.0	26.4	215.7	19.1	272.7	14.4	255.3	31.6	294.3	51.5	151.0	51.9	205.0	87.1	148.7	10.6	176.3	39.3	<1000 [50]
BDE 28 (µg kg ⁻¹)	2.7	0.7	3.2	0.9	3.0	0.9	3.2	0.6	3.4	0.4	3.7	1.0	3.7	1.1	4.0	0.4	1.5	0.3	1.4	0.1	1.5	0.3	2.0	0.8	<1000 [51]
BDE 47 (µg kg ⁻¹)	241.7	77.2	323.0	89.8	251.3	70.9	266.3	16.8	269.3	31.8	399.3	91.8	253.0	41.7	396.7	54.8	160.0	64.4	148.3	35.7	133.0	7.4	129.3	29.1	<1000 [51]
BDE 99 (µg kg ⁻¹)	234.3	67.8	366.0	136.0	287.3	102.9	273.7	21.0	280.7	28.6	455.3	148.9	302.3	78.8	508.7	65.9	182.7	84.7	140.0	26.2	139.7	12.5	148.0	30.6	<1000 [51]
BDE 100 (µg kg ⁻¹)	44.0	10.0	66.7	24.3	52.7	17.3	52.3	6.4	51.3	4.6	78.3	25.9	57.3	10.4	84.0	8.6	33.7	13.5	25.3	5.0	27.7	2.2	29.0	5.5	<1000 [51]
BDE 153 (µg kg ⁻¹)	13.7	2.9	21.7	7.1	19.4	8.7	18.0	1.9	20.0	3.1	35.0	10.6	24.3	8.7	35.7	4.7	13.0	6.5	10.5	2.3	9.7	1.0	12.5	4.1	<1000 [51]
BDE 154 (µg kg ⁻¹)	13.7	3.3	21.3	6.1	16.3	5.8	17.7	1.6	17.3	2.0	28.7	8.0	22.0	7.0	29.7	2.9	11.4	5.2	9.1	1.9	9.0	0.9	10.7	3.9	<1000 [51]
BDE 183 (µg kg ⁻¹)	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	5.0	0.0	6.7	2.0	<1000 [51]
BDE 209 (µg kg ⁻¹)	100.0	0.0	138.0	25.3	100.0	0.0	117.0	20.8	156.0	32.6	191.7	36.2	509.0	421.5	500.7	386.9	149.3	31.6	106.7	8.2	100.0	0.0	225.3	153.5	<1000 [51]

Table S2. Results of 3-way-repeated measures ANOVA with growing media (GM1 and GM2) and plants at the end of the experiment for the characteristics of the GM.

Factors		Bulk density		Available water		Macroporosity		OM		pH	Electrical conductivity		NO ₃ ⁻ -N		NH ₄ ⁺ -N		
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	0.97	ns	0.07	ns	0.00	ns	1.33	ns	15.00	**	1.00	ns	0.82	ns	2.54	ns
Plant	3	2.47	ns	1.70	ns	0.63	ns	2.89	ns	0.78	ns	1.00	ns	2.71	ns	6.15	**
GM × Plant	3	0.03	ns	0.66	ns	1.07	ns	2.90	ns	1.13	ns	1.00	ns	0.04	ns	0.98	ns

Factors		CEC		CaO		K ₂ O		MgO		Na ₂ O		P ₂ O ₅		B		Fe		Mn		Co	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	7.97	*	0.06	ns	1.07	ns	30.12	***	1.61	ns	15.38	**	1.23	ns	0.09	ns	8.08	*	0.37	ns
Plant	3	1.01	ns	0.50	ns	10.00	***	4.16	*	2.11	ns	0.57	ns	0.39	ns	0.54	ns	1.22	ns	2.92	ns
GM × Plant	3	0.70	ns	0.60	ns	0.34	ns	3.34	*	0.06	ns	0.08	ns	0.69	ns	0.63	ns	0.84	ns	0.34	ns

Factors		As		Cd		Cr		Cu		Hg		Ni		Pb		Zn	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	2.36	ns	0.25	ns	13.72	**	9.12	**	2.83	ns	5.65	*	1.37	ns	0.09	ns
Plant	3	0.13	ns	1.11	ns	0.32	ns	2.34	ns	0.46	ns	0.17	ns	1.35	ns	0.42	ns
GM × Plant	3	0.44	ns	0.84	ns	0.17	ns	0.49	ns	1.02	ns	0.55	ns	1.15	ns	0.18	ns

