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MASTER

Calculated Neutron KERMA Factors Based on the LLNL ENDL Data File

R. J. Howerton

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Foreword

The UCRL-50400 series, *An Integrated System for Production of Neutronics and Photonics Calculational Constants*, describes an integrated, computer-oriented system for the production and application of neutronics and photonics calculational constants.

The system supplies reliable, up-to-date data, selects specific types of data on request, provides output in a variety of forms (ultimately in the form of input to other computer codes), and functions rapidly and efficiently.

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- Vol. 3, Rev. 2, *An Index of the Experimental Data of Neutron-Induced Interactions*, July 1976.
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- Vol. 4, Rev. 1, Appendix C, *The Neutron Library (ENDL82) in the Transmittal Format*, June 1982.
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- Vol. 7, Part B, Rev. 1, *Major Neutron-Induced Interactions ($Z > 55$): Graphical, Experimental Data*, July 1976.
- Vol. 8, Part A, Rev. 1, *Supplemental Neutron-Induced Interactions ($Z \leq 35$): Graphical, Experimental Data*, July 1976.
- Vol. 8, Part B, Rev. 1, *Supplemental Neutron-Induced Interactions ($Z > 35$): Graphical, Experimental Data*, July 1976.
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- Vol. 15, Part D, Rev. 1, *The LLL Evaluated-Nuclear-Data Library (ENDL): Descriptions of Individual Evaluations for $Z = 0-98$* , May 1978.
- Vol. 15, Part E, *Data Testing Results for the LLL Nuclear Data Library (ENDL-78)*, August 1979.
- Vol. 15, Part F, *Experimental and Evaluated Elastic Nuclear Plus Interference Cross Sections for Light Charged Particles*, July 1980.
- Vol. 16, Rev. 2, *Tabular and Graphical Presentation of 175 Neutron-Group Constants Derived from the LLL Evaluated-Nuclear-Data Library (ENDL)*, October 1978.
- Vol. 17, Part A, Rev. 2, *Program LINEAR (Version 79-1): Linearize Data in the Evaluated-Nuclear-Data File/Version B (ENDF/B) Format*, October 1979.

ABSTRACT

Neutron KERMA factors calculated from the LLNL ENDF data file are tabulated for 15 composite materials and for the isotopes or elements in the ENDF file from 2-1 to 2-29. The incident neutron energies range from 1.002×10^{-5} to 20. MeV for the composite materials and from 1.307×10^{-9} to 20. MeV for the isotopes and elements.

INTRODUCTION

Neutron kerma factors (Kinetic Energy Released in Matter) are used extensively in biomedical applications and for determining heating in materials of interest from neutron-induced reactions in fission or fusion power applications. The energy released is obtained by forming the product of the energy-dependent neutron fluence and the fluence-averaged kerma factors for the material under study. Generally, the kerma for a neutron-induced reaction is defined to be the energy available ($E_n + Q$) less the energy carried off by secondary neutrons and photons. The kerma for a material is then obtained by summing the kermas of the individual reactions, properly weighted by isotopic or elemental abundance in the case of composite materials.

A considerable body of literature dealing with both calculated and experimental determinations of kerma factors exists. In 1980, Caswell, Coyne and Randolph¹ discussed the methods used to calculate kerma factors from files of evaluated neutron-induced reaction data. They made the point that "The chief problem in carrying out this kind of calculation is supplying needed nuclear data which are not in the file." In particular, the main problem to which they alluded was the lack of explicit energy distributions for secondary charged particles from neutron-induced reactions. In 1975, Abdou and Maynard² had called attention to "...inconsistency in preserving the energy between the basic neutron interaction data and the gamma-ray production data."

In 1981, explicit energy distributions for all secondary particles from all neutron-induced reactions were either entered into the LLNL ENDL³ data files or were derivable by simple kinematics equations from angular distributions in the cases of two-body reactions with well-defined Q-Values and final-state definitions. With these additions to the data files, it was possible to insure energy conservation between neutron interaction and neutron-induced gamma-ray production data. The current tolerance for energy conservation in these files is 5% or 100 keV, whichever is the lesser.

The tables of kerma factors presented here were calculated from the current version of the ENDL data file (dated December 27, 1985). The results are presented for the 175 neutron energy groups used by the TART⁴ Monte Carlo neutron transport code for the isotopes and elemental mixtures. For the composite materials, a subset of the TART groups that eliminated neutron energies below the molecular binding energies where different reaction kinematics are required than those of isolated nuclei. There are two reasons for using the TART groups. One is that LLNL users of the kerma factors will find this convenient and the other is that it is

impractical to tabulate these numbers in a point-wise mode. The kerma factors change slowly enough over the groups so that linear interpolation will yield values that are within the uncertainties of the basic data. Since the calculated kerma factors were derived entirely from the evaluated data, any errors in the kerma factors are due to errors in the evaluated data. Thus, the calculated values may be compared with experimental kerma factors and serve to test the validity of the ENDL data files.

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KERMA
(Gray Cm²)

Energy (MeV)	Tissue (Approx.)	Bone (Femur)	Muscle (ICRU)	Standard Man
1.882e-05				
2.075e-05	1.210e-14	9.126e-15	1.221e-14	1.081e-14
2.277e-05	1.192e-14	8.957e-15	1.202e-14	1.068e-14
2.417e-05	1.184e-14	8.875e-15	1.195e-14	1.063e-14
2.561e-05	1.177e-14	8.807e-15	1.188e-14	1.060e-14
2.710e-05	1.171e-14	8.738e-15	1.182e-14	1.056e-14
2.862e-05	1.164e-14	8.667e-15	1.175e-14	1.052e-14
2.940e-05	1.159e-14	8.613e-15	1.170e-14	1.049e-14
3.099e-05	1.154e-14	8.557e-15	1.165e-14	1.046e-14
3.345e-05	1.145e-14	8.463e-15	1.156e-14	1.041e-14
3.601e-05	1.134e-14	8.345e-15	1.145e-14	1.035e-14
3.866e-05	1.123e-14	8.224e-15	1.134e-14	1.029e-14
4.048e-05	1.113e-14	8.124e-15	1.125e-14	1.024e-14
4.234e-05	1.116e-14	8.122e-15	1.128e-14	1.029e-14
4.328e-05	1.121e-14	8.143e-15	1.134e-14	1.035e-14
4.619e-05	1.128e-14	8.173e-15	1.141e-14	1.044e-14
4.717e-05	1.135e-14	8.202e-15	1.148e-14	1.052e-14
4.918e-05	1.141e-14	8.226e-15	1.154e-14	1.059e-14
5.123e-05	1.148e-14	8.257e-15	1.161e-14	1.068e-14
5.332e-05	1.156e-14	8.290e-15	1.169e-14	1.078e-14
5.654e-05	1.165e-14	8.331e-15	1.179e-14	1.089e-14
5.763e-05	1.173e-14	8.365e-15	1.187e-14	1.099e-14
6.097e-05	1.182e-14	8.402e-15	1.196e-14	1.110e-14
6.325e-05	1.197e-14	8.485e-15	1.212e-14	1.127e-14
6.557e-05	1.211e-14	8.567e-15	1.227e-14	1.142e-14
6.674e-05	1.222e-14	8.629e-15	1.238e-14	1.154e-14
7.033e-05	1.237e-14	8.714e-15	1.253e-14	1.170e-14
7.155e-05	1.252e-14	8.799e-15	1.268e-14	1.186e-14
7.527e-05	1.267e-14	8.887e-15	1.284e-14	1.203e-14
7.780e-05	1.287e-14	8.998e-15	1.304e-14	1.224e-14
7.908e-05	1.299e-14	9.066e-15	1.316e-14	1.237e-14
8.167e-05	1.312e-14	9.140e-15	1.329e-14	1.251e-14
8.431e-05	1.331e-14	9.256e-15	1.349e-14	1.271e-14
8.854e-05	1.356e-14	9.406e-15	1.374e-14	1.297e-14
9.108e-05	1.381e-14	9.558e-15	1.400e-14	1.323e-14
9.386e-05	1.402e-14	9.682e-15	1.421e-14	1.344e-14
9.668e-05	1.423e-14	9.808e-15	1.442e-14	1.366e-14
9.811e-05	1.438e-14	9.904e-15	1.458e-14	1.383e-14
1.025e-04	1.461e-14	1.004e-14	1.481e-14	1.406e-14
1.099e-04	1.512e-14	1.036e-14	1.533e-14	1.458e-14

