
Group-averaged neutron and gamma-ray cross sections for radiation protection and shielding calculations for nuclear reactors

Sections efficaces multigroupes neutrons et gammas pour les calculs de radioprotection associés aux réacteurs nucléaires



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 6, *Reactor technology*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Group-averaged neutron and gamma-ray cross sections for radiation protection and shielding calculations for nuclear reactors

1 Scope

This document provides guidance in the preparation, verification, and validation of group-averaged neutron and gamma-ray cross sections for the energy range and materials of importance in radiation protection and shielding calculations for nuclear reactors¹⁾, see also [Annex A](#).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12749-5, *Nuclear energy, nuclear technologies, and radiological protection — Vocabulary — Part 5: Nuclear reactors*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12749-5 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

cross-section processing code

computer code that converts evaluated nuclear data in a specified format and procedure into a form that is appropriate for use in applications

Note 1 to entry: A cross-section processing code performs calculations such as resonance reconstruction, Doppler broadening, and multigroup averaging.

3.2

ENDF/B

United States of America *evaluated nuclear data file* (3.3) prepared and reviewed by subject matter experts that is coordinated and maintained by CSEWG and NNDC at Brookhaven National Laboratory

3.3

evaluated nuclear data file

nuclear reaction database stored using a specified format and procedure

EXAMPLE ENDF/B[2], JEFF[3], and JENDL[4].

1) This edition is based on ANSI/ANS-6.1.2-2013[1].