

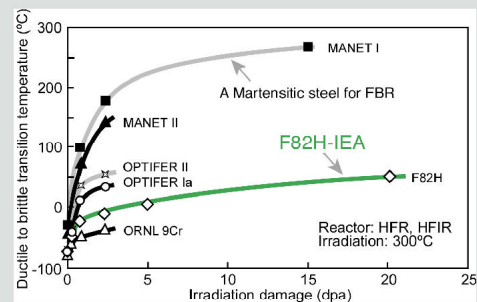
FUSION

FUSION MATERIALS AND IFMIF

- Low activation and radiation-resistant materials required for in-vessel components of fusion power plants to provide safe, reliable long-life services and to minimise impact of disposal of activated components after service.
- Ferritic/Martensitic (F/M) steels, SiC-SiC composites and vanadium alloys studied for structural use and refractory materials for protection.
- High energy, high intensity neutron source such as the International Fusion Materials Irradiation Facility (IFMIF) required to test and verify fusion materials performance.

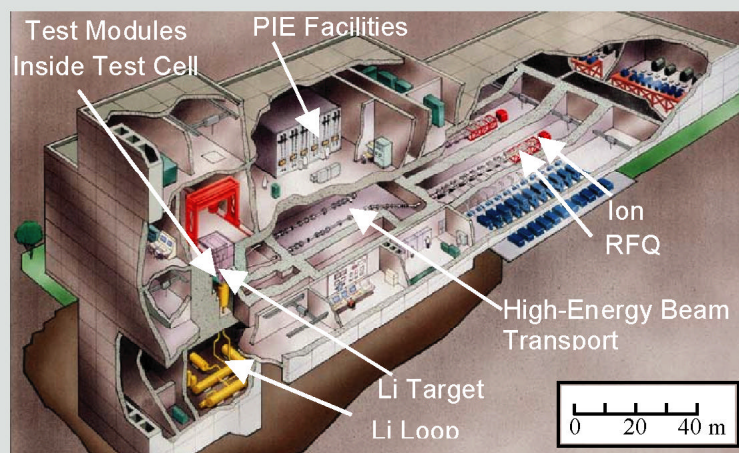
Ferritic/Martensitic Steels

- Ferritic/Martensitic (F/M) steels are primary candidate for first wall and blanket structures.
- Reduced-activation F/M (RAF/M) steels have been developed by Japan, the European Union, and the US, in the IEA framework .
- Two 5-ton heats were produced and machined into plate.
- Physical and mechanical properties resulted as good or better than those of conventional F/M steels.
- Welding, alternate fabrication processes and irradiation studies are ongoing.
- Database is established and available to international fusion community.



INTERNATIONAL FUSION MATERIALS IRRADIATION FACILITY (IFMIF)

- IFMIF was identified as the most appropriate materials irradiation test bed to fulfil the fusion requirements within a realistic time frame.
- In complement to studies in fission reactors, IFMIF will provide neutron irradiation capabilities of the type encountered in a fusion reactor.
- A conceptual design was developed in the IEA framework.
- Next phase of IFMIF (Engineering Design Activities) is presently discussed in the IEA framework for possible launching in 2004.



Participants to the Implementing Agreement on Fusion Materials: Canada, China, European Union*, Japan, Russian Federation, USA

* Switzerland is a partner of the European Union in this Agreement