

Production and characterization of lightweight aggregates from municipal solid waste incineration fly-ash through single- and double-step pelletization process

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Supplementary material (Tables)

Table S1. Elements composition of cement, GBFS, and MS.

Element	Cement (%wt)	GBFS (%wt)	MS (%wt)
Fe ₂ O ₃	3.41	25.53	1.35
CaO	67.16	17.48	51.92
CO	-	11.29	22.74
SiO ₂	16.65	16.26	14.16
Al ₂ O ₃	4.21	8.93	4.56
SO ₃	5.34	-	-
MgO	1.71	7.94	1.21
Mn ₂ O ₃	-	3.44	-
Cr ₂ O ₃	-	1.84	-
NO _x	-	10.07	-
SnO ₂	-	-	2.20
Na ₂ O	-	-	0.86
K ₂ O	1.54	-	1.02

Table S2. Physical-chemical characteristics of FA and W-FA.

Property	FA	W-FA
pH	12.23±0.15	12.21±0.15
Elements (wt.%)		
Fe ₂ O ₃	0.86	1.16
CaO	24.31	39.90
CO	16.35	14.13
SiO ₂	2.62	4.57
Al ₂ O ₃	1.53	3.36
SO ₃	8.57	9.58
ClO	21.20	8.77
MgO	1.09	2.57
ZnO	2.85	3.36
TiO ₂	0.36	0.98
Na ₂ O	13.87	9.10
K ₂ O	6.41	2.32
Particle size distribution (%)		
<1 µm	0	0
1-10.5 µm	5.84	4.75
10-20 µm	9.28	6.30
20-49 µm	29.35	16.73
49-80 µm	13.66	8.89
80-120 µm	8.29	6.03
>120 µm	33.58	57.30
Soluble salts (mg kg⁻¹)		
Chloride	90720	30130
Sulphate	8355.7	6241.9
Total HMs (mg kg⁻¹)		
Cu	1369.69	1021.30
Cd	1155.91	1170.76
Pb	1164.84	1803.05
Cr	661.25	845.18
Zn	1163.29	2000.35