

EXPLORATION OF RELIABILITY DATABASES AND COMPARISON OF FORMER IFMIF'S RESULTS

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There is an uncertainty issue about the applicability of industrial databases to new designs, such as the International Fusion Materials Irradiation Facility (IFMIF), as they usually contain elements for which no historical statistics exist. The exploration of common components reliability data in Accelerator Driven Systems and Liquid Metal Technologies frameworks is the milestone to analyze the data used in IFMIF reliability's reports and for future studies. The comparison between the reliability results given in the former IFMIF's reports and the databases explored has been made by means of a new accelerator RAM analysis. The databases accessibility and whether their source is based on engineering criterion or operational experience at other facilities will be developed in this report, too.

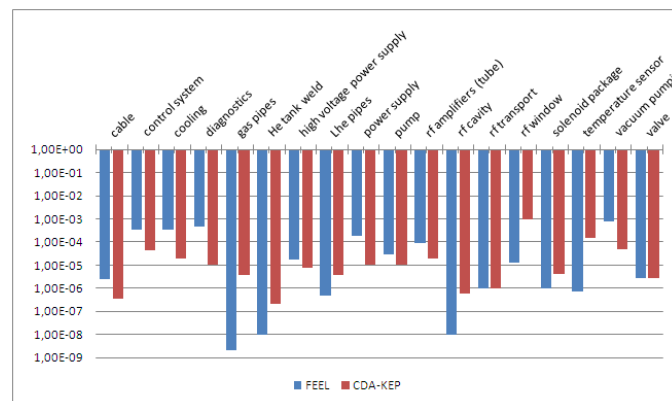


Figure 1. Failure rates in basic events available for comparison.

- [1] Vicente Pesudo, M.Sc. Thesis at the FEEL – Universitat Politècnica de Catalunya. 2009. Contribution to the RAM analysis of IFMIF.
- [2] Paolo Pierini et al., INFN (Istituto Nazionale di Fisica Nucleare). 2003. PDS-XADS. Preliminary Design Studies of an Experimental Accelerator Driven system: Potential for reliability Improvement and Cost Optimization of LINAC and Cyclotron Accelerators.
- [3] A.Mosnier, U. Ratzinger, Fusion Engineering and Design. 2008. IFMIF accelerators design.
- [4] T.Pinna. 9th International Symposium on Fusion Nuclear Technology. 2009. Operating experiences from existing fusion facilities in view of ITER safety and reliability.
- [5] Enric Petit et al., GANIL (Grand Accélérateur National d'Ions Lourds) 2005. Technical Report on Operating Accelerators 2003-2004.