Factors		VOC		PAH		BDE 28		BDE 47		BDE 99		BDE 100		BDE 153		BDE 154		BDE 209	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	0.80	ns	2.25	ns	2.04	ns	2.49	ns	3.30	ns	2.41	ns	7.52	*	5.89	*	3.69	ns
Plant	3	0.53	ns	2.86	ns	0.27	ns	2.15	ns	1.94	ns	1.66	ns	1.83	ns	2.16	ns	0.64	ns
GM × Plant	3	0.73	ns	1.62	ns	0.03	ns	0.58	ns	0.84	ns	0.47	ns	0.60	ns	0.36	ns	0.71	ns

*** p < 0.001, **p < 0.01, * p< 0.05, ns not significant.

Table S3. Results of 3-way-repeated measures ANOVA with growing media (GM2 and GM3) and plants at the end of the experiment for the characteristics of the GM.

Factors	Bulk density			Available water		Macroporosity		OM		pH		Electrical conductivity		NO ₃ ⁻ -N		NH ₄ ⁺ -N	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	139.77	***	1.36	ns	30.72	***	31.93	***	1.14	ns	50.00	***	5.90	*	34.88	***
Plant	3	1.34	ns	0.03	ns	0.34	ns	0.30	ns	1.14	ns	1.33	ns	3.42	*	0.98	ns
GM × Plant	3	0.38	ns	1.07	ns	0.27	ns	4.28	*	0.65	ns	0.67	ns	0.96	ns	2.55	ns

Factors	CEC			CaO		K ₂ O		MgO		Na ₂ O		P ₂ O ₅		B		Fe		Mn		Co	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	47.30	***	26.23	***	27.19	***	98.81	***	105.57	***	193.75	***	48.95	***	8.13	*	47.36	***	0.42	ns
Plant	3	1.08	ns	0.40	ns	14.26	***	6.95	**	4.55	*	0.50	ns	0.24	ns	0.88	ns	2.37	ns	3.60	*
GM × Plant	3	0.45	ns	1.01	ns	2.02	ns	0.21	ns	0.13	ns	0.53	ns	0.24	ns	1.49	ns	0.37	ns	0.37	ns

Factors	As			Cd		Cr		Cu		Hg		Ni		Pb		Zn	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	9.53	**	17.53	***	8.18	*	44.85	***	18.02	***	12.08	**	2.22	ns	0.00	ns
Plant	3	0.29	ns	0.89	ns	0.10	ns	0.44	ns	1.13	ns	0.57	ns	1.29	ns	1.01	ns
GM × Plant	3	0.25	ns	0.73	ns	0.08	ns	0.25	ns	1.03	ns	0.83	ns	1.19	ns	0.98	ns

Factors	VOC			PAH		BDE 28		BDE 47		BDE 99		BDE 100		BDE 153		BDE 154		BDE 183		BDE 209	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	2.59	ns	11.83	**	29.89	***	40.88	***	30.98	***	32.34	***	25.24	***	28.51	***	1.00	ns	2.55	ns
Plant	3	0.44	ns	1.07	ns	0.44	ns	1.74	ns	1.51	ns	1.05	ns	1.27	ns	1.04	ns	1.00	ns	0.79	ns
GM × Plant	3	0.19	ns	0.27	ns	0.07	ns	2.05	ns	2.18	ns	1.78	ns	1.40	ns	1.40	ns	1.00	ns	0.56	ns

*** p < 0.001, **p < 0.01, * p< 0.05, ns not significant.

Table S4. Results of 3-way-repeated measures ANOVA with growing media (GM1 and GM2) and plants at the end of the experiment for the characteristics of the plant aerial parts.