KERMA
(Gray Cm²)

Energy (MeV)	Tissue (Approx.)	Bone (Femur)	Muscle (ICRU)	Standard Man
1.176e-04	1.578e-14	1.078e-14	1.601e-14	1.526e-14
1.256e-04	1.647e-14	1.121e-14	1.671e-14	1.596e-14
1.338e-04	1.718e-14	1.166e-14	1.743e-14	1.668e-14
1.406e-04	1.783e-14	1.207e-14	1.810e-14	1.735e-14
1.511e-04	1.859e-14	1.255e-14	1.887e-14	1.811e-14
1.601e-04	1.944e-14	1.308e-14	1.973e-14	1.898e-14
1.694e-04	2.024e-14	1.358e-14	2.054e-14	1.979e-14
1.789e-04	2.105e-14	1.410e-14	2.138e-14	2.063e-14
1.887e-04	2.190e-14	1.463e-14	2.223e-14	2.148e-14
1.988e-04	2.276e-14	1.517e-14	2.311e-14	2.235e-14
2.091e-04	2.368e-14	1.576e-14	2.405e-14	2.329e-14
2.741e-04	2.726e-14	1.806e-14	2.769e-14	2.688e-14
3.267e-04	3.285e-14	2.165e-14	3.338e-14	3.250e-14
3.811e-04	3.793e-14	2.491e-14	3.854e-14	3.760e-14
4.704e-04	4.480e-14	2.933e-14	4.553e-14	4.449e-14
4.991e-04	5.053e-14	3.303e-14	5.135e-14	5.023e-14
5.658e-04	5.518e-14	3.603e-14	5.608e-14	5.488e-14
6.043e-04	6.029e-14	3.934e-14	6.128e-14	6.000e-14
6.367e-04	6.375e-14	4.157e-14	6.479e-14	6.346e-14
7.156e-04	6.920e-14	4.510e-14	7.033e-14	6.890e-14
8.322e-04	7.876e-14	5.128e-14	8.005e-14	7.846e-14
9.177e-04	8.865e-14	5.768e-14	9.011e-14	8.834e-14
1.058e-03	9.972e-14	6.485e-14	1.014e-13	9.940e-14
1.307e-03	1.188e-13	7.718e-14	1.207e-13	1.184e-13
1.581e-03	1.444e-13	9.381e-14	1.468e-13	1.440e-13
1.882e-03	1.727e-13	1.121e-13	1.755e-13	1.722e-13
2.208e-03	2.034e-13	1.320e-13	2.068e-13	2.030e-13
2.561e-03	2.368e-13	1.537e-13	2.407e-13	2.363e-13
2.940e-03	2.726e-13	1.769e-13	2.773e-13	2.724e-13
3.345e-03	3.109e-13	2.017e-13	3.161e-13	3.104e-13
3.777e-03	3.517e-13	2.282e-13	3.575e-13	3.510e-13
4.234e-03	3.949e-13	2.561e-13	4.014e-13	3.940e-13
5.763e-03	4.906e-13	3.182e-13	4.987e-13	4.896e-13
7.527e-03	6.448e-13	4.184e-13	6.554e-13	6.435e-13
1.025e-02	8.513e-13	5.527e-13	8.652e-13	8.496e-13
1.511e-02	1.188e-12	7.711e-13	1.207e-12	1.185e-12
2.091e-02	1.634e-12	1.061e-12	1.661e-12	1.631e-12
2.646e-02	2.087e-12	1.356e-12	2.121e-12	2.083e-12
3.267e-02	2.530e-12	1.645e-12	2.570e-12	2.525e-12
3.953e-02	2.987e-12	1.943e-12	3.035e-12	2.981e-12
4.704e-02	3.464e-12	2.253e-12	3.520e-12	3.457e-12

KERMA
(Gray Cm²)

Energy (MeV)	Tissue (Approx.)	Bone (Femur)	Muscle (ICRU)	Standard Man
5.761e-02	4.021e-12	2.618e-12	4.086e-12	4.013e-12
7.002e-02	4.672e-12	3.044e-12	4.747e-12	4.663e-12
9.322e-02	5.337e-12	3.480e-12	5.421e-12	5.326e-12
9.891e-02	6.020e-12	3.951e-12	6.115e-12	6.008e-12
1.307e-01	7.016e-12	4.584e-12	7.127e-12	7.002e-12
1.819e-01	8.506e-12	5.573e-12	8.638e-12	8.488e-12
2.075e-01	9.695e-12	6.346e-12	9.841e-12	9.669e-12
2.417e-01	1.052e-11	6.904e-12	1.068e-11	1.049e-11
2.710e-01	1.134e-11	7.463e-12	1.151e-11	1.131e-11
2.940e-01	1.198e-11	7.863e-12	1.216e-11	1.194e-11
3.345e-01	1.270e-11	8.339e-12	1.289e-11	1.266e-11
3.776e-01	1.370e-11	8.996e-12	1.390e-11	1.363e-11
4.234e-01	1.504e-11	9.829e-12	1.527e-11	1.493e-11
5.123e-01	1.626e-11	1.065e-11	1.650e-11	1.614e-11
6.325e-01	1.679e-11	1.111e-11	1.703e-11	1.676e-11
7.527e-01	1.853e-11	1.227e-11	1.880e-11	1.849e-11
8.834e-01	2.019e-11	1.336e-11	2.048e-11	2.013e-11
1.025e+00	2.315e-11	1.520e-11	2.349e-11	2.296e-11
1.176e+00	2.424e-11	1.596e-11	2.459e-11	2.408e-11
1.338e+00	2.549e-11	1.683e-11	2.586e-11	2.536e-11
1.511e+00	2.618e-11	1.737e-11	2.656e-11	2.611e-11
1.694e+00	2.770e-11	1.836e-11	2.810e-11	2.762e-11
1.887e+00	2.904e-11	1.928e-11	2.946e-11	2.896e-11
2.091e+00	3.047e-11	2.033e-11	3.089e-11	3.040e-11
2.305e+00	3.114e-11	2.074e-11	3.159e-11	3.111e-11
2.530e+00	3.190e-11	2.135e-11	3.236e-11	3.193e-11
2.741e+00	3.383e-11	2.275e-11	3.430e-11	3.382e-11
3.011e+00	3.558e-11	2.439e-11	3.600e-11	3.563e-11
3.267e+00	3.785e-11	2.562e-11	3.836e-11	3.775e-11
3.534e+00	4.107e-11	2.828e-11	4.154e-11	4.092e-11
3.811e+00	4.183e-11	2.894e-11	4.231e-11	4.172e-11
4.069e+00	4.190e-11	2.881e-11	4.243e-11	4.180e-11
4.396e+00	4.352e-11	2.993e-11	4.406e-11	4.337e-11
4.704e+00	4.351e-11	2.978e-11	4.408e-11	4.340e-11
4.991e+00	4.376e-11	2.981e-11	4.437e-11	4.366e-11
5.352e+00	4.524e-11	3.073e-11	4.589e-11	4.507e-11
5.658e+00	4.476e-11	3.061e-11	4.539e-11	4.472e-11
6.042e+00	4.601e-11	3.125e-11	4.669e-11	4.588e-11
6.367e+00	4.631e-11	3.188e-11	4.695e-11	4.629e-11
6.737e+00	4.752e-11	3.211e-11	4.826e-11	4.732e-11
7.156e+00	4.789e-11	3.230e-11	4.866e-11	4.769e-11

