原子能科学技术 2005 (S1): ISSN: 1000-6931 CN: 11-2044/TL

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我国高性能锆合金的发展

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收稿日期 2005-1-5 修回日期 网络版发布日期:

摘要 文章介绍锆合金开发与研究的现状,着重概述我国高性能锆合金的发展。我国在跟踪国际锆合金发展的同时,通过对改善锆4合金耐腐蚀性能的研究,研制出了具有工艺代表性的改进型锆4合金包壳材料,且开发了两种新型锆合金。新型锆合金的堆外性能研究结果表明,它们的抗疖状腐蚀和抗吸氢性能优于锆4合金,其他性能好于或与锆4合金相当,综合性能明显优于锆4合金。

关键词 高性能锆合金 开发与研究 堆外性能

分类号 TG146.414

Development of Chinese Advanced Zirconium Alloys

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Abstract The current situation on research and development of zirconium alloys at home and abroad is summarized in the paper. The research results of Chinese advanced zirconium alloys are mainly described. The results obtained from the out-of-pile performance tests on these advanced alloys cladding materials show that two kinds of new zirconium alloys possess superior out-of-pile corrosion resistance including uniform and nodular corrosion, and their hydrogen absorption rates are quite low compared to that of Zi-4. And these alloys have demonstrated superior out-of-pile tensile strength, burst and creep properties relative to Zr-4. In addition, the thermal physical properties, texture, SCC for two alloys were examined, which also show good results compared with Zr-4.

Key words advanced zirconium alloys development and research out-of-pile performances

DOI

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