Factors	Aerial biomass				N		P		K		Ca		Mg		Fe		Zn	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p	
GM	1	2.56	ns	0.12	ns	0.35	ns	1.68	ns	0.02	ns	0.60	ns	1.13	ns	1.23	ns	
Plant	3	11.33	***	9.39	***	8.11	**	16.18	***	7.99	**	7.72	**	6.73	**	5.81	**	
GM × Plant	3	0.51	ns	0.73	ns	0.55	ns	0.56	ns	1.60	ns	0.41	ns	1.51	ns	1.35	ns	

Factors	Cu		Mn		B		Cd		Cr		Hg		Ni		Pb	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	
GM	1	0.04	ns	1.01	ns	0.27	ns	1.34	ns	0.72	ns	1.00	ns	2.03	ns	
Plant	3	3.56	*	7.19	**	3.31	*	3.91	*	6.00	**	1.00	ns	7.12	**	
GM × Plant	3	0.79	ns	1.28	ns	0.59	ns	1.97	ns	1.95	ns	1.00	ns	1.35	ns	

*** p < 0.001, **p < 0.01, * p< 0.05, ns not significant.

Table S5. Results of 3-way-repeated measures ANOVA with growing media (GM2 and GM3) and plants at the end of the experiment for the characteristics of the plant aerial parts.

Factors		Aerial biomass		N		P		K		Ca		Mg		Fe		Zn	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	0.05	ns	0.34	ns	0.75	ns	1.69	ns	0.40	ns	1.72	ns	0.91	ns	0.65	ns
Plant	3	14.34	***	5.57	**	13.49	***	21.92	***	20.95	***	17.10	***	3.71	*	7.09	**
GM × Plant	3	0.85	ns	0.67	ns	1.95	ns	2.35	ns	4.54	*	1.93	ns	0.53	ns	0.70	ns

Factors		Cu		Mn		B		Cd		Cr		Hg		Ni		Pb	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	1.00	ns	1.45	ns	0.24	ns	0.65	ns	2.84	ns	1.00	ns	2.06	ns	1.49	ns
Plant	3	3.77	*	3.37	*	5.58	**	5.86	**	1.42	ns	1.00	ns	1.26	ns	10.33	***
GM × Plant	3	0.59	ns	0.69	ns	0.67	ns	0.53	ns	1.38	ns	1.00	ns	1.13	ns	0.89	ns

*** p < 0.001, **p < 0.01, * p< 0.05, ns not significant.

Table S6. Results of 3-way-repeated measures ANOVA with growing media (GM1 and GM2) and plants at the end of the experiment for the characteristics of the plant roots.

Factors		Root biomass		N		P		K		Ca		Mg		Fe		Zn	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	4.42	ns	0.25	ns	0.00	ns	0.01	ns	0.11	ns	0.53	ns	0.00	ns	0.02	ns
Plant	3	9.09	***	6.54	**	1.96	ns	26.14	***	13.37	***	12.62	***	25.08	***	6.47	**
GM × Plant	3	0.95	ns	1.54	ns	0.61	ns	0.47	ns	1.23	ns	1.51	ns	0.33	ns	0.09	ns

Factors		Cu		Mn		B		Cd		Cr		Hg		Ni		Pb	
	Df	F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	0.73	ns	0.46	ns	1.13	ns	1.81	ns	3.15	ns	0.02	ns	3.95	ns	10.45	**
Plant	3	11.26	***	59.00	***	1.47	ns	1.59	ns	0.93	ns	0.77	ns	2.68	ns	7.81	**
GM × Plant	3	0.14	ns	0.16	ns	0.92	ns	1.92	ns	1.57	ns	1.08	ns	2.58	ns	5.84	**

*** p < 0.001, **p < 0.01, * p< 0.05, ns not significant.

Table S7. Results of 3-way-repeated measures ANOVA with growing media (GM2 and GM3) and plants at the end of the experiment for the characteristics of the plant roots. .

