
THE EUROPEAN ACTIVATION FILE, EAF-2005

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The current version of the European Activation File is EAF-2003. This library contains various libraries of nuclear data required for activation calculations. An important component is the neutron-induced cross section library. This contains cross section data for 12,617 reactions with an upper limit of 20 MeV. Plans to expose fusion components to high neutron fluxes include the IFMIF materials testing facility. This accelerator-based device will produce neutrons with a high-energy tail up to about 55 MeV. In order to carry out activation calculations on materials exposed to such neutrons it is necessary to extend the energy range of the cross section library.

Work on extending the energy range to 60 MeV is nearing completion. A test version (EAF-2004) was produced at the end of 2003 showing the feasibility of the chosen approach. This library required calculated data to extend the existing data from 20 - 60 MeV and to enlarge it with new classes of reaction with high thresholds. It contained 62,860 reactions and was based on results from the TALYS model code. Results of the testing of EAF-2004 and its improvement based on new data sources, experimental differential and integral data are reported. A summary of the new library EAF-2005, which is under development and is planned for distribution at the beginning of 2005, is given.

The other files in EAF-2005 are briefly described, these cover cross section uncertainty information and decay data, Both these have been extended beyond the current version to allow activation calculations at energies up to 60 MeV.