

## 动力堆乏燃料中 $^{146}\text{Pm}$ 与 $^{147}\text{Pm}$ 比值的测定

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**摘要** <正> 一、序言  $^{147}\text{Pm}$ 是一种具有2.62 a半衰期,发射粒子最大能量为224.5 keV的软 $\beta$ 辐射源( $\gamma$ 发射很弱),有广泛的用途。  $^{147}\text{Pm}$ 虽有 $^{146}\text{Nd}(n,\gamma)^{147}\text{Nd}\rightarrow\text{Pm}$ 的生产方法,但其产量有限,成本高。而核裂变产物 $^{147}\text{Pm}$ —核动力堆的副产物,来源是非常丰富的。但是,在裂变产物 $^{147}\text{Pm}$ 中除存在 $^{148}\text{Pm}(T_{1/2}=5.4\text{ d})$ 和 $^{148}\text{Pm}$ 之外,还存在一种伴有

关键词 [钷-146](#) [钷-147](#) [高效液相色谱](#)

分类号

## DETERMINATION OF THE RATIOS OF $^{146}\text{Pm}$ TO $^{147}\text{Pm}$

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**Abstract** The ratios of  $^{146}\text{Pm}$  to  $^{147}\text{Pm}$  were determined. When the burnups were  $1.5\times 10^{-4}$  and  $1.7\times 10^{-4}$  MWd/tU, the ratios were  $2.6\times 10^{-6}$  and  $3.0\times 10^{-6}$  respectively. The activity of  $^{146}\text{Pm}$  was measured with the  $\gamma$ -ray spectra by a Ge (Li) detector and that of  $^{147}\text{Pm}$  with determination of beta particles by a terphenyl scintillation detector. The samples of Pm in the spent fuel for a power reactor before measurement were separated from Sr, Cs, Ce, U, transuranium elements and others with  $\text{H}_2\text{O}_2$  chromatography and then from the other rare earth elements etc. with the HPLC using  $\alpha$ -HIBA.

**Key words**  [\$^{146}\text{Pm}\$](#)   [\$^{147}\text{Pm}\$](#)  [HPLC](#)

DOI

### 扩展功能

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