Preface to the 1999 Update to the 8th Edition of the Table of Isotopes

It has been over 60 years since Giorgio Fea published the first compilation of known radionuclides called the Tabelle Riassuntive E Bibliografia delle Trasmutazioni Artificiali in Nuovo Cimento. Glenn Seaborg and colleagues published the Table of Radionuclides in 1940, and later editions (renamed the Table of Isotopes) in 1944, 1948, 1953, and 1958. Remarkable historical events paralleled the publication of those editions as the Table of Isotopes helped pave our entry into the nuclear age. Some information even had to be withheld from publication for several years until the discovery of plutonium by Dr. Seaborg was declassified. It is fitting that data for element 106, Seaborgium (Sg), appears in this edition.

Data proliferated at a remarkable rate despite the prediction of an editor, in 1941, that “the rate at which such radioactivities are discovered may be reduced very considerably and the table would itself become stable.” It did not stabilize and, when Mike Lederer took the helm for the 6th (1967) and 7th (1978) editions, data evaluation was evolving into a specialized discipline. The enormous growth of nuclear data required the development of special expertise to sort through the information, evaluate it, and publish it in a convenient form. Lederer pioneered the use of computers to facilitate the publication of the Table of Isotopes and he was one of the first to use word processing techniques.

The 8th edition of the Table of Isotopes was completed in 1995, and since then over 500 new isotopes and isomers have been added to the ENSDF database. We produced the 1998 update to the 8th edition of the Table of Isotopes last year, and the present update continues our commitment to regular updates. More than 100 new isotopes were added to this edition, and considerable data were edited and revised. Isotope Explorer 2.2 software is again available on the CD-ROM to view the updated versions of the Evaluated Nuclear Structure Data File (ENSDF) and the Nuclear Science Reference (NSR) file distributed by the National Nuclear Data Center at Brookhaven National Laboratory.

This publication would not be possible without the research efforts of thousands of scientists. Over 25,000 references are cited in this update. Also, there have been over 100 nuclear data evaluators whose efforts have directly or indirectly contributed to the CD-ROM. Some of them are listed on the summary mass chain decay schemes, but many more participated in numerous earlier evaluations over the past 60 years.

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References