Factors	Df	Root biomass		N		P		K		Ca		Mg		Fe		Zn	
		F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	1.84	ns	0.17	ns	0.36	ns	0.25	ns	1.10	ns	0.06	ns	4.09	ns	0.85	ns
Plant	3	4.56	*	10.05	***	5.09	*	21.27	***	25.77	***	17.98	***	22.83	***	4.55	*
GM × Plant	3	1.10	ns	1.11	ns	2.22	ns	2.03	ns	7.64	**	2.43	ns	2.66	ns	0.84	ns

Factors	Df	Cu		Mn		B		Cd		Cr		Hg		Ni		Pb	
		F	p	F	p	F	p	F	p	F	p	F	p	F	p	F	p
GM	1	6.99	*	7.41	*	1.04	ns	3.95	ns	3.01	ns	0.08	ns	3.77	ns	10.48	**
Plant	3	31.06	***	75.44	***	9.12	***	2.94	ns	1.09	ns	1.56	ns	1.93	ns	8.48	**
GM × Plant	3	3.79	*	4.57	*	3.75	*	2.84	ns	1.39	ns	1.05	ns	1.92	ns	7.44	**

*** p < 0.001, **p < 0.01, * p< 0.05, ns not significant.

Table S8. Nutrient contents in the plant aerial biomass (n=3).

Treatment	Aerial biomass (g DM)		Total N (g 100g ⁻¹ DM)		P (g 100g ⁻¹ DM)		K (g 100g ⁻¹ DM)		Ca (g 100g ⁻¹ DM)		Mg (g 100g ⁻¹ DM)		Fe (mg kg ⁻¹ DM)		Cu (mg kg ⁻¹ DM)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GM1-EU	898.9	234.5	0.8	0.1	0.44	0.07	1.8	0.3	1.7	0.2	0.19	0.03	135.3	31.4	3.8	0.5
GM1-HY	67.2	39.1	1.2	0.2	0.39	0.00	1.0	0.1	1.8	0.0	0.19	0.02	824.5	839.3	10.3	3.9
GM1-ST	274.5	263.0	1.1	0.4	0.13	0.01	0.8	0.1	0.2	0.1	0.05	0.01	229.3	95.1	1.3	0.1
GM1-LP	317.8	164.5	1.7	0.4	0.37	0.05	1.5	0.2	1.0	0.4	0.17	0.03	1168.7	797.0	8.1	4.3
GM2-EU	594.4	201.0	0.6	0.0	0.44	0.07	1.9	0.1	1.7	0.1	0.18	0.02	220.0	135.3	3.4	0.6
GM2-HY	63.1	--	1.2	--	0.35	--	1.1	--	1.6	--	0.18	--	295.0	--	9.4	--
GM2-ST	218.6	21.1	1.0	0.2	0.14	0.02	0.7	0.0	0.2	0.1	0.05	0.01	576.3	311.2	2.2	1.2
GM2-LP	121.9	60.6	2.1	0.2	0.37	0.05	1.1	0.1	1.8	0.1	0.17	0.00	2421.3	977.0	12.9	6.2
GM3-EU	485.4	149.0	0.8	0.2	0.43	0.05	1.8	0.0	1.6	0.1	0.17	0.01	225.0	58.9	3.2	0.5
GM3-HY	26.3	12.3	1.0	0.1	0.31	0.05	0.9	0.2	1.6	0.1	0.14	0.02	1273.7	485.3	12.3	1.8
GM3-ST	211.7	36.4	1.7	1.4	0.15	0.01	0.7	0.1	0.1	0.1	0.04	0.00	347.5	120.9	1.9	1.3
GM3-LP	250.4	66.9	1.8	0.3	0.37	0.03	1.5	0.1	1.4	0.1	0.21	0.02	4700.3	3830.9	17.1	12.9

