

Ni 的浸出,控制固体为 $\text{Ni}(\text{OH})_2$.

3 结论

(1)浸出液 pH 对生活垃圾焚烧飞灰金属浸出影响显著.酸性条件下(Cd 、 Zn 、 Ni : $\text{pH} < 8$; Pb 、 Cu 、 Cr : $\text{pH} < 6$; Al : $\text{pH} < 4$),金属随 pH 降低而大量溶出;两性金属 Pb 和 Zn ,在强碱性条件时($\text{pH} = 12.5$)浸出浓度可分别达 42 和 $2.4 \text{ mg} \cdot \text{L}^{-1}$.

(2)模型计算结果与实验值吻合较好,对 Pb 、 Zn 、 Cu 、 Ca 、 Al ,同时考虑 HFO 吸附与仅考虑溶解/沉淀作用所得的模型模拟结果非常类似,说明其主要由溶解/沉淀反应控制其化学形态和浸出浓度,吸附反应的作用较小.对 Cd 、 Cr 、 Ni ,考虑 HFO 吸附的模型模拟结果与实验值更为接近,在中性至酸性条件下,吸附反应控制着这些重金属的浸出;而在碱性条件下,溶解/沉淀平衡是其浸出的主要机制.采用 Visual MINTEQ 模型,可模拟预测不同 pH 条件下飞灰的金属浸出结果.

(3)浸出液 pH 对飞灰中金属溶出的影响,主要是通过改变金属在浸出体系中的化学形态而得以实现.

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