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Kondrashov Gammas

PC database for gamma-rays from radionuclides

by V. Kondrashov

Summary documentation
by H.D. Lemmel

Abstract: A PC database by V. Kondrashov containing energies and yields of gamma-rays from radionuclides is described. The PC diskette is available from the IAEA Nuclear Data Section, cost free upon request.

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Citation guideline:

This database should be cited as follows:

> V. Kondrashov: PC database of gamma-rays from radionuclides; documented in the IAEA report IAEA-NDS-172 (1996). PC diskettes received from the IAEA Nuclear Data Section.

Kondrashov Gammas

PC database of gamma-rays from radionuclides

by V. Kondrashov

This database contains 749 radionuclides from 4-Be-7 to 101-Md-258, their half-lives, and the energy and yield of the more important gamma-rays, with a total of 16682 gamma lines.

A set of diskettes is available containing the tabular data

- either as ASCII text files
  - or in MS Word;

- and either in nuclide sort
  - or in energy sort.

The set of diskettes is available from the IAEA Nuclear Data Section, cost free upon request.

This database has been designed for use with the code DIMEN which is available from the Radiation Shielding Information Centre (RSIC) at the Oak Ridge National Laboratory, USA. A brief description of this code is given on the following page.

The origin of the database is Publication 38 of the "International Commission on Radiological Protection", Moscow, Energoatomizdat, 1987. While it seems that the database may require some updating, its advantage is the link to the DIMEN code.

DIMEN: A Gamma-Ray Analysis Code for nuclides identification.

For a set of given nuclides taken from a work library, DIMEN uses median estimates of the peak areas and estimates of their errors to produce a list of possible nuclides matching the gamma-ray lines.

The identification of a given radionuclide is obtained by searching for a match with the energy information of a database. This procedure is performed in an interactive graphic mode by markers that superimpose, on the spectrum, the energy information provided by a previously elaborated isotope library. This library of isotopes data includes 16682 gamma energy currently listed by the International Commission on Radiological Protection.

DIMEN is applicable to high, middle and low-counts measurements of gamma-spectra, for tasks such as quality control and determination of specific activities of radioactive materials in radiochemistry, nuclear plants, nuclear geology and environmental measurements. DIMEN is especially effective to investigate samples with 'a priori' unknown sets of nuclides.

DIMEN uses a format of spectral data as Canberra S-100 or equivalent.

The program was written in Turbo-Pascal and is available on request from Radiation Shielding Information Center (RSIC) - Oak Ridge National Laboratory, USA (code: PSR-341/DIMEN)

V. Kondrashov