Treatment	Mn (mg kg ⁻¹ DM)		B (mg kg ⁻¹ DM)		Cd (mg kg ⁻¹ DM)		Cr (mg kg ⁻¹ DM)		Hg (mg kg ⁻¹ DM)		Ni (mg kg ⁻¹ DM)		Pb (mg kg ⁻¹ DM)		Zn (mg kg ⁻¹ DM)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GM1-EU	17.0	3.7	20.3	2.9	0.02	0.00	0.5	0.2	0.00	0.00	0.21	0.05	0.11	0.14	22.0	0.0
GM1-HY	41.0	17.0	56.0	0.0	0.04	0.00	2.3	2.1	0.00	0.00	0.53	0.23	0.97	0.89	62.5	33.2
GM1-ST	9.6	2.2	1.9	1.1	0.00	0.00	1.1	0.2	0.00	0.00	0.53	0.16	0.23	0.28	17.3	0.8
GM1-LP	52.7	29.7	5.9	2.1	0.03	0.01	2.3	1.3	0.00	0.00	1.67	1.44	4.50	4.08	98.3	42.8
GM2-EU	26.7	5.9	22.3	2.0	0.03	0.01	0.5	0.3	0.00	0.00	0.32	0.10	0.45	0.31	43.3	26.8
GM2-HY	32.0	--	56.0	--	0.02	--	0.8	--	0.00	--	0.14	--	0.31	--	26.0	--
GM2-ST	17.9	8.9	1.5	1.0	0.01	0.01	1.7	0.5	0.06	0.08	1.02	0.24	1.32	0.65	37.3	14.6
GM2-LP	92.3	31.0	9.2	1.1	0.08	0.04	4.8	1.9	0.00	0.00	3.70	1.53	8.47	3.27	231.7	119.5
GM3-EU	23.7	6.6	20.0	1.2	0.02	0.01	1.3	0.3	0.00	0.00	0.77	0.33	0.31	0.29	28.3	4.6
GM3-HY	80.3	36.6	32.7	3.5	0.04	0.02	15.3	13.4	0.00	0.00	9.92	9.88	2.90	0.86	38.3	9.8
GM3-ST	12.1	4.2	1.5	0.6	0.01	0.01	2.4	0.2	0.00	0.00	1.15	0.21	0.95	0.64	28.5	3.5
GM3-LP	185.7	143.7	7.5	2.2	0.10	0.06	9.1	5.3	0.00	0.00	6.17	3.80	14.53	7.27	159.0	95.3

Table S9. Nutrient contents in the plant root biomass (n=3).

Treatment	Root biomass (g DM)		Total N (g 100g ⁻¹ DM)		P (g 100g ⁻¹ DM)		K (g 100g ⁻¹ DM)		Ca (g 100g ⁻¹ DM)		Mg (g 100g ⁻¹ DM)		Fe (mg kg ⁻¹ DM)		Cu (mg kg ⁻¹ DM)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GM1-EU	83.7	26.2	0.6	0.0	0.2	0.0	1.6	0.1	0.7	0.0	0.14	0.0	484.3	159.5	8.2	0.5
GM1-HY	42.7	27.3	1.0	0.1	0.4	0.0	0.8	0.1	1.0	0.2	0.10	0.0	516.0	107.5	9.5	3.6
GM1-ST	5.0	2.9	0.6	0.0	0.1	0.0	0.5	0.1	0.5	0.1	0.05	0.0	640.3	21.9	5.7	1.3
GM1-LP	21.9	8.2	1.1	0.2	0.2	0.0	0.4	0.0	1.3	0.2	0.08	0.0	2425.3	975.3	20.0	8.8
GM2-EU	53.1	19.6	0.7	0.1	0.3	0.1	1.8	0.1	0.8	0.0	0.18	0.0	457.3	36.6	7.2	1.2
GM2-HY	6.6	8.1	1.1	--	0.4	--	1.1	--	0.9	--	0.12	--	372.0	--	8.5	--
GM2-ST	8.0	3.4	0.5	0.0	0.1	0.0	0.4	0.0	0.3	0.0	0.04	0.0	537.7	113.8	2.6	0.3
GM2-LP	9.1	4.0	1.8	0.6	0.3	0.0	0.6	0.1	1.6	0.2	0.13	0.0	2788.3	302.1	20.0	2.5
GM3-EU	52.1	21.0	0.8	0.2	0.2	0.0	1.5	0.3	0.7	0.1	0.15	0.0	648.0	134.7	7.0	1.2
GM3-HY	23.6	14.5	0.9	0.2	0.4	0.0	0.9	0.1	1.2	0.1	0.11	0.0	677.7	125.8	9.9	0.0
GM3-ST	4.1	2.6	0.5	0.1	0.1	0.0	0.4	0.0	0.3	0.0	0.04	0.0	453.0	190.9	2.2	1.1
GM3-LP	48.4	31.9	1.5	0.3	0.2	0.1	0.7	0.2	1.3	0.0	0.12	0.0	5333.0	1791.7	36.7	9.2

