

The main components and particle size distribution of tailings are shown in Table S1 and Figure S1.

Table S1. Main components of tailings/wt. %.

SiO ₂	Al ₂ O ₃	MgO	Fe ₂ O ₃	P ₂ O ₅	CaO	Na ₂ O	TiO ₂	SO ₃
64.4	5.65	4.28	18.04	0.35	4.77	1.01	0.09	0.76

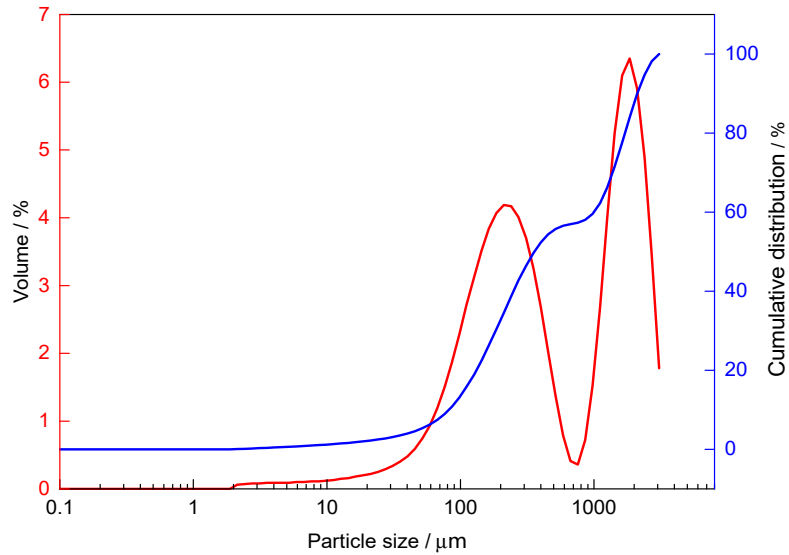


Figure S1. Particle size distribution of tailings.

Figure S2 and S3 show the XRD and microstructure results using the optimal combination. CSH and ettringite could be observed after hydration and the content of CSH and ettringite increase with the increase of curing periods. SEM picture also shows some needle shape products, which has been reported to be ettringite.

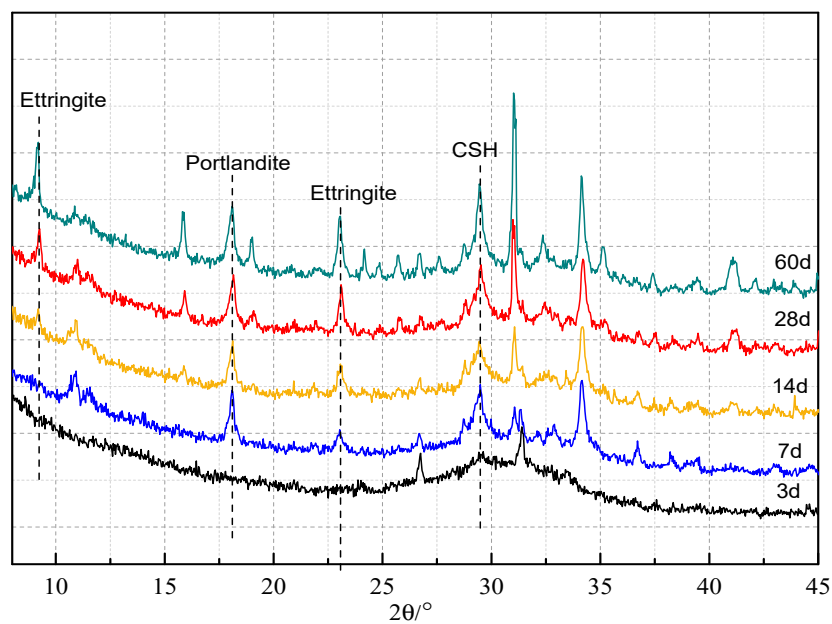


Figure S2. XRD results

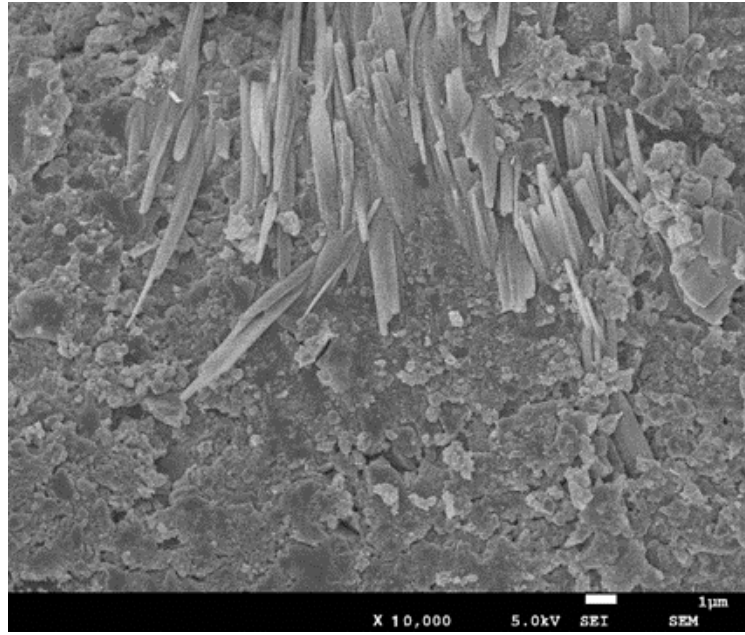


Figure S3. Microstructure after curing for 60 days