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钚量热计的研制

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摘要 设计研制了1台结构简单、操作方便、样品池内径185 mm和高200 mm用于钚热功率测量的量热计。性能测试表明:钚量热计的样品热功率测量下限为4 mW、测量上限高于9 W,灵敏度约为 $202 \text{ mV} \cdot \text{W}^{-1}$,线性范围为4 mW~9 W。使用该量热计测量了钚样品的热功率,并与用分析化学和称量法测得的样品热功率进行了比较,结果表明:该量热计测量钚样品热功率具有较高的测量精度,当样品热功率不小于200 mW时,精密度优于0.5%。

关键词 [量热计](#) [钚](#) [比对](#)

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Development of Plutonium Calorimeter

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Abstract A simple-structure plutonium calorimeter was developed and the size of sample cell is $\phi 185 \text{ mm}$ and high 200 mm . The performance tests show that the sensitivity of calorimeter is about $202 \text{ mV} \cdot \text{W}^{-1}$ and the linear scope of the measuring thermal power is from 4 mW to 9 W . The thermal power of plutonium was measured by the calorimeter. And it was compared with that from chemical analysis and weighting method. The results show that a good precision could be expected to measure thermal power of plutonium sample by this apparatus. The precision of the calorimeter is better than 0.5%, when the thermal power of sample is not lower than 200 mW .

Key words [calorimeter](#) [plutonium](#) [comparison](#)

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