Treatment	Mn (mg kg ⁻¹ DM)		B (mg kg ⁻¹ DM)		Cd (mg kg ⁻¹ DM)		Cr (mg kg ⁻¹ DM)		Hg (mg kg ⁻¹ DM)		Ni (mg kg ⁻¹ DM)		Pb (mg kg ⁻¹ DM)		Zn (mg kg ⁻¹ DM)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GM1-EU	17.7	2.9	11.3	0.4	0.03	0.0	1.9	0.2	0.4	0.1	0.9	0.1	0.9	0.3	13.7	1.1
GM1-HY	27.0	1.4	13.5	2.1	0.02	0.0	2.4	0.6	0.6	0.1	1.2	0.2	1.0	0.6	25.5	10.6
GM1-ST	19.3	0.8	10.6	6.5	0.02	0.0	0.7	0.2	0.4	0.1	0.0	0.0	0.6	0.3	6.7	1.6
GM1-LP	99.0	17.4	9.8	1.4	0.05	0.0	3.4	2.2	0.3	0.3	1.9	1.1	4.8	1.8	132.7	101.3
GM2-EU	16.7	1.1	13.3	1.1	0.03	0.0	1.6	0.2	0.5	0.1	0.9	0.2	0.6	0.2	13.7	0.4
GM2-HY	26.0	--	14.0	--	0.05	--	2.3	--	0.4	--	1.2	--	0.2	--	44.0	--
GM2-ST	14.7	2.0	3.6	0.6	0.01	0.0	0.9	0.1	0.3	0.1	0.0	0.0	0.6	0.2	7.4	1.6
GM2-LP	99.3	12.5	10.0	0.7	0.01	0.0	0.5	0.3	0.4	0.2	0.1	0.1	0.7	0.2	23.0	10.9
GM3-EU	20.0	3.5	12.2	1.9	0.04	0.0	2.6	1.1	0.3	0.3	1.2	0.5	0.9	0.4	12.7	2.7
GM3-HY	24.3	2.3	14.0	1.2	0.02	0.0	1.4	0.9	0.3	0.0	0.8	0.4	1.2	0.5	14.3	2.3
GM3-ST	13.7	6.1	3.3	0.0	0.01	0.0	1.0	0.9	0.3	0.1	0.0	0.0	0.3	0.3	10.6	2.1
GM3-LP	156.3	25.9	8.7	1.8	0.08	0.0	4.2	3.1	0.4	0.0	2.7	2.0	8.4	3.3	317.3	269.7

Table S10. Phosphate content (mg L⁻¹) evolution in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	80.06	65.03	54.98	24.55	6.32	7.61	6.89	6.89
GM1- HY	69.13	55.48	46.24	21.1	6.29	12.21	8.11	6.67
GM1 -LP	70.13	52.69	48.81	17.75	6.98	8.3	8.39	5.79
GM1-ST	81.12	63.43	49.16	22.79	8.55	8.55	9.52	6.36
GM2 -LP	31.69	31.28	20.6	7.61	4.63	6.07	5.85	3.60
GM2-EU	29.84	26.46	19.26	9.89	3.13	3.6	3.13	3.13
GM2-HY	32.94	30.25	23.26	9.49	4.16	5.73	5.67	3.13
GM2-ST	31.69	28.62	22.29	8.61	3.13	4.16	3.73	3.73
GM3- EU	15.31	15.25	9.74	5.85	3.16	3.13	3.60	3.13
GM3 -LP	15.19	15.91	6.98	3.88	3.13	3.22	3.76	3.13
GM3-HY	15.09	14.53	9.58	5.35	3.19	3.19	4.88	3.13
GM3-ST	14.62	14.68	10.55	5.89	3.13	3.95	3.73	3.13
Max	--	--	--	--	--	--	--	--

Table S11. Dynamic of the sulphate content (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	96.88	67.99	61.27	49.28	27.36	10.96	6.15	6.15
GM1- HY	64.59	47.97	58.35	69.5	31.24	14.46	6.34	25.05
GM1 -LP	76.08	53.64	51.94	52.64	26.86	16.81	10.72	23.23
GM1-ST	73.62	51.36	52.66	51.76	26.34	26.34	7.52	27.92
GM2 -LP	42.14	38.76	51	63.15	29.13	18.23	10.41	23.32
GM2-EU	52.01	40.12	56.76	63.94	25.5	10.97	6.99	28.21
GM2-HY	51.5	38.22	53.94	51.82	26.24	11.7	5.50	25.05
GM2-ST	38.09	31.02	57.91	50.51	25.96	14.86	5.56	5.56
GM3- EU	75.31	53.73	50.05	56.99	25.84	12.4	9.54	29.20
GM3 -LP	42.59	34.99	38.48	43.72	24.82	13.24	7.89	23.08
GM3-HY	42.27	39.54	48.1	51.53	29.16	29.16	5.15	23.90
GM3-ST	46.42	33.54	45.75	50.66	25.73	14.31	8.04	23.97
Max	250	250	250	250	250	250	250	250

