
FISSION PRODUCTS EVALUATION FOR ENDF/B-VII

YongDeok Lee¹, Jonghwa Chang¹, Pavel Oblozinsky²

¹ *Korea Atomic Energy Research Institute*

² *Brookhaven National Laboratory*

The neutron cross section data of 21 high priority fission products were submitted for a new release of ENDF/B-VII. The evaluation work was motivated by the need to improve ENDF/B-VI for materials of importance for a number of applications, such as criticality calculations for spent fuel storage design, high burn-up fuel design and reactor core design. In particular, improved neutron capture cross sections in the keV energy range are important in a reactor design. Many fission products in a reactor core have large neutron capture cross sections both in thermal and keV energy region. In most cases, considerable improvement over the current ENDF/B-VI files was achieved in capture and other reaction channels.

From the recent BNL review, re-evaluation was done in the fast energy region using EMPIRE[1] and merged with the evaluated resonance part[2] in the unresolved energy to make full data set. If necessary, background was put in the total, elastic and capture cross sections. Also, the general rule for the merge was established. The nuclear data full set involves (n, tot), (n, n), (n, n'), (n, 2n), (n, 3n), (n, na), (n, np), (n, g), (n, p) and (n, a) cross sections from thermal to 20 MeV. General description (MF=1) was completed for each nucleus. The results showed good agreement with the measured data and continuity at the merging energy. Format and physics checking codes were applied and NJOY code was run to check the individual cross sections and the processing. The new evaluation results will contribute for better applications.