**KRMMA
(Gray Cm²)**

Energy (MeV)	Tissue (Approx.)	Bone (Femur)	Muscle (ICM)	Standard Man
7.548e+00	5.025e-11	3.457e-11	5.095e-11	5.007e-11
7.910e+00	5.025e-11	3.541e-11	5.003e-11	5.029e-11
8.322e+00	5.009e-11	3.533e-11	5.069e-11	5.017e-11
8.787e+00	5.041e-11	3.498e-11	5.112e-11	5.037e-11
9.177e+00	5.115e-11	3.569e-11	5.184e-11	5.113e-11
9.665e+00	5.184e-11	3.643e-11	5.251e-11	5.186e-11
1.012e+01	5.280e-11	3.709e-11	5.349e-11	5.277e-11
1.058e+01	5.348e-11	3.761e-11	5.418e-11	5.343e-11
1.101e+01	5.442e-11	3.868e-11	5.507e-11	5.441e-11
1.155e+01	5.628e-11	4.015e-11	5.692e-11	5.621e-11
1.199e+01	5.767e-11	4.123e-11	5.832e-11	5.754e-11
1.250e+01	5.817e-11	4.194e-11	5.879e-11	5.809e-11
1.307e+01	5.923e-11	4.281e-11	5.985e-11	5.911e-11
1.354e+01	6.006e-11	4.357e-11	6.067e-11	5.991e-11
1.386e+01	6.071e-11	4.414e-11	6.132e-11	6.055e-11
1.413e+01	6.109e-11	4.451e-11	6.170e-11	6.093e-11
1.441e+01	6.151e-11	4.487e-11	6.211e-11	6.133e-11
1.468e+01	6.196e-11	4.526e-11	6.256e-11	6.176e-11
1.519e+01	6.267e-11	4.595e-11	6.326e-11	6.248e-11
1.575e+01	6.331e-11	4.663e-11	6.387e-11	6.313e-11
1.633e+01	6.401e-11	4.728e-11	6.455e-11	6.381e-11
1.692e+01	6.445e-11	4.763e-11	6.499e-11	6.423e-11
1.752e+01	6.463e-11	4.778e-11	6.516e-11	6.440e-11
1.813e+01	6.450e-11	4.790e-11	6.502e-11	6.433e-11
1.875e+01	6.486e-11	4.846e-11	6.534e-11	6.472e-11
2.000e+01	6.582e-11	4.951e-11	6.626e-11	6.567e-11

KRM
(Oxy Cr²)

Energy (MeV)	Plastic A-150	Nylon 6.6/6	Lucite	Liquid Muscle Equiv.
1.882e-05				
2.075e-05	1.228e-14	3.753e-14	1.766e-15	1.231e-14
2.277e-05	1.210e-14	3.638e-14	1.925e-15	1.212e-14
2.417e-05	1.202e-14	3.567e-14	2.063e-15	1.204e-14
2.561e-05	1.196e-14	3.508e-14	2.177e-15	1.198e-14
2.710e-05	1.190e-14	3.448e-14	2.296e-15	1.191e-14
2.862e-05	1.183e-14	3.387e-14	2.418e-15	1.184e-14
2.940e-05	1.178e-14	3.339e-14	2.512e-15	1.179e-14
3.099e-05	1.173e-14	3.290e-14	2.608e-15	1.173e-14
3.345e-05	1.164e-14	3.207e-14	2.773e-15	1.164e-14
3.601e-05	1.154e-14	3.104e-14	2.978e-15	1.153e-14
3.866e-05	1.143e-14	2.997e-14	3.191e-15	1.142e-14
4.048e-05	1.134e-14	2.907e-14	3.374e-15	1.132e-14
4.234e-05	1.137e-14	2.870e-14	3.524e-15	1.135e-14
4.328e-05	1.142e-14	2.852e-14	3.639e-15	1.140e-14
4.619e-05	1.149e-14	2.828e-14	3.797e-15	1.147e-14
4.717e-05	1.157e-14	2.803e-14	3.957e-15	1.154e-14
4.918e-05	1.163e-14	2.784e-14	4.080e-15	1.160e-14
5.123e-05	1.171e-14	2.758e-14	4.247e-15	1.167e-14
5.332e-05	1.179e-14	2.732e-14	4.417e-15	1.175e-14
5.654e-05	1.189e-14	2.698e-14	4.636e-15	1.185e-14
5.763e-05	1.197e-14	2.671e-14	4.813e-15	1.193e-14
6.097e-05	1.206e-14	2.644e-14	4.996e-15	1.202e-14
6.325e-05	1.222e-14	2.626e-14	5.227e-15	1.217e-14
6.557e-05	1.237e-14	2.618e-14	5.417e-15	1.232e-14
6.674e-05	1.249e-14	2.612e-14	5.561e-15	1.243e-14
7.033e-05	1.264e-14	2.603e-14	5.758e-15	1.258e-14
7.155e-05	1.280e-14	2.595e-14	5.956e-15	1.273e-14
7.527e-05	1.296e-14	2.586e-14	6.160e-15	1.289e-14
7.780e-05	1.316e-14	2.575e-14	6.418e-15	1.309e-14
7.908e-05	1.328e-14	2.568e-14	6.575e-15	1.321e-14
8.167e-05	1.342e-14	2.564e-14	6.735e-15	1.334e-14
8.431e-05	1.362e-14	2.565e-14	6.951e-15	1.353e-14
8.834e-05	1.387e-14	2.567e-14	7.227e-15	1.379e-14
9.108e-05	1.414e-14	2.569e-14	7.507e-15	1.404e-14
9.386e-05	1.435e-14	2.571e-14	7.735e-15	1.425e-14
9.668e-05	1.457e-14	2.573e-14	7.967e-15	1.446e-14
9.811e-05	1.473e-14	2.575e-14	8.142e-15	1.463e-14
1.025e-04	1.496e-14	2.580e-14	8.381e-15	1.485e-14
1.099e-04	1.549e-14	2.611e-14	8.866e-15	1.537e-14

**KIDDA
(Gray Cm²)**

Energy (MeV)	Plastic A-150	Nylon 6.6/6	Lucite	Liquid Nucleo Equiv.
1.176e-04	1.617e-14	2.652e-14	9.490e-15	1.605e-14
1.256e-04	1.688e-14	2.695e-14	1.013e-14	1.675e-14
1.338e-04	1.761e-14	2.739e-14	1.080e-14	1.747e-14
1.406e-04	1.829e-14	2.780e-14	1.142e-14	1.813e-14
1.511e-04	1.907e-14	2.827e-14	1.213e-14	1.890e-14
1.601e-04	1.995e-14	2.880e-14	1.293e-14	1.976e-14
1.694e-04	2.077e-14	2.930e-14	1.367e-14	2.058e-14
1.789e-04	2.162e-14	2.980e-14	1.445e-14	2.141e-14
1.887e-04	2.248e-14	3.033e-14	1.524e-14	2.227e-14
1.988e-04	2.337e-14	3.086e-14	1.605e-14	2.314e-14
2.091e-04	2.432e-14	3.153e-14	1.688e-14	2.407e-14
2.741e-04	2.801e-14	3.466e-14	1.996e-14	2.771e-14
3.267e-04	3.377e-14	3.954e-14	2.477e-14	3.340e-14
3.811e-04	3.900e-14	4.398e-14	2.913e-14	3.856e-14
4.704e-04	4.608e-14	5.016e-14	3.497e-14	4.555e-14
4.991e-04	5.198e-14	5.556e-14	3.978e-14	5.137e-14
5.658e-04	5.676e-14	5.994e-14	4.366e-14	5.610e-14
6.043e-04	6.202e-14	6.476e-14	4.794e-14	6.130e-14
6.367e-04	6.558e-14	6.807e-14	5.083e-14	6.481e-14
7.156e-04	7.119e-14	7.333e-14	5.535e-14	7.036e-14
8.322e-04	8.103e-14	8.255e-14	6.328e-14	8.008e-14
9.177e-04	9.120e-14	9.217e-14	7.146e-14	9.013e-14
1.058e-03	1.026e-13	1.030e-13	8.061e-14	1.014e-13
1.307e-03	1.222e-13	1.217e-13	9.629e-14	1.207e-13
1.581e-03	1.486e-13	1.470e-13	1.174e-13	1.468e-13
1.882e-03	1.777e-13	1.748e-13	1.407e-13	1.755e-13
2.208e-03	2.093e-13	2.052e-13	1.660e-13	2.068e-13
2.561e-03	2.436e-13	2.383e-13	1.934e-13	2.407e-13
2.940e-03	2.805e-13	2.738e-13	2.228e-13	2.771e-13
3.345e-03	3.199e-13	3.118e-13	2.543e-13	3.161e-13
3.777e-03	3.619e-13	3.523e-13	2.878e-13	3.575e-13
4.234e-03	4.063e-13	3.951e-13	3.233e-13	4.014e-13
5.763e-03	5.049e-13	4.903e-13	4.019e-13	4.988e-13
7.527e-03	6.641e-13	6.440e-13	5.289e-13	6.555e-13
1.025e-02	8.773e-13	8.499e-13	6.990e-13	8.653e-13
1.511e-02	1.224e-12	1.185e-12	9.755e-13	1.207e-12
2.091e-02	1.685e-12	1.630e-12	1.343e-12	1.661e-12
2.646e-02	2.153e-12	2.082e-12	1.717e-12	2.121e-12
3.267e-02	2.617e-12	2.528e-12	2.087e-12	2.571e-12
3.953e-02	3.086e-12	2.982e-12	2.463e-12	3.036e-12

