Nuclear Data Libraries from Los Alamos National Laboratory

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Lib80x—Library based on ENDF/B-VIII.0

This library is based on ENDF/B-VIII.0. It contains ACE files for continuous-energy incident neutrons. These have been processed to the following temperatures (with the respective ZAID extensions).

- `.00c` — 293.6 Kelvin (room temperature)
- `.01c` — 600 Kelvin
- `.02c` — 900 Kelvin
- `.03c` — 1200 Kelvin
- `.04c` — 2500 Kelvin
- `.05c` — 0.1 Kelvin
- `.06c` — 250 kelvin

The full documentation for the Lib80x library can be found in the `docs` directory after decompressing the download.

Download

Lib80x can be downloaded either as a zip file or as a compressed tarball

- Lib80x.tgz (Lib80x.tgz) (md5sum `f0372b1530fdbc542d3497ff943fff27`)
- Lib80x.zip (Lib80x.zip) (md5sum `8a52bb92c7044f11e4cbd3cb869e3a1e`)

Thermal Scattering Data (S(α,β))

The thermal scattering library based on ENDF/B-VIII.0 contains 34 materials. The material identifiers (for use on the `MTn` card in MCNP) are given in the table below. For those that have a room temperature evaluation, that data table has extension `80t` . The full documentation for the ENDF80SaB library can be found in the `docs` directory after decompressing the download.

Identifier

`al-27`   aluminum-27 metal

Identifier

`be-beo`	beryllium in beryllium-oxide
`be-met`	beryllium metal
`benz`	benzene
`c-sic`	carbon in silicon carbide
`d-d2o`	deuterium in heavy water
`fe-56`	iron-56 metal
`grph10`	10% porous graphite
`grph30`	30% porous graphite
`grph`	crystalline graphite
`h-h2o`	hydrogen in light water
`h-ice`	hydrogen in solid light water (ice)
`h-luci`	hydrogen in Lucite
`h-poly`	hydrogen in polyethylene
`h-yh2`	hydrogen in yttrium-hydride
`h-zrh`	hydrogen in zirconium-hydride
`lmeth`	hydrogen in liquid methane
`n-un`	nitrogen in uranium-nitride
`o-beo`	oxygen in beryllium-oxide
`o-d2o`	oxygen in heavy water
`o-ice`	oxygen in solid light water (ice)
`orthoD`	liquid ortho-deuterium
`orthoH`	liquid ortho-hydrogen
`o-uo2`	oxygen in uranium-dioxide
`paraD`	liquid para-deuterium
`paraH`	liquid para-hydrogen
`sio2`	silicon-dioxide
`si-sic`	silicon in silicon-carbide
`smeth`	hydrogen in solid methane
`u-un`	uranium in uranium-nitride
`u-uo2`	uranium in uranium-dioxide
`y-yh2`	yttrium in yttrium-hydride
`zr-zrh`	zirconium in zirconium-hydride

Download

ENDF80SaB can be downloaded either as a zip file or as a compressed tarball. Links to the tarball and the associated md5sums are:

- ENDF80SaB.tgz (ENDF80SaB.tgz) (md5sum `4392f807ca752801f72090ad8f691a22`)
- ENDF80SaB.zip (ENDF80SaB.zip) (md5sum `5c3d701f9d34e2e314b8339586c8e27a`)

Updated xsdir

July 2, 2018

The original xsdir file distributed with the thermal scattering library had some incorrect entries for graphite data. The xsdir in the download has been fixed. The correct lines are copied here for those who want to change their xsdir and don't want to download the entire library. Copy the relevant lines to replace the incorrect lines in your existing xsdir file

```
grph30.80t   11.89365   ENDF80SaB/grph30.80t   0  1  1  1481688  0  0  2.551E-08
grph30.81t   11.89365   ENDF80SaB/grph30.81t   0  1  1  1556264  0  0  3.447E-08
grph30.82t   11.89365   ENDF80SaB/grph30.82t   0  1  1  1604013  0  0  4.309E-08
grph30.83t   11.89365   ENDF80SaB/grph30.83t   0  1  1  1624793  0  0  5.17E-08
grph30.84t   11.89365   ENDF80SaB/grph30.84t   0  1  1  1633638  0  0  6.032E-08
grph30.85t   11.89365   ENDF80SaB/grph30.85t   0  1  1  1645977  0  0  6.894E-08
grph30.86t   11.89365   ENDF80SaB/grph30.86t   0  1  1  1662128  0  0  8.617E-08
grph30.87t   11.89365   ENDF80SaB/grph30.87t   0  1  1  1677225  0  0  1.034E-07
grph30.88t   11.89365   ENDF80SaB/grph30.88t   0  1  1  1665103  0  0  1.379E-07
```

Note that there are several lines in between these two sections.

```
grph10.80t   11.89365   ENDF80SaB/grph10.80t   0  1  1  1342645  0  0  2.551E-08
grph10.81t   11.89365   ENDF80SaB/grph10.81t   0  1  1  1436539  0  0  3.447E-08
grph10.82t   11.89365   ENDF80SaB/grph10.82t   0  1  1  1500988  0  0  4.309E-08
grph10.83t   11.89365   ENDF80SaB/grph10.83t   0  1  1  1538838  0  0  5.17E-08
grph10.84t   11.89365   ENDF80SaB/grph10.84t   0  1  1  1546140  0  0  6.032E-08
grph10.85t   11.89365   ENDF80SaB/grph10.85t   0  1  1  1565722  0  0  6.894E-08
grph10.86t   11.89365   ENDF80SaB/grph10.86t   0  1  1  1589695  0  0  8.617E-08
grph10.87t   11.89365   ENDF80SaB/grph10.87t   0  1  1  1611991  0  0  1.034E-07
grph10.88t   11.89365   ENDF80SaB/grph10.88t   0  1  1  1627820  0  0  1.379E-07
```

Help

For issues with this library, please contact the Nuclear Data Team (nucldata@lanl.gov
(mailto:nucldata@lanl.gov)).