Table S12. Dynamic of the potassium content (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	156.44	135.76	99.29	44.17	9.74	6.82	4.48	4.48
GM1- HY	118.84	108.43	84.2	64.74	13.07	7.54	5.29	5.86
GM1 -LP	130.15	102.19	87.32	48.6	12.4	10.25	6.61	6.54
GM1-ST	134	109.85	82.95	51.11	17.93	17.93	5.96	6.30
GM2 -LP	51.75	48.97	37.69	29.27	10.08	7.58	5.11	5.73
GM2-EU	54.24	48.04	35.98	28.99	6.4	3.94	2.48	5.65
GM2-HY	61.42	56.75	47.91	28.67	8.13	5.33	3.81	5.37
GM2-ST	53.05	47.71	45.84	22.57	5.17	3.53	2.82	2.82
GM3- EU	47.36	38	26.21	23.11	7.68	4.84	3.89	6.30
GM3 -LP	37.83	33.65	20.13	24.84	9.15	6.26	4.74	8.86
GM3-HY	38.52	35.51	23.49	22.03	6.82	6.82	3.43	4.07
GM3-ST	34.62	30.12	25.95	23.13	6.54	19.06	3.22	4.25
Max	--	--	--	--	--	--	--	--

Table S13. Dynamic of the magnesium content (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	29.69	20.34	14.56	9.23	8.33	6.12	4.62	4.62
GM1- HY	19.66	14.76	12.33	12.61	9.55	5.71	3.63	7.55
GM1 -LP	24.17	17.36	14.35	12.48	8.95	7.12	5.85	8.68
GM1-ST	22.17	14.87	10.92	10.34	8.26	8.26	3.70	8.24
GM2 -LP	13.31	11.19	8.63	11.98	8.23	5.23	4.23	6.84
GM2-EU	15.4	11.12	9.17	10.64	7.6	4.61	3.45	7.28
GM2-HY	14.54	10.71	9.41	9.34	6.97	4.15	3.10	6.26
GM2-ST	12.04	9.1	8.91	9.11	6.76	4,,25	3.17	3.17
GM3- EU	18.95	13.11	8.95	10.25	7.63	5.1	4.66	7.51
GM3 -LP	12.81	9.99	6.14	9.81	7.63	4.97	4.48	6.67
GM3-HY	12.01	10.03	7.61	10.84	7.65	7.65	3.45	6.32
GM3-ST	12.71	9.58	7.75	9.46	7.38	4.57	3.41	6.63
Max	--	--	--	--	--	--	--	--

Table S14. Dynamic of the calcium content (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	124.02	93.28	68.88	46.8	45.04	31.99	25.73	25.73
GM1- HY	79.9	70.3	60.28	56.02	46.23	33.31	22.25	52.29
GM1 -LP	97.2	77.76	60.35	53.93	47.22	37.15	31.61	55.26
GM1-ST	89.54	70.8	53.26	47.17	41.2	41.20	21.64	51.34
GM2 -LP	54.35	54.16	44.43	73.85	47.81	31.62	25.37	54.74
GM2-EU	65.28	56.36	46.64	57.18	44.68	29.76	23.04	54.71
GM2-HY	63.21	56.09	50.73	54.04	45.07	29.07	22.43	53.55
GM2-ST	53.82	47.62	50.84	53.8	46.56	31.94	25.90	25.90
GM3- EU	91.51	70.62	50.97	61.88	46.5	34.83	33.71	60.36
GM3 -LP	52.53	45.41	33.18	54.6	44.31	31.06	27.15	57.72
GM3-HY	54.57	53.8	41.57	64.13	53.46	53.46	23.81	56.57
GM3-ST	54.36	42.85	42.11	54.28	46.45	29.74	21.42	53.88
Max	--	--	--	--	--	--	--	--

