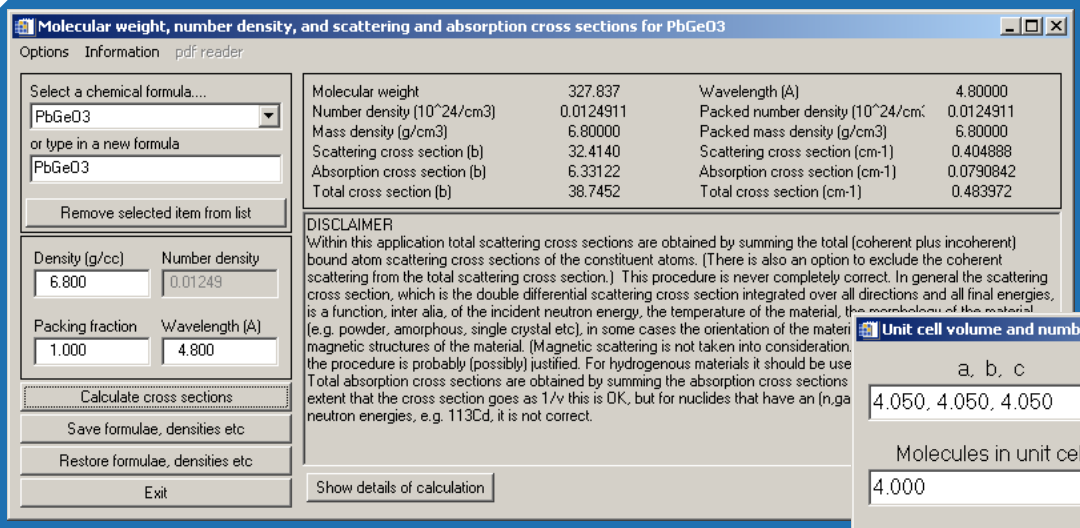
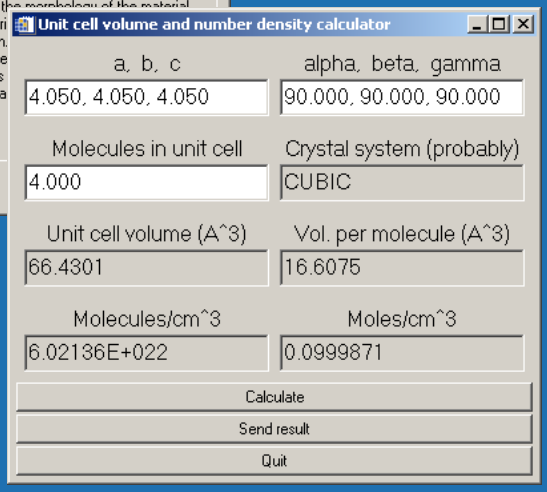
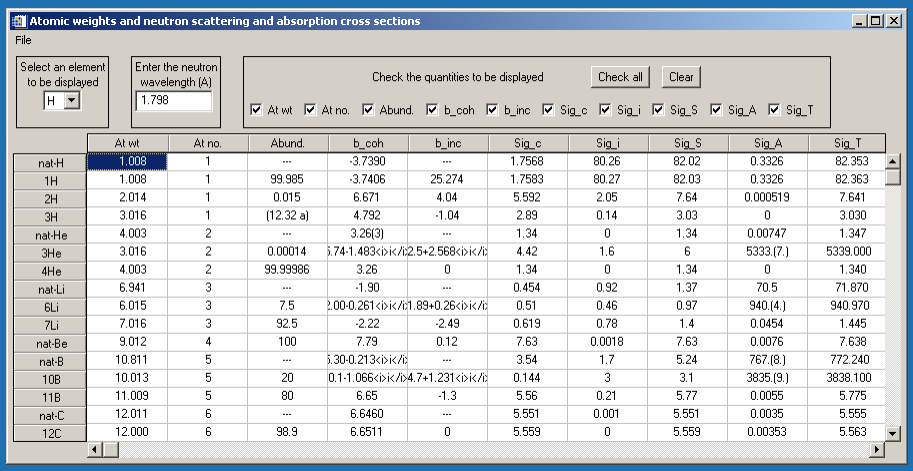
NEW IN DAVE

