ANSI/ANS-19.1-2019

Nuclear Data Sets for Reactor Design Calculations

An American National Standard

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American Nuclear Society
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American National Standard Nuclear Data Sets for Reactor Design Calculations

Secretariat
American Nuclear Society

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American National Standard

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Foreword

(This foreword is not a part of American National Standard "Nuclear Data Sets for Reactor Design Calculations," ANSI/ANS-19.1-2019, but is included for informational purposes.)

The intent of this American National Standard is to provide guidance for the preparation of nuclear data sets for use in computer programs employed in the design of nuclear reactors. The nuclear data sets considered are evaluated data sets, processed continuous data sets, and processed averaged data sets. The nature of nuclear data sets considered in this standard is applicable to any reactor type. This standard is intended primarily for nuclear data to be used in reactor core calculations; however, the data may also be useful for other applications, such as shielding and dosimetry.

For evaluated data sets, guidance is provided concerning data sources, preparation of the evaluation, estimation of accuracy, verification, testing, and documentation. For processed (continuous or averaged) data sets, guidance is provided concerning data sources and data set preparation, checking, validation, and documentation.

The intent of this standard is not only to provide guidance on the creation of nuclear data sets, but also to require reactor analysts to (1) carefully consider the source, accuracy, and applicability of the nuclear data sets used in their simulations; (2) ensure that those data sets have been appropriately validated for the particular application; and (3) document the basis for confidence in decisions made regarding use of specific nuclear data sets. Compliance with the intent of this standard can be demonstrated through documentation that addresses all requirements of the standard.

Unlike ANS-19.1-2002 (R2011) (W2019), withdrawn with the approval of the 2019 version, no data sets are identified as standard data sets. However, several widely used data sets are listed in the appendix.

This standard might reference documents and other standards that have been superseded or withdrawn at the time the standard is applied. A statement has been included in the references section that provides guidance on the use of references.

This standard does not incorporate the concepts of generating risk-informed insights, performance-based requirements, or a graded approach to quality assurance. The user is advised that one or more of these techniques could enhance the application of this standard.

This standard was prepared by the ANS-19.1 Working Group of the American Nuclear Society. The following members contributed to this standard:

R. C. Little (Chair), *Los Alamos National Laboratory*

F. A. Alpan, *Westinghouse Electric Company, LLC*
S. P. Baker, *Transware Enterprises*
J. D. Bess, *Idaho National Laboratory*
D. M. Cokinos, *Brookhaven National Laboratory*
D. E. Cullen, *Individual*
M. E. Dunn, *Spectra Tech, Inc.*
M. A. Garland, *U.S. Department of Energy*
I. C. Gauld, *Oak Ridge National Laboratory*
M. W. Herman, *Brookhaven National Laboratory*
A. C. Kahler, *Los Alamos National Laboratory*
E. R. Knuckles, *Individual*
R. D. Mosteller, *Individual*
G. Radulescu, *Oak Ridge National Laboratory*
B. Rouben, *Individual*
M. L. Zerkle, *Naval Nuclear Laboratory*

The Reactor Physics Subcommittee had the following membership at the time of its approval of this standard:

D. M. Cokinos (Chair), *Brookhaven National Laboratory*
C. T. Rombough (Secretary), *CTR Technical Services, Inc.*

A. C. Attard, *U.S. Nuclear Regulatory Commission*
S. P. Baker, *Transware Enterprises*
J. D. Bess, *Idaho National Laboratory*
A. Campos, *Framatome*
R. T. Chiang, *Individual*
M. DeHart, *Idaho National Laboratory*
D. J. Diamond, *Brookhaven National Laboratory*
M. Eckenrode, *Framatome*
I. C. Gauld, *Oak Ridge National Laboratory*
A. Haghighat, *Virginia Tech Research Center*
J. I. Katakura, *Japan Atomic Energy Agency*
E. R. Knuckles, *Individual*
R. C. Little, *Los Alamos National Laboratory*
M. Mahgerefteh, *Exelon Corporation*
E. M. Nichita, *University of Ontario Institute of Technology*
G. Radulescu, *Oak Ridge National Laboratory*
B. Rouben, *Individual*
A. Weitzberg, *Individual*
W. Wilson, *Individual*

The Safety and Radiological Analysis Consensus Committee had the following membership at the time of its approval of this standard:

A. O. Smetana (Chair), *Savannah River National Laboratory*
J. M. Jarvis (Vice Chair), *Bechtel Corporation*

F. A. Alpan, *Westinghouse Electric Company, LLC*
R. S. Amato, *Individual*
D. M. Cokinos, *Brookhaven National Laboratory*
D. J. Dudziak, *Los Alamos National Laboratory*
C. C. Graham, *Health Physics Society Representative (Employed by Ameren)*
M. K. Gupta, *AECOM-Professional Solutions*
N. E. Hertel, *Georgia Institute of Technology*
P. Hulse, *Sellafield Ltd.*
D. E. Palmrose, *U.S. Nuclear Regulatory Commission*
C. T. Rombough, *CTR Technical Services, Inc.*
C. E. Sanders, *University of Nevada, Las Vegas*
A. Weitzberg, *Individual*

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