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Supporting information

Quantitative Zn speciation in zinc-containing steelmaking wastes by X-ray absorption spectroscopy

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S1 Results of XRF analysis

Table S1 Chemical composition of zinc-containing steelmaking wastes analyzed by wavelength dispersive XRF spectroscopy (wt%)

Samples	TFe*	SiO_2	MgO	CaO	Al_2O_3	MnO	P_2O_5	ZnO
EAFD	38.0	4.1	2.5	8.3	1.0	3.0	0.4	20.4
BFS	48.1	5.4	0.3	2.1	2.1	0.2	0.2	0.03
BFD	47.5	4.8	0.4	2.6	2.1	0.2	0.1	0.06
BOF OG	54.1	1.2	5.7	12.7	0.2	0.7	0.2	3.4
BOF LT	60.2	1.3	3.0	8.0	0.3	0.6	0.2	1.6

* Total content of iron.

S2. Results of SR-XRD analysis

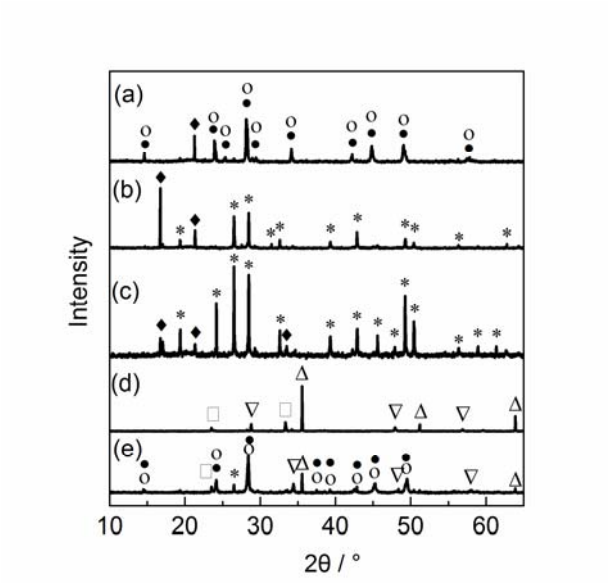

Fig. S1 Results of XRD analysis of zinc-containing steelmaking wastes: (a) EAFD; (b) BFS; (c) BFD; (d) BOF OG; (e) BOF LT; (*) hematite - Fe_2O_3 (PDF: 33-0664); (○) magnetite -Fe_3O_4 (PDF: 75-0499); (●) franklinite-$ZnFe_2O_4$ (PDF: 73-1693); (△) metallic iron -Fe(PDF: 87-0721); (▽) iron oxide-FeO (PDF: 89-0687); (◆) quartz-SiO_2 (PDF: 83-0539)；（□）calcite-$CaCO_3$ (PDF: 86-2343).

Table S2 Mineral phases contained in zinc-containing steelmaking wastes by SR-XRD analysis

Sample	Mineral phases
EAFD	$ZnFe_2O_4/Fe_3O_4$, SiO_2
BFS	Fe_2O_3, SiO_2
BFD	Fe_2O_3, SiO_2
BOF OG	Fe, FeO, $CaCO_3$
BOF LT	$Fe_3O_4/ZnFe_2O_4$, Fe, $CaCO_3$, FeO, Fe_2O_3