

Method for demetallizing fly ash involves treating fly ash with liquid reagent containing chelating agent under heating and atmospheric pressure, separating phases into solid silicon-containing residue and liquid filtrate containing metals, and recovering metals from filtrate, wherein deep eutectic solvent (DES) containing urea, ammonium chloride, and citric acid as chelating agent is used as liquid reagent. The leaching process is intensified by ultrasonic cavitation, and regenerated DES is returned to the leaching cycle.