

化学

钯的氚老化效应

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摘要 钯因其显著的氢同位素效应、抗毒化及良好的固氢特性, 已广泛应用于氚工艺中。随着工作时间的延长, 钯中衰变产生的³He将影响其应用性能。文章就氚老化对钯的*p-C-T*曲线、力学性能、微观结构的影响, 及³He在钯中的微观行为进行了综述。氚老化导致坪压降低、坪斜增加、氚尾增加、力学性能下降。氚衰变产生的³He聚集形成氦泡, 导致晶格膨胀, 且在钯中形成自间隙原子簇、位错、位错环等结构缺陷。

关键词 [钯](#); [氚](#); [老化](#)

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Tritium Aging Effect in Palladium

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Abstract Because of its well hydrogen isotope effect, its resistance to poisoning by impurity gas and its ability for retaining the ³He created by tritium decay, palladium is widely applied in tritium process, but tritium aging affects its applied properties. It's important for tritium process to master aging effect on palladium thermodynamics pro-perty, mechanical property and microstructure. By observing the modifications of *p-C-T* isotherms, we find that aging leads to the decrease of plateau pressure, increase of plateau slopes and tritium heels, and decline of the mechanical properties. The decay product ³He accumulates in palladium and the forming of He bubbles leads to the swelling of lattice. The defects, such as clusters of self-interstitial, dislocations, dislocation loops, can be observed during aging.

Key words [palladium](#) _ [tritium](#) _ [aging](#)

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