

技术及应用

以UF₆ 水解液为原料制备AUC粉末

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摘要 以UF₆水解液为原料, 采用AUC工艺流程制备AUC粉末。研究了以UF₆水解液为原料制备AUC粉末的主要控制参数, 讨论了氟体系制备的AUC粉末与硝酸体系制备的粉末性能间的各种差异。实验结果表明: 以UF₆ 水解液为原料制备AUC粉末时, $n(\text{NH}_3)/n(\text{U})$ 控制在26~30之间, 沉淀时间控制在3~4 h较为适宜; 按此工艺生产的AUC粉末粒度约为30 μm, 松装密度为1.2~1.4 g/cm³, 组成恒定且质量稳定, 重现性好; 经分解还原得到的UO₂ 粉末性能稳定, 烧结活性高, 烧结密度大于97%T.D. (理论密度)。

关键词 [AUC](#) [UO₂粉末](#) [气-液反应](#) [沉淀](#)

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Preparation of AUC by Hydrolysis Product of UF₆

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Abstract The preparation process of AUC by the hydrolysis product of UF₆ was described. The equipment and the basic theory of AUC preparation were introduced. The difference between nitric acid system and fluorine system was discussed. The experiment results show that controlling the precipitation time in 3-4 h and the NH₃/U ratio in 26-30 are feasible. By this process, the granularity of AUC powder is about 30 μm, the bulk density is about 1.3 g/cm³, and the capability of UO₂ powder which produced by AUC is excellent. The sinter density is above 97%T.D.

Key words [AUC](#) [UO₂ powder](#) [gas-liquid reaction](#) [precipitation](#)

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