KIRMA
(Gray Cm²)

Energy (MeV)	Plastic A-150	Nylon 6.6/6	Lucite	Liquid Nucleo Equiv.
4.704e-02	3.578e-12	3.457e-12	2.857e-12	3.520e-12
5.761e-02	4.161e-12	4.016e-12	3.326e-12	4.087e-12
7.002e-02	4.834e-12	4.669e-12	3.864e-12	4.748e-12
8.322e-02	5.528e-12	5.337e-12	4.420e-12	5.422e-12
9.891e-02	6.249e-12	6.025e-12	4.994e-12	6.116e-12
1.307e-01	7.289e-12	7.028e-12	5.833e-12	7.128e-12
1.819e-01	8.836e-12	8.523e-12	7.086e-12	8.640e-12
2.075e-01	1.005e-11	9.699e-12	8.077e-12	9.845e-12
2.417e-01	1.090e-11	1.051e-11	8.768e-12	1.068e-11
2.710e-01	1.173e-11	1.132e-11	9.455e-12	1.152e-11
2.940e-01	1.237e-11	1.193e-11	9.983e-12	1.216e-11
3.345e-01	1.309e-11	1.263e-11	1.058e-11	1.290e-11
3.776e-01	1.397e-11	1.350e-11	1.136e-11	1.391e-11
4.234e-01	1.486e-11	1.442e-11	1.229e-11	1.529e-11
5.123e-01	1.606e-11	1.563e-11	1.329e-11	1.653e-11
6.325e-01	1.767e-11	1.700e-11	1.420e-11	1.704e-11
7.527e-01	1.945e-11	1.879e-11	1.565e-11	1.881e-11
8.834e-01	2.106e-11	2.028e-11	1.704e-11	2.049e-11
1.025e+00	2.271e-11	2.204e-11	1.894e-11	2.353e-11
1.176e+00	2.429e-11	2.354e-11	2.004e-11	2.462e-11
1.338e+00	2.588e-11	2.504e-11	2.121e-11	2.589e-11
1.511e+00	2.743e-11	2.665e-11	2.208e-11	2.657e-11
1.694e+00	2.885e-11	2.789e-11	2.332e-11	2.812e-11
1.887e+00	3.033e-11	2.941e-11	2.446e-11	2.948e-11
2.091e+00	3.216e-11	3.102e-11	2.595e-11	3.090e-11
2.305e+00	3.306e-11	3.197e-11	2.645e-11	3.159e-11
2.530e+00	3.452e-11	3.328e-11	2.740e-11	3.235e-11
2.741e+00	3.640e-11	3.519e-11	2.908e-11	3.430e-11
3.011e+00	3.965e-11	3.823e-11	3.164e-11	3.599e-11
3.267e+00	4.001e-11	3.909e-11	3.236e-11	3.837e-11
3.534e+00	4.395e-11	4.285e-11	3.600e-11	4.157e-11
3.811e+00	4.520e-11	4.408e-11	3.683e-11	4.233e-11
4.069e+00	4.493e-11	4.409e-11	3.632e-11	4.244e-11
4.396e+00	4.623e-11	4.546e-11	3.755e-11	4.409e-11
4.704e+00	4.609e-11	4.518e-11	3.724e-11	4.410e-11
4.991e+00	4.593e-11	4.478e-11	3.713e-11	4.438e-11
5.352e+00	4.664e-11	4.569e-11	3.793e-11	4.591e-11
5.658e+00	4.745e-11	4.607e-11	3.816e-11	4.539e-11
6.042e+00	4.748e-11	4.626e-11	3.848e-11	4.670e-11
6.367e+00	4.950e-11	4.816e-11	3.972e-11	4.694e-11

**KRMMA
(Gray cm^2)**

Energy (MeV)	Plastic A-150	Nylon 6.6/6	Lucite	Liquid Nucleo Equiv.
6.737e+00	4.781e-11	4.672e-11	3.899e-11	4.828e-11
7.156e+00	4.783e-11	4.681e-11	3.897e-11	4.868e-11
7.548e+00	5.174e-11	5.056e-11	4.235e-11	5.098e-11
7.910e+00	5.518e-11	5.320e-11	4.466e-11	5.082e-11
8.322e+00	5.523e-11	5.325e-11	4.450e-11	5.067e-11
8.787e+00	5.310e-11	5.150e-11	4.306e-11	5.111e-11
9.177e+00	5.430e-11	5.266e-11	4.404e-11	5.183e-11
9.665e+00	5.574e-11	5.400e-11	4.517e-11	5.250e-11
1.012e+01	5.625e-11	5.466e-11	4.575e-11	5.348e-11
1.058e+01	5.674e-11	5.524e-11	4.624e-11	5.417e-11
1.101e+01	5.877e-11	5.701e-11	4.794e-11	5.506e-11
1.155e+01	6.032e-11	5.858e-11	4.966e-11	5.693e-11
1.199e+01	6.127e-11	5.965e-11	5.075e-11	5.835e-11
1.250e+01	6.274e-11	6.100e-11	5.187e-11	5.881e-11
1.307e+01	6.356e-11	6.195e-11	5.274e-11	5.983e-11
1.354e+01	6.440e-11	6.284e-11	5.356e-11	6.070e-11
1.386e+01	6.495e-11	6.339e-11	5.415e-11	6.136e-11
1.413e+01	6.533e-11	6.374e-11	5.454e-11	6.174e-11
1.441e+01	6.566e-11	6.410e-11	5.491e-11	6.216e-11
1.468e+01	6.603e-11	6.449e-11	5.532e-11	6.261e-11
1.519e+01	6.698e-11	6.534e-11	5.623e-11	6.332e-11
1.575e+01	6.806e-11	6.624e-11	5.724e-11	6.394e-11
1.633e+01	6.897e-11	6.702e-11	5.815e-11	6.462e-11
1.692e+01	6.928e-11	6.734e-11	5.854e-11	6.506e-11
1.752e+01	6.937e-11	6.743e-11	5.867e-11	6.524e-11
1.813e+01	6.998e-11	6.791e-11	5.906e-11	6.509e-11
1.875e+01	7.108e-11	6.886e-11	5.995e-11	6.541e-11
2.000e+01	7.245e-11	7.016e-11	6.126e-11	6.634e-11

