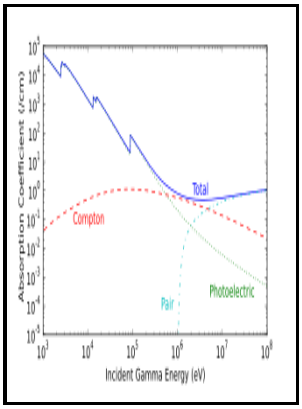
New damage function for predicting the effect of reactor irradiation on graphite in different neutron spectra

Metallurgy and Research Reactors Divisions, Atomic Energy Research Establishment - Challenges to the use of ion irradiation for emulating reactor irradiation



Description: -
-new damage function for predicting the effect of reactor irradiation on graphite in different neutron spectra
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Physical chermistry monograph series
AERE-R (Series) -- 4701.
AERE-R -- 4701new damage function for predicting the effect of reactor irradiation on graphite in different neutron spectra
Notes: A United Kingdom Atomic Energy Authority Research Group report.
This edition was published in 1964

Filesize: 18.98 MB

Tags: #A #new #damage #function #for #predicting #the #effect #of #reactor #irradiation #on #graphite #in #different #neutron #spectra

A new damage function for predicting the effect of reactor irradiation on graphite in different neutron spectra

To a lesser extent, the data are also useful for other in-core components of the Canadian pressure-tube type SCWR. The specimens were irradiated in a boiling water reactor BWR and the fast neutron fluence were 1. The results of these experiments have been used to generate a new relative damage function which will allow better projections of graphite radiation behavior in fusion reactors based on data obtained by irradiations in fission reactors.

Damage

In Irradiation Effects on the Microstructure and Properties of Metals, F. Gen IV SCWR Fuel Cladding Conditions Related to Mechanical Properties The effects of irradiation on mechanical properties of alloys depend on the type and composition of alloys, irradiation type, dose and dose rate, and temperature.

Effect of reactor radiation on the thermal conductivity of TREAT fuel

The study of the lubricants radiation resistance is therefore necessary for the construction of new generation accelerators and target systems. Tensile elongations were reduced after irradiation by about 50% up to 600 °C but the elongation at 700 °C was very low.

A REVIEW OF IRRADIATION EFFECTS ON MECHANICAL PROPERTIES OF CANDIDATE SCWR FUEL CLADDING ALLOYS FOR DESIGN CONSIDERATIONS

Atsumi H, Tanabe T, Shikama T 2009 Bulk hydrogen retention in neutron-irradiated graphite at elevated temperatures. Ziegler JF, Biersack JP, Ziegler MD 2009 SRIM—the stopping and range of ions in matter 2008. Nanstad: Perspectives on radaition effects in nickel-base alloys for

applications in advanced reactors.

Effect of reactor radiation on the thermal conductivity of TREAT fuel

There are much less data of irradiation creep found in the survey because ODS alloys are in the development stage for nuclear applications. Pilvin: A statistical TEM investigation of dislocation channeling mechanism in neutron irradiated zirconium alloys. J Mater Res 4 2 :385—393.

Damage function for carbon at neutron energies up to 15 MeV

An important new part of the damage function analysis technique provides the percent contributions of neutrons of all energy levels to the embrittlement process. The NST material is weaker in the transverse orientation than in the longitudinal orientation.

Challenges to the use of ion irradiation for emulating reactor irradiation

In Zirconium in the Nuclear Industry: Fifteenth international Symposium STP 1505, K. Solid State Commun 150 35—36 :1633—1636.

Experimental study of consistency degradation of different greases in mixed neutron and gamma radiation

An important new part of the damage function analysis technique provides the percent contributions of neutrons of all energy levels to the embrittlement process.

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