

燃料、元件及分析测试

催化剂对注凝成型工艺制备 UO_2 陶瓷微球的影响

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摘要 研究采用注凝成型工艺制备高温气冷堆 UO_2 燃料元件核芯中胶凝催化剂的加入方式和用量对凝胶过程及小球球形度的影响。结果表明: 将催化剂加入到浆料的分散介质中, 既可有效降低浆料固化所需温度, 又可避免浆料提前固化, 对微球形度有很好的促进作用。随着催化剂加入量的增加, 浆料所[JP3]需的固化温度逐渐降低, 当催化剂用量达到介质总量的1.5% (体积比) 时, 浆料固化温度可降低至50 °C。

关键词 [高温气冷堆](#); [\$UO_2\$ 燃料核芯](#); [注凝成型](#); [催化剂](#)

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Effect of Catalyst on Properties of UO_2 Microspheres Manufactured by Gel-Casting

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Abstract UO_2 fuel kernels were prepared by gel-casting method. When the slurry was dispersed into a hot organic liquid, the slurry drops would become micro-spheres with the surface tension, and organic monomers in the slurry would be polymerized in the initiating of high temperature, as a result, U_3O_8 green micro-spheres would be produced. The advantages of putting catalyst into organic oil is that the slurry can be kept long time for the dropping, and the temperature of organic oil could be decreased with the increase of catalyst content. When 1.5% (in volume) catalyst is dispersed in the dimethicone, the gelation temperature is 50 °C.

Key words [high-temperature](#) [gas-cooled](#) [reactor](#) [_ \$UO_2\$ kernel](#) [_ gel-casting](#) [_ activator](#)

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