**KEDMA
(Gray Cm²)**

Energy (MeV)	Water	Acetylene	Dry Air	Air, Water Sat.
1.682e-05				
2.075e-05	2.386e-15	1.721e-15	2.160e-13	2.129e-13
2.277e-05	2.600e-15	1.875e-15	2.078e-13	2.048e-13
2.417e-05	2.786e-15	2.010e-15	2.025e-13	1.996e-13
2.561e-05	2.941e-15	2.122e-15	1.980e-13	1.952e-13
2.710e-05	3.101e-15	2.237e-15	1.935e-13	1.908e-13
2.862e-05	3.265e-15	2.356e-15	1.888e-13	1.862e-13
2.940e-05	3.392e-15	2.447e-15	1.853e-13	1.826e-13
3.099e-05	3.522e-15	2.541e-15	1.816e-13	1.790e-13
3.345e-05	3.744e-15	2.702e-15	1.753e-13	1.728e-13
3.601e-05	4.021e-15	2.902e-15	1.675e-13	1.651e-13
3.866e-05	4.308e-15	3.109e-15	1.594e-13	1.572e-13
4.048e-05	4.555e-15	3.287e-15	1.526e-13	1.505e-13
4.234e-05	4.759e-15	3.434e-15	1.492e-13	1.471e-13
4.328e-05	4.914e-15	3.546e-15	1.473e-13	1.452e-13
4.619e-05	5.127e-15	3.700e-15	1.446e-13	1.426e-13
4.717e-05	5.343e-15	3.856e-15	1.419e-13	1.400e-13
4.918e-05	5.509e-15	3.976e-15	1.399e-13	1.379e-13
5.123e-05	5.734e-15	4.138e-15	1.371e-13	1.352e-13
5.332e-05	5.964e-15	4.304e-15	1.342e-13	1.324e-13
5.654e-05	6.259e-15	4.517e-15	1.306e-13	1.288e-13
5.763e-05	6.498e-15	4.690e-15	1.276e-13	1.259e-13
6.097e-05	6.745e-15	4.868e-15	1.246e-13	1.229e-13
6.325e-05	7.057e-15	5.093e-15	1.219e-13	1.202e-13
6.557e-05	7.313e-15	5.278e-15	1.200e-13	1.183e-13
6.674e-05	7.508e-15	5.419e-15	1.185e-13	1.169e-13
7.033e-05	7.774e-15	5.610e-15	1.166e-13	1.150e-13
7.155e-05	8.042e-15	5.804e-15	1.146e-13	1.130e-13
7.527e-05	8.317e-15	6.002e-15	1.125e-13	1.110e-13
7.780e-05	8.665e-15	6.254e-15	1.100e-13	1.085e-13
7.908e-05	8.878e-15	6.407e-15	1.084e-13	1.070e-13
8.167e-05	9.094e-15	6.563e-15	1.070e-13	1.055e-13
8.431e-05	9.385e-15	6.773e-15	1.054e-13	1.041e-13
8.834e-05	9.757e-15	7.042e-15	1.035e-13	1.022e-13
9.108e-05	1.013e-14	7.314e-15	1.017e-13	1.003e-13
9.386e-05	1.044e-14	7.537e-15	1.001e-13	9.880e-14
9.668e-05	1.076e-14	7.762e-15	9.852e-14	9.725e-14
9.811e-05	1.099e-14	7.934e-15	9.732e-14	9.607e-14
1.025e-04	1.131e-14	8.166e-15	9.590e-14	9.468e-14
1.099e-04	1.197e-14	8.639e-15	9.418e-14	9.299e-14

**KIRMA
(Gray Cm²)**

Energy (MeV)	Water	Acetylene	Dry Air	Air, Water Sat.
1.176e-04	1.281e-14	9.246e-15	9.214e-14	9.099e-14
1.256e-04	1.368e-14	9.874e-15	9.002e-14	8.892e-14
1.338e-04	1.458e-14	1.052e-14	8.783e-14	8.677e-14
1.406e-04	1.541e-14	1.112e-14	8.580e-14	8.478e-14
1.511e-04	1.637e-14	1.181e-14	8.347e-14	8.250e-14
1.601e-04	1.745e-14	1.259e-14	8.084e-14	7.993e-14
1.694e-04	1.846e-14	1.332e-14	7.836e-14	7.750e-14
1.789e-04	1.950e-14	1.408e-14	7.583e-14	7.501e-14
1.887e-04	2.057e-14	1.485e-14	7.321e-14	7.245e-14
1.988e-04	2.167e-14	1.564e-14	7.053e-14	6.982e-14
2.091e-04	2.279e-14	1.645e-14	6.848e-14	6.782e-14
2.741e-04	2.695e-14	1.945e-14	6.498e-14	6.442e-14
3.267e-04	3.344e-14	2.413e-14	5.952e-14	5.914e-14
3.811e-04	3.933e-14	2.838e-14	5.455e-14	5.433e-14
4.704e-04	4.722e-14	3.407e-14	4.941e-14	4.937e-14
4.991e-04	5.371e-14	3.875e-14	4.707e-14	4.716e-14
5.658e-04	5.896e-14	4.254e-14	4.528e-14	4.547e-14
6.043e-04	6.474e-14	4.671e-14	4.330e-14	4.360e-14
6.367e-04	6.863e-14	4.952e-14	4.232e-14	4.269e-14
7.156e-04	7.474e-14	5.392e-14	4.122e-14	4.169e-14
8.322e-04	8.546e-14	6.165e-14	3.932e-14	3.997e-14
9.177e-04	9.651e-14	6.961e-14	3.794e-14	3.877e-14
1.058e-03	1.089e-13	7.852e-14	3.679e-14	3.782e-14
1.307e-03	1.301e-13	9.379e-14	3.605e-14	3.739e-14
1.581e-03	1.586e-13	1.144e-13	3.530e-14	3.706e-14
1.882e-03	1.900e-13	1.370e-13	3.445e-14	3.667e-14
2.208e-03	2.242e-13	1.617e-13	3.387e-14	3.659e-14
2.561e-03	2.612e-13	1.884e-13	3.465e-14	3.788e-14
2.940e-03	3.009e-13	2.171e-13	3.558e-14	3.937e-14
3.345e-03	3.434e-13	2.477e-13	3.654e-14	4.093e-14
3.777e-03	3.886e-13	2.804e-13	3.756e-14	4.257e-14
4.234e-03	4.365e-13	3.149e-13	3.870e-14	4.439e-14
5.763e-03	5.426e-13	3.915e-13	4.259e-14	4.974e-14
7.527e-03	7.134e-13	5.155e-13	4.934e-14	5.883e-14
1.025e-02	9.419e-13	6.816e-13	5.919e-14	7.181e-14
1.511e-02	1.315e-12	9.511e-13	7.698e-14	9.467e-14
2.091e-02	1.809e-12	1.310e-12	9.952e-14	1.240e-13
2.646e-02	2.310e-12	1.676e-12	1.219e-13	1.532e-13
3.267e-02	2.798e-12	2.040e-12	1.436e-13	1.816e-13
3.953e-02	3.304e-12	2.407e-12	1.669e-13	2.118e-13

KEDIM
(Gray Cm²)

Energy (MeV)	Water	Acetylene	Dry Air	Air, Water Sat.
4.704e-02	3.832e-12	2.791e-12	1.914e-13	2.435e-13
5.761e-02	4.447e-12	3.246e-12	2.217e-13	2.821e-13
7.002e-02	5.166e-12	3.780e-12	2.568e-13	3.270e-13
8.322e-02	5.898e-12	4.328e-12	2.913e-13	3.715e-13
9.891e-02	6.650e-12	4.895e-12	3.259e-13	4.163e-13
1.307e-01	7.747e-12	5.723e-12	3.849e-13	4.902e-13
1.819e-01	9.386e-12	6.957e-12	4.891e-13	6.163e-13
2.075e-01	1.069e-11	7.925e-12	5.897e-13	7.342e-13
2.417e-01	1.160e-11	8.598e-12	6.614e-13	8.178e-13
2.710e-01	1.251e-11	9.264e-12	7.315e-13	8.999e-13
2.940e-01	1.321e-11	9.773e-12	7.847e-13	9.625e-13
3.345e-01	1.401e-11	1.035e-11	8.513e-13	1.039e-12
3.776e-01	1.512e-11	1.105e-11	9.766e-13	1.179e-12
4.234e-01	1.668e-11	1.173e-11	1.228e-12	1.449e-12
5.123e-01	1.801e-11	1.269e-11	1.603e-12	1.837e-12
6.325e-01	1.845e-11	1.407e-11	1.100e-12	1.348e-12
7.527e-01	2.033e-11	1.550e-11	1.827e-12	2.091e-12
8.834e-01	2.220e-11	1.681e-11	1.346e-12	1.644e-12
1.025e+00	2.567e-11	1.803e-11	1.798e-12	2.140e-12
1.176e+00	2.679e-11	1.932e-11	2.023e-12	2.377e-12
1.338e+00	2.812e-11	2.060e-11	2.186e-12	2.557e-12
1.511e+00	2.866e-11	2.183e-11	3.834e-12	4.189e-12
1.694e+00	3.042e-11	2.298e-11	2.831e-12	3.226e-12
1.887e+00	3.184e-11	2.415e-11	3.711e-12	4.113e-12
2.091e+00	3.334e-11	2.580e-11	3.130e-12	3.562e-12
2.305e+00	3.406e-11	2.634e-11	3.801e-12	4.234e-12
2.530e+00	3.479e-11	2.760e-11	3.720e-12	4.164e-12
2.741e+00	3.683e-11	2.923e-11	5.009e-12	5.464e-12
3.011e+00	3.828e-11	3.252e-11	6.504e-12	6.958e-12
3.267e+00	4.110e-11	3.225e-11	8.682e-12	9.145e-12
3.534e+00	4.424e-11	3.626e-11	1.051e-11	1.099e-11
3.811e+00	4.496e-11	3.730e-11	1.131e-11	1.179e-11
4.069e+00	4.513e-11	3.655e-11	1.269e-11	1.316e-11
4.396e+00	4.691e-11	3.760e-11	1.365e-11	1.412e-11
4.704e+00	4.710e-11	3.715e-11	1.201e-11	1.251e-11
4.991e+00	4.765e-11	3.680e-11	9.205e-12	9.754e-12
5.352e+00	4.938e-11	3.718e-11	1.052e-11	1.107e-11
5.658e+00	4.873e-11	3.800e-11	8.544e-12	9.118e-12
6.042e+00	5.038e-11	3.768e-11	8.612e-12	9.209e-12
6.367e+00	5.024e-11	3.977e-11	1.030e-11	1.087e-11

