

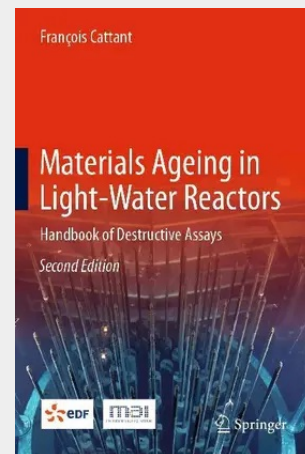
Materials Ageing in Light-Water Reactors

Handbook of Destructive Assays

This book is an extensive and detailed guide to the subject of materials ageing in light-water nuclear reactors. Proper management of materials degradation is essential for the safe, reliable, and economic operation of nuclear power plants across the globe. This handbook features a stunning and thorough observational treatment of the key materials degradational phenomena in light-water reactors, capturing the results of some typical destructive examinations that have been carried out to understand and furthermore mitigate these failures. It provides a comprehensive collection of unique photographs, detailed schematics, concise analyses, as well as precise measurements and expert recommendations. It is organized in such a manner that engineers and scientists can use the observations presented to not only arrive at their own conclusions but also subsequently improve their knowledge of specific materials ageing issues.

This handbook is supported by the Materials Ageing Institute (MAI) and Électricité de France (EDF) and is an extensive update to the previous edition, featuring up-to-minute information to reflect the state of the art as of 2020. Since its founding in 2008, the MAI has succeeded in expanding its membership and today represents two-thirds of the world's installed nuclear power capacity, benefiting from nearly 5,000 years of combined experience in reactor operation. The vast archive of past observational data and world-leading expert recommendations presented in this handbook leverage the unique expertise of the MAI in studying the key degradation phenomena of materials to ensure the secure and sustainable operation of carbon-free electricity production. It is a must-have on the desks of any engineers or researchers involved in ageing management for light-water reactors.

Introduction.- Fundamentals of Light Water Reactors.- Failure and Ageing Mechanisms.- Material Properties.- Nickel Based Alloys.- Stress Corrosion Cracking of Cold Worked Stainless Steels.



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