

Study on Pneumatic Milling Technology Used in UO_2 Powder Manufacturing Process

LI Chao-duan

(*Yibin Nuclear Fuel Element Plant, Yibin 644000, China*)

Abstract : In the paper ,the feasibility and conditional tests including feed speed and air pressure of pneumatic milling technology used in ceramic UO_2 powder manufacturing process are studied. The test determines 100 ~ 150 kg/h of feed speed and 0.65 ~ 0.75 MPa of air pressure as the optimized parameters. The test results show that the pneumatic milling process not only can solve the milling technology with big particle size of UO_2 powder and environment contamination during milling operation , but also can reduce the time of ADU reduction , and the UO_2 powder after reduction by kilning and without stabilizing and sieving can be directly introduced into milling device for pneumatic milling. The UO_2 powder passed the pneumatic milling operation has the better physical and chemical characteristics ,and it meets the needs of design specification.

Key words : pneumatic milling ; big particle size ; UO_2

日本原燃与日本核燃料循环开发机构开发新型离心机

日本原燃与日本核燃料循环开发机构于2000年11月1日在青森县六克村设立“铀浓缩技术开发中心”。铀浓缩事业方面的目标是开发最终规模为每年1500 t SWU的新型离心机。以2010年为期限,届时用新型离心机进行铀、钚与核裂变产物的分离生产。今后10年内,新型离心机的开发费用为300~400亿日元。原燃热衷于继承核燃料循环开发机构的技术,用具有比现在运行中的离心机高4~5倍分离性能与经济性的新型离心机的实用化来扩大国内铀浓缩的生产。

现在,原燃的铀浓缩工厂以每年1050 t SWU的规模运行。采用下一代新型离心机达到每年1500 t SWU的规模估计要到2020年。

摘自中国原子能科学研究院《科技信息》