# Neutron Cross-Sections




Calculate the cross-section for your sample using intuitive chemical formula syntax




| | At wt | At no. | Abund. | b_coh | b_inc | Sig_c | Sig_i | Sig_S | Sig_A | Sig_T |
|---|---|---|---|---|---|---|---|---|---|---|
| nat-H | 1.008 | 1 | --- | -3.7390 | --- | 1.7568 | 80.26 | 82.02 | 0.3326 | 82.353 |
| 1H | 1.008 | 1 | 99.985 | -3.7406 | 25.274 | 1.7583 | 80.27 | 82.03 | 0.3326 | 82.363 |
| 2H | 2.014 | 1 | 0.015 | 6.671 | 4.04 | 5.592 | 2.05 | 7.64 | 0.000519 | 7.641 |
| 3H | 3.016 | 1 | (12.32 a) | 4.792 | -1.04 | 2.89 | 0.14 | 3.03 | 0 | 3.030 |
| nat-He | 4.003 | 2 | --- | 3.26(3) | --- | 1.34 | 0 | 1.34 | 0.00747 | 1.347 |
| 3He | 3.016 | 2 | 0.00014 | 5.74-1.483i/λ | 2.5+2.568i/λ | 4.42 | 1.6 | 6 | 5333.(7.) | 5339.000 |
| 4He | 4.003 | 2 | 99.99986 | 3.26 | 0 | 1.34 | 0 | 1.34 | 0 | 1.340 |
| nat-Li | 6.941 | 3 | --- | -1.90 | --- | 0.454 | 0.92 | 1.37 | 70.5 | 71.870 |
| 6Li | 6.015 | 3 | 7.5 | 2.00-0.261i/λ | 1.89+0.26i/λ | 0.51 | 0.46 | 0.97 | 940.(4.) | 940.970 |
| 7Li | 7.016 | 3 | 92.5 | -2.22 | -2.49 | 0.619 | 0.78 | 1.4 | 0.0454 | 1.445 |
| nat-Be | 9.012 | 4 | 100 | 7.79 | 0.12 | 7.63 | 0.0018 | 7.63 | 0.0076 | 7.638 |
| nat-B | 10.811 | 5 | --- | 5.30-0.213i/λ | --- | 3.54 | 1.7 | 5.24 | 767.(8.) | 772.240 |
| 10B | 10.013 | 5 | 20 | 0.1-1.066i/λ | 4.7+1.231i/λ | 0.144 | 3 | 3.1 | 3835.(9.) | 3838.100 |
| 11B | 11.009 | 5 | 80 | 6.65 | -1.3 | 5.56 | 0.21 | 5.77 | 0.0055 | 5.775 |
| nat-C | 12.011 | 6 | --- | 6.6460 | --- | 5.551 | 0.001 | 5.551 | 0.0035 | 5.555 |
| 12C | 12.000 | 6 | 98.9 | 6.6511 | 0 | 5.559 | 0 | 5.559 | 0.00353 | 5.563 |

Look up cross-sections, atomic weights and abundances for all elements and isotopes from H to Cm

- Calculate neutron scattering, absorption, and total macroscopic removal cross-sections for your sample
- Simple intuitive chemical formula entry:e.g. CH4, \3He, Fe10(OCD3)20(C2D2O2Cl)10
- Adjust sample parameters such as wavelength, packing fraction and number density to see effects on cross-sections

- Calculate molecular number density using crystallographic information and use results in the cross-section calculation
- Atomic weights and abundances listed in the cross-sections table
- Also available as a standalone application for use with the IDL Virtual Machine

**NIST Center for Neutron Research**

# DAVE

**Data Analysis and Visualization Environment**

For more information about this application, contact John Copley (ext 5133, john.copley@nist.gov)

For more information about the DAVE software and how to download it for your computer, please visit us at www.ncnr.nist.gov/DAVE

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