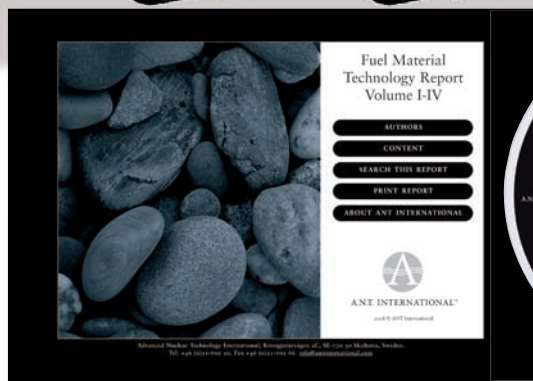


HANDBOOKS & REPORTS

FMTR Volume I-IV

Fuel Material Technology Report



Up to now fifteen (15) nuclear utilities, fuel vendors, research laboratories and regulatory agencies in the US, Europe and in Asia have purchased the FMTR Vol. I-IV.

Objective

The objective of this FMTR is to provide guidance for those needing to get an introduction to and an initial understanding of fuel material technology or to update and refresh the memory of those with materials background. This group includes individuals ranging from young engineers and researchers to upper management.

The Report provides the basic understanding of various material topics and relate that to fuel performance. It covers the range from basic data to current practical experience.



Authors: Al Strasser, Prof. Brian Cox, Friedrich Garzarolli, Dr. Ron Adamson, Dr. Peter Ford, Dr. Rolf Riess and Peter Rudling. Photos of the authors Hubert Bairiot and Stig Sandklef are missing.

“FMTR vol. I together with the ZIRAT and LCC programs has been very helpful to us on numerous occasions”

MARCUS NILSSON & ALEXANDER LINDQVIST,
Fuel Managers, OKG AB, E-ON Group, Sweden

“FMTR vol. II provides an excellent advanced summary of the materials issues relevant to nuclear fuels, written by experts in the field.”

ROSAURA HAM SU, Materials R&D Scientist,
Fuel Development, Atomic Energy of Canada

“FMTR Vol II - A starting point for every new project”

D R . R A U L B. REBAK,
Corrosion Engineer, GE Global Research

Content




Volume I

- General Reactor Characteristics
- Fuel Assembly Design
 - General outline of fuel assembly design and functions
 - Descriptions of various LWR fuel vendor designs and their specifics
- Fuel assembly materials
- Fuel rod, assembly and pressure tube in-reactor performance
- Fuel performance codes
- Manufacturing of pressure tubes for CANDU and RBMK reactors
- Manufacturing of PWR and BWR fuel assembly materials



Volume II


- Irradiation
 - Types of irradiation
 - Impact on materials
- Water chemistry impact on fuel
- Material properties
 - Corrosion and hydriding of Zr alloys
 - Dimensional stability of Zr alloys (irradiation growth, creep, residual stress relaxation, hydriding)
 - Mechanical properties of Zr alloys (stress-strain behaviour, fracture toughness, fatigue)
 - Stress corrosion cracking of Zr alloys (PCI)
 - IASCC of austenitic and nickel alloys
 - Grid-to-rod fretting
 - Secondary degradation of failed fuel
- Safety and design basis accidents (LOCA and RIA)
- Fuel design criteria and operating limits
- Fuel performance during intermediate storage
- High burnup issues and limits



Volume III

PWR and BWR Control rod Design and Performance (available 2009)

- General outline of control rod designs and what are the functions of the different components
- Materials used in the control rods and their characteristics (general)
- Description of various fuel vendor designs (their specifics) and their manufacturing (general)
- Reactor performance



Volume IV

Means to verify Fuel Performance (available end of 2008)

- Poolside methods (EC, visual, UT, Sipping, others)
- Hot cell examinations techniques

Deliverables

- Handmade, hardbound books, printed in four-colour
- Searchable CD-ROM, with high resolution pdf files
- Optional one and two day seminar on site for an additional fee

Contact

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