Table S15. Dynamic of the copper content (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	0.19	0.18	0.12	0.06	0.05	0.05	0.05	0.05
GM1- HY	0.15	0.13	0.1	0.07	0.05	0.05	0.05	0.05
GM1 -LP	0.19	0.16	0.12	0.06	0.05	0.05	0.05	0.05
GM1-ST	0.2	0.18	0.13	0.06	0.05	0.05	0.05	0.05
GM2 -LP	0.23	0.13	0.08	0.05	0.05	0.05	0.05	0.05
GM2-EU	0.12	0.1	0.07	0.05	0.05	0.05	0.05	0.05
GM2-HY	0.12	0.09	0.07	0.05	0.05	0.05	0.05	0.05
GM2-ST	0.13	0.11	0.09	0.05	0.05	0.05	0.05	0.05
GM3- EU	0.13	0.11	0.07	0.05	0.05	0.05	0.05	0.05
GM3 -LP	0.13	0.13	0.06	0.05	0.05	0.05	0.05	0.05
GM3-HY	0.12	0.1	0.06	0.05	0.05	0.05	0.05	0.05
GM3-ST	0.13	0.13	0.07	0.05	0.05	0.05	0.05	0.05
Max	2	2	2	2	2	2	2	2

Table S16. Dynamic of the lead (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	0.18	0.2	0.25	0.05	0.05	0.05	0.05	0.05
GM1- HY	0.24	0.22	0.11	0.05	0.05	0.05	0.05	0.05
GM1 -LP	0.18	0.16	0.09	0.05	0.05	0.05	0.05	0.05
GM1-ST	0.25	0.21	0.12	0.05	0.05	0.05	0.05	0.05
GM2 -LP	0.21	0.13	0.07	0.05	0.05	0.05	0.05	0.05
GM2-EU	0.12	0.1	0.05	0.05	0.05	0.05	0.05	0.05
GM2-HY	0.15	0.12	0.05	0.05	0.05	0.05	0.05	0.05
GM2-ST	0.16	0.12	0.06	0.05	0.05	0.05	0.05	0.05
GM3- EU	0.08	0.08	0.05	0.05	0.05	0.05	0.05	0.05
GM3 -LP	0.14	0.14	0.05	0.05	0.05	0.05	0.05	0.05
GM3-HY	0.11	0.09	0.09	0.05	0.05	0.05	0.05	0.05
GM3-ST	0.16	0.17	0.06	0.05	0.05	0.05	0.05	0.05
Max	5	5	5	5	5	5	5	5

Table S17. Dynamic of the boron content (mg L⁻¹) in leachates. Maximal threshold contents correspond to the drinkable water standard [45].

Treatments	2020-02-11	2020-02-25	2020-05-12	2020-09-01	2020-11-18	2021-01-13	2021-02-17	2021-04-16
GM1 -EU	0.7	0.59	0.44	0.24	0.1	0.1	0.10	0.10
GM1- HY	0.54	0.47	0.37	0.31	0.1	0.1	0.10	0.10
GM1 -LP	0.61	0.46	0.41	0.2	0.1	0.1	0.10	0.10
GM1-ST	0.64	0.51	0.38	0.23	0.1	0.10	0.10	0.10
GM2 -LP	0.34	0.28	0.22	0.17	0.1	0.1	0.10	0.10
GM2-EU	0.35	0.27	0.22	0.17	0.1	0.1	0.10	0.10
GM2-HY	0.39	0.31	0.25	0.13	0.1	0.1	0.10	0.10
GM2-ST	0.34	0.25	0.25	0.12	0.1	0.1	0.10	0.10
GM3- EU	0.32	0.26	0.17	0.14	0.1	0.1	0.10	0.10
GM3 -LP	0.26	0.21	0.14	0.12	0.1	0.1	0.10	0.10
GM3-HY	0.25	0.22	0.15	0.1	0.1	0.10	0.10	0.10
GM3-ST	0.25	0.2	0.18	0.11	0.1	0.1	0.10	0.10
Max	1	1	1	1	1	1	1	1