**KRMN
(Gray Cm²)**

Energy (MeV)	Water	Acetylene	Dry Air	Air, Water Sat.
6.737e+00	5.233e-11	3.756e-11	8.366e-12	8.995e-12
7.156e+00	5.285e-11	3.734e-11	8.447e-12	9.082e-12
7.548e+00	5.481e-11	4.152e-11	1.134e-11	1.196e-11
7.910e+00	5.405e-11	4.556e-11	1.017e-11	1.079e-11
8.322e+00	5.387e-11	4.547e-11	1.026e-11	1.088e-11
8.787e+00	5.489e-11	4.276e-11	9.499e-12	1.015e-11
9.177e+00	5.552e-11	4.397e-11	1.031e-11	1.095e-11
9.665e+00	5.605e-11	4.547e-11	1.115e-11	1.179e-11
1.012e+01	5.712e-11	4.583e-11	1.230e-11	1.294e-11
1.058e+01	5.786e-11	4.622e-11	1.312e-11	1.375e-11
1.101e+01	5.855e-11	4.848e-11	1.346e-11	1.411e-11
1.155e+01	6.052e-11	5.006e-11	1.461e-11	1.527e-11
1.199e+01	6.201e-11	5.095e-11	1.597e-11	1.663e-11
1.250e+01	6.225e-11	5.255e-11	1.699e-11	1.763e-11
1.307e+01	6.336e-11	5.331e-11	1.846e-11	1.910e-11
1.354e+01	6.416e-11	5.415e-11	1.956e-11	2.020e-11
1.386e+01	6.486e-11	5.468e-11	1.998e-11	2.062e-11
1.413e+01	6.525e-11	5.508e-11	2.008e-11	2.072e-11
1.441e+01	6.569e-11	5.540e-11	2.051e-11	2.116e-11
1.468e+01	6.615e-11	5.578e-11	2.098e-11	2.163e-11
1.519e+01	6.683e-11	5.682e-11	2.116e-11	2.182e-11
1.575e+01	6.739e-11	5.806e-11	2.104e-11	2.170e-11
1.633e+01	6.806e-11	5.910e-11	2.089e-11	2.156e-11
1.692e+01	6.854e-11	5.943e-11	2.109e-11	2.177e-11
1.752e+01	6.873e-11	5.951e-11	2.124e-11	2.192e-11
1.813e+01	6.842e-11	6.027e-11	2.125e-11	2.192e-11
1.875e+01	6.858e-11	6.155e-11	2.168e-11	2.235e-11
2.000e+01	6.941e-11	6.309e-11	2.277e-11	2.344e-11

KKMA
(Gray Cm²)

Energy (MeV)	Carbon Dioxide	Ethylene	Gas, To. w/Methane
1.882e-05			
2.075e-05	6.560e-17	3.102e-15	1.227e-14
2.277e-05	7.203e-17	3.379e-15	1.208e-14
2.417e-05	7.760e-17	3.621e-15	1.201e-14
2.561e-05	8.223e-17	3.822e-15	1.195e-14
2.710e-05	8.699e-17	4.030e-15	1.188e-14
2.862e-05	9.189e-17	4.244e-15	1.181e-14
2.940e-05	9.563e-17	4.408e-15	1.177e-14
3.099e-05	9.949e-17	4.577e-15	1.171e-14
3.345e-05	1.061e-16	4.867e-15	1.163e-14
3.601e-05	1.142e-16	5.226e-15	1.152e-14
3.866e-05	1.227e-16	5.599e-15	1.141e-14
4.048e-05	1.300e-16	5.920e-15	1.132e-14
4.234e-05	1.360e-16	6.185e-15	1.135e-14
4.328e-05	1.405e-16	6.386e-15	1.140e-14
4.619e-05	1.468e-16	6.663e-15	1.147e-14
4.717e-05	1.531e-16	6.944e-15	1.155e-14
4.918e-05	1.580e-16	7.160e-15	1.160e-14
5.123e-05	1.646e-16	7.452e-15	1.168e-14
5.332e-05	1.713e-16	7.751e-15	1.176e-14
5.654e-05	1.799e-16	8.134e-15	1.186e-14
5.763e-05	1.869e-16	8.445e-15	1.195e-14
6.097e-05	1.941e-16	8.765e-15	1.204e-14
6.325e-05	2.033e-16	9.171e-15	1.219e-14
6.557e-05	2.108e-16	9.504e-15	1.234e-14
6.674e-05	2.164e-16	9.757e-15	1.246e-14
7.033e-05	2.242e-16	1.010e-14	1.261e-14
7.155e-05	2.320e-16	1.045e-14	1.276e-14
7.527e-05	2.400e-16	1.081e-14	1.292e-14
7.780e-05	2.502e-16	1.126e-14	1.312e-14
7.908e-05	2.564e-16	1.154e-14	1.325e-14
8.167e-05	2.627e-16	1.182e-14	1.338e-14
8.431e-05	2.712e-16	1.220e-14	1.358e-14
8.834e-05	2.820e-16	1.268e-14	1.383e-14
9.108e-05	2.930e-16	1.317e-14	1.409e-14
9.386e-05	3.020e-16	1.357e-14	1.431e-14
9.668e-05	3.111e-16	1.398e-14	1.452e-14
9.811e-05	3.180e-16	1.428e-14	1.468e-14
1.025e-04	3.273e-16	1.470e-14	1.492e-14
1.099e-04	3.465e-16	1.556e-14	1.544e-14

**KERMA
(Gray Cm²)**

Energy (MeV)	Carbon Dioxide	Ethylene	Gas, Te, w/Methane
1.176e-04	3.711e-16	1.665e-14	1.612e-14
1.256e-04	3.966e-16	1.778e-14	1.682e-14
1.338e-04	4.229e-16	1.895e-14	1.755e-14
1.406e-04	4.473e-16	2.003e-14	1.823e-14
1.511e-04	4.753e-16	2.127e-14	1.900e-14
1.601e-04	5.069e-16	2.267e-14	1.987e-14
1.694e-04	5.366e-16	2.399e-14	2.070e-14
1.789e-04	5.671e-16	2.534e-14	2.154e-14
1.887e-04	5.985e-16	2.673e-14	2.240e-14
1.988e-04	6.307e-16	2.815e-14	2.329e-14
2.091e-04	6.637e-16	2.961e-14	2.423e-14
2.741e-04	7.858e-16	3.501e-14	2.790e-14
3.267e-04	9.762e-16	4.344e-14	3.364e-14
3.811e-04	1.149e-15	5.109e-14	3.884e-14
4.704e-04	1.381e-15	6.135e-14	4.589e-14
4.991e-04	1.572e-15	6.977e-14	5.176e-14
5.658e-04	1.725e-15	7.659e-14	5.652e-14
6.043e-04	1.895e-15	8.410e-14	6.177e-14
6.367e-04	2.009e-15	8.915e-14	6.531e-14
7.156e-04	2.188e-15	9.708e-14	7.090e-14
8.322e-04	2.501e-15	1.110e-13	8.070e-14
9.177e-04	2.825e-15	1.253e-13	9.083e-14
1.058e-03	3.187e-15	1.414e-13	1.022e-13
1.307e-03	3.814e-15	1.689e-13	1.217e-13
1.581e-03	4.656e-15	2.059e-13	1.480e-13
1.882e-03	5.583e-15	2.467e-13	1.769e-13
2.208e-03	6.594e-15	2.911e-13	2.085e-13
2.561e-03	7.689e-15	3.392e-13	2.426e-13
2.940e-03	8.868e-15	3.908e-13	2.793e-13
3.345e-03	1.013e-14	4.460e-13	3.186e-13
3.777e-03	1.148e-14	5.047e-13	3.604e-13
4.234e-03	1.291e-14	5.670e-13	4.047e-13
5.763e-03	1.611e-14	7.048e-13	5.028e-13
7.527e-03	2.157e-14	9.272e-13	6.611e-13
1.025e-02	2.902e-14	1.225e-12	8.730e-13
1.511e-02	4.106e-14	1.709e-12	1.218e-12
2.091e-02	5.833e-14	2.352e-12	1.676e-12
2.646e-02	7.672e-14	3.005e-12	2.141e-12
3.267e-02	9.806e-14	3.648e-12	2.598e-12
3.953e-02	1.175e-13	4.304e-12	3.067e-12

