

技术及应用

Ti、Zr、Er及Nd等金属氚化物的³He释放

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摘要 利用四极质谱计(QMS)法测量了Ti、Zr、Er及Nd等4种单质金属的氚化物³He释放, 通过数年监测与数据积累, 对这4种金属氚化物的³He释放行为进行了比较研究。结果表明, 它们贮存早期的³He释放速率极低, 其释放速率均不及生成速率的1%, 其中, Ti、Zr氚化物³He释放系数(RF)为 $10^{-6} \sim 10^{-5}$ 量级, Er、Nd氚化物的³He RF为 10^{-3} 量级, 随着贮存时间的增加, 当金属氚化物内积累较多的³He时, 其RF会迅速增长至 10^{-1} 量级, 释放速率接近生成速率。

关键词 [贮氢金属; 氚化物; ³He释放](#)

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³He Release From Ti, Zr, Er and Nd Tritides

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Abstract ³He release from 4 kinds of metal tritide such as Ti, Zr, Er and Nd were measured by means of QMS method. Comparison of ³He release behavior among them shows that their ³He release rates are very low which are less than 1% of their ³He generation rate, and ³He release factors are $10^{-6} \sim 10^{-5}$ for Ti and Zr tritides and 10^{-3} for Er and Nd tritides. Their ³He release factors will increase rapidly to 10^{-1} level while enough ³He accumulates in metal tritides with storage time increase.

Key words [hydrogen storage metal](#) [metal tritide](#) [³He release](#)

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