**KERMA
(Gray Cm²)**

Energy (MeV)	Carbon Dioxide	Ethylene	Gas, Te, w/Methane
4.704e-02	1.395e-13	4.990e-12	3.556e-12
5.761e-02	1.687e-13	5.795e-12	4.130e-12
7.002e-02	2.057e-13	6.735e-12	4.801e-12
8.322e-02	2.470e-13	7.696e-12	5.486e-12
9.891e-02	2.936e-13	8.685e-12	6.192e-12
1.307e-01	3.678e-13	1.012e-11	7.222e-12
1.819e-01	4.937e-13	1.226e-11	8.757e-12
2.075e-01	6.176e-13	1.393e-11	9.971e-12
2.417e-01	7.207e-13	1.509e-11	1.081e-11
2.710e-01	8.343e-13	1.622e-11	1.165e-11
2.940e-01	9.298e-13	1.709e-11	1.229e-11
3.345e-01	1.049e-12	1.807e-11	1.302e-11
3.776e-01	1.311e-12	1.925e-11	1.397e-11
4.234e-01	1.948e-12	2.041e-11	1.512e-11
5.123e-01	2.146e-12	2.205e-11	1.634e-11
6.325e-01	1.252e-12	2.436e-11	1.739e-11
7.527e-01	1.517e-12	2.675e-11	1.918e-11
8.834e-01	1.824e-12	2.898e-11	2.083e-11
1.025e+00	3.441e-12	3.112e-11	2.320e-11
1.176e+00	3.134e-12	3.331e-11	2.453e-11
1.338e+00	3.032e-12	3.549e-11	2.595e-11
1.511e+00	2.297e-12	3.760e-11	2.707e-11
1.694e+00	2.577e-12	3.960e-11	2.855e-11
1.887e+00	2.628e-12	4.160e-11	2.998e-11
2.091e+00	2.935e-12	4.402e-11	3.161e-11
2.305e+00	2.308e-12	4.539e-11	3.239e-11
2.530e+00	1.928e-12	4.741e-11	3.350e-11
2.741e+00	2.817e-12	4.971e-11	3.542e-11
3.011e+00	3.705e-12	5.356e-11	3.792e-11
3.267e+00	4.638e-12	5.412e-11	3.930e-11
3.534e+00	7.231e-12	5.858e-11	4.291e-11
3.811e+00	7.008e-12	6.024e-11	4.391e-11
4.069e+00	5.914e-12	6.019e-11	4.381e-11
4.396e+00	6.679e-12	6.179e-11	4.529e-11
4.704e+00	5.666e-12	6.202e-11	4.519e-11
4.991e+00	5.177e-12	6.222e-11	4.524e-11
5.352e+00	5.871e-12	6.310e-11	4.636e-11
5.658e+00	4.778e-12	6.436e-11	4.648e-11
6.042e+00	5.293e-12	6.453e-11	4.715e-11
6.367e+00	5.091e-12	6.691e-11	4.828e-11

KERMA
(Gray cm^2)

Energy (MeV)	Carbon Dioxide	Ethylene	Gas, Te, w/Methane
6.737e+00	5.562e-12	6.523e-11	4.810e-11
7.156e+00	5.306e-12	6.541e-11	4.830e-11
7.548e+00	7.565e-12	6.966e-11	5.145e-11
7.910e+00	7.662e-12	7.371e-11	5.311e-11
8.322e+00	7.059e-12	7.390e-11	5.304e-11
8.787e+00	6.625e-12	7.167e-11	5.217e-11
9.177e+00	7.090e-12	7.305e-11	5.314e-11
9.665e+00	7.567e-12	7.469e-11	5.421e-11
1.012e+01	8.171e-12	7.526e-11	5.496e-11
1.058e+01	8.579e-12	7.582e-11	5.555e-11
1.101e+01	9.564e-12	7.808e-11	5.703e-11
1.155e+01	1.140e-11	7.969e-11	5.877e-11
1.199e+01	1.267e-11	8.066e-11	5.996e-11
1.250e+01	1.316e-11	8.226e-11	6.094e-11
1.307e+01	1.410e-11	8.308e-11	6.189e-11
1.354e+01	1.487e-11	8.394e-11	6.273e-11
1.386e+01	1.548e-11	8.451e-11	6.334e-11
1.413e+01	1.584e-11	8.493e-11	6.372e-11
1.441e+01	1.626e-11	8.525e-11	6.410e-11
1.468e+01	1.674e-11	8.561e-11	6.452e-11
1.519e+01	1.753e-11	8.662e-11	6.535e-11
1.575e+01	1.834e-11	8.778e-11	6.621e-11
1.633e+01	1.916e-11	8.877e-11	6.702e-11
1.692e+01	1.968e-11	8.906e-11	6.741e-11
1.752e+01	1.988e-11	8.912e-11	6.754e-11
1.813e+01	1.991e-11	8.979e-11	6.777e-11
1.875e+01	2.049e-11	9.093e-11	6.849e-11
2.000e+01	2.176e-11	9.228e-11	6.965e-11

KERMA
(Gray Cm²)

Energy (MeV)	¹ H	² H	³ H	³ He	⁴ He	⁶ Li
1.307e-09						
5.227e-09	1.232e-13	5.448e-16	5.101e-20	5.695e-07	1.848e-20	2.427e-07
2.091e-08	6.159e-14	2.729e-16	2.041e-19	2.850e-07	7.393e-20	1.214e-07
3.267e-08	4.108e-14	1.842e-16	4.183e-19	1.912e-07	1.516e-19	8.092e-08
4.704e-08	3.363e-14	1.523e-16	6.224e-19	1.569e-07	2.255e-19	6.621e-08
8.322e-08	2.649e-14	1.224e-16	1.017e-18	1.235e-07	3.685e-19	5.209e-08
1.307e-07	2.065e-14	9.897e-17	1.670e-18	9.590e-08	6.051e-19	4.050e-08
1.882e-07	1.695e-14	8.633e-17	2.489e-18	7.856e-08	9.020e-19	3.310e-08
2.561e-07	1.442e-14	7.946e-17	3.469e-18	6.645e-08	1.257e-18	2.801e-08
3.345e-07	1.260e-14	7.610e-17	4.612e-18	5.740e-08	1.671e-18	2.427e-08
4.234e-07	1.123e-14	7.590e-17	5.918e-18	5.084e-08	2.144e-18	2.142e-08
5.123e-07	1.023e-14	7.736e-17	7.305e-18	4.561e-08	2.647e-18	1.926e-08
7.527e-07	9.053e-15	8.341e-17	9.877e-18	3.939e-08	3.578e-18	1.662e-08
1.176e-06	7.793e-15	1.003e-16	1.506e-17	3.198e-08	5.456e-18	1.349e-08
1.511e-06	7.095e-15	1.230e-16	2.098e-17	2.694e-08	7.600e-18	1.138e-08
2.091e-06	6.763e-15	1.527e-16	2.812e-17	2.337e-08	1.019e-17	9.843e-09
2.741e-06	6.681e-15	1.942e-16	3.773e-17	2.011e-08	1.367e-17	8.489e-09
3.534e-06	6.862e-15	2.440e-16	4.899e-17	1.761e-08	1.775e-17	7.447e-09
4.704e-06	7.347e-15	3.130e-16	6.432e-17	1.545e-08	2.330e-17	6.503e-09
5.658e-06	8.029e-15	3.883e-16	8.091e-17	1.368e-08	2.931e-17	5.789e-09
6.737e-06	8.775e-15	4.608e-16	9.677e-17	1.260e-08	3.506e-17	5.292e-09
8.321e-06	9.835e-15	5.562e-16	1.176e-16	1.134e-08	4.260e-17	4.804e-09
9.620e-06	1.104e-14	6.500e-16	1.401e-16	1.047e-08	5.075e-17	4.397e-09
1.101e-05	1.222e-14	7.571e-16	1.611e-16	9.690e-09	5.836e-17	4.100e-09
1.307e-05	1.375e-14	8.820e-16	1.880e-16	8.994e-09	6.812e-17	3.797e-09
1.468e-05	1.542e-14	1.015e-15	2.167e-16	8.418e-09	7.850e-17	3.535e-09
1.581e-05	1.669e-14	1.114e-15	2.381e-16	7.987e-09	8.626e-17	3.371e-09
1.758e-05	1.804e-14	1.219e-15	2.607e-16	7.588e-09	9.447e-17	3.222e-09
1.882e-05	1.944e-14	1.328e-15	2.842e-16	7.317e-09	1.030e-16	3.086e-09
2.075e-05	2.093e-14	1.443e-15	3.089e-16	7.047e-09	1.119e-16	2.960e-09
2.277e-05	2.280e-14	1.586e-15	3.397e-16	6.710e-09	1.231e-16	2.822e-09
2.417e-05	2.443e-14	1.710e-15	3.665e-16	6.418e-09	1.328e-16	2.717e-09
2.561e-05	2.579e-14	1.813e-15	3.887e-16	6.203e-09	1.408e-16	2.638e-09
2.710e-05	2.719e-14	1.919e-15	4.115e-16	6.062e-09	1.491e-16	2.564e-09
2.862e-05	2.863e-14	2.028e-15	4.350e-16	5.923e-09	1.576e-16	2.494e-09
2.940e-05	2.973e-14	2.111e-15	4.530e-16	5.816e-09	1.641e-16	2.444e-09
3.099e-05	3.087e-14	2.197e-15	4.715e-16	5.706e-09	1.708e-16	2.395e-09
3.345e-05	3.282e-14	2.344e-15	5.032e-16	5.518e-09	1.823e-16	2.319e-09
3.601e-05	3.525e-14	2.525e-15	5.423e-16	5.285e-09	1.965e-16	2.234e-09
3.866e-05	3.776e-14	2.714e-15	5.830e-16	5.069e-09	2.112e-16	2.154e-09
4.048e-05	3.992e-14	2.876e-15	6.179e-16	4.943e-09	2.239e-16	2.092e-09

SIEMENS
(Gray cm²)

Energy (MeV)	¹ H	² H	³ H	³ He	⁴ He	^{6,7} Li
4.234e-05	4.171e-14	3.809e-15	6.466e-16	4.856e-09	2.343e-16	2.045e-09
4.328e-05	4.387e-14	3.111e-15	6.685e-16	4.783e-09	2.422e-16	2.012e-09
4.619e-05	4.493e-14	3.250e-15	6.986e-16	4.688e-09	2.531e-16	1.968e-09
4.717e-05	4.682e-14	3.391e-15	7.289e-16	4.589e-09	2.641e-16	1.926e-09
4.918e-05	4.828e-14	3.499e-15	7.523e-16	4.513e-09	2.726e-16	1.896e-09
5.123e-05	5.025e-14	3.646e-15	7.840e-16	4.411e-09	2.840e-16	1.858e-09
5.332e-05	5.226e-14	3.796e-15	8.163e-16	4.306e-09	2.938e-16	1.820e-09
5.654e-05	5.485e-14	3.988e-15	8.577e-16	4.177e-09	3.108e-16	1.776e-09
5.763e-05	5.694e-14	4.144e-15	8.913e-16	4.108e-09	3.229e-16	1.742e-09
6.097e-05	5.910e-14	4.303e-15	9.260e-16	4.055e-09	3.355e-16	1.709e-09
6.325e-05	6.184e-14	4.508e-15	9.698e-16	3.939e-09	3.514e-16	1.670e-09
6.557e-05	6.408e-14	4.675e-15	1.006e-15	3.934e-09	3.644e-16	1.640e-09
6.674e-05	6.579e-14	4.801e-15	1.033e-15	3.892e-09	3.743e-16	1.618e-09
7.033e-05	6.812e-14	4.974e-15	1.070e-15	3.836e-09	3.878e-16	1.590e-09
7.155e-05	7.046e-14	5.148e-15	1.108e-15	3.779e-09	4.014e-16	1.562e-09
7.527e-05	7.287e-14	5.327e-15	1.146e-15	3.720e-09	4.153e-16	1.536e-09
7.780e-05	7.592e-14	5.553e-15	1.195e-15	3.646e-09	4.330e-16	1.504e-09
7.908e-05	7.779e-14	5.691e-15	1.225e-15	3.601e-09	4.438e-16	1.486e-09
8.167e-05	7.968e-14	5.831e-15	1.255e-15	3.554e-09	4.548e-16	1.468e-09
8.431e-05	8.223e-14	6.021e-15	1.296e-15	3.492e-09	4.695e-16	1.445e-09
8.834e-05	8.549e-14	6.262e-15	1.348e-15	3.413e-09	4.884e-16	1.416e-09
9.108e-05	8.880e-14	6.507e-15	1.401e-15	3.333e-09	5.075e-16	1.389e-09
9.386e-05	9.150e-14	6.707e-15	1.444e-15	3.267e-09	5.232e-16	1.369e-09
9.668e-05	9.424e-14	6.910e-15	1.488e-15	3.201e-09	5.390e-16	1.348e-09
9.811e-05	9.632e-14	7.064e-15	1.521e-15	3.150e-09	5.510e-16	1.334e-09
1.025e-04	9.914e-14	7.273e-15	1.566e-15	3.089e-09	5.673e-16	1.314e-09
1.099e-04	1.049e-13	7.700e-15	1.658e-15	3.006e-09	6.007e-16	1.278e-09
1.176e-04	1.123e-13	8.249e-15	1.776e-15	2.906e-09	6.436e-16	1.235e-09
1.256e-04	1.199e-13	8.816e-15	1.899e-15	2.802e-09	6.880e-16	1.194e-09
1.338e-04	1.277e-13	9.403e-15	2.025e-15	2.719e-09	7.338e-16	1.157e-09
1.406e-04	1.350e-13	9.947e-15	2.142e-15	2.658e-09	7.762e-16	1.124e-09
1.511e-04	1.434e-13	1.057e-14	2.277e-15	2.588e-09	8.250e-16	1.090e-09
1.601e-04	1.529e-13	1.128e-14	2.429e-15	2.508e-09	8.802e-16	1.056e-09
1.694e-04	1.617e-13	1.194e-14	2.572e-15	2.434e-09	9.319e-16	1.026e-09
1.789e-04	1.708e-13	1.262e-14	2.719e-15	2.357e-09	9.852e-16	9.979e-10
1.887e-04	1.802e-13	1.332e-14	2.870e-15	2.279e-09	1.040e-15	9.710e-10
1.988e-04	1.898e-13	1.404e-14	3.025e-15	2.222e-09	1.096e-15	9.460e-10
2.091e-04	1.996e-13	1.478e-14	3.184e-15	2.176e-09	1.154e-15	9.220e-10
2.741e-04	2.360e-13	1.751e-14	3.773e-15	2.006e-09	1.367e-15	8.489e-10
3.267e-04	2.929e-13	2.177e-14	4.691e-15	1.785e-09	1.700e-15	7.603e-10
3.811e-04	3.445e-13	2.564e-14	5.526e-15	1.656e-09	2.002e-15	7.003e-10

TABLE 2
($\text{cm}^2 \text{ g}^{-1}$)

Energy (MeV)	1_H	2_H	3_H	3_{He}	4_{He}	6_{Li}
4.704e-04	4.136e-13	3.084e-14	6.648e-15	1.499e-09	2.409e-15	6.389e-10
4.991e-04	4.704e-13	3.512e-14	7.570e-15	1.413e-09	2.743e-15	5.980e-10
5.658e-04	5.164e-13	3.857e-14	8.314e-15	1.351e-09	3.012e-15	5.708e-10
6.043e-04	5.670e-13	4.238e-14	9.135e-15	1.282e-09	3.310e-15	5.444e-10
6.367e-04	6.011e-13	4.495e-14	9.689e-15	1.236e-09	3.510e-15	5.286e-10
7.156e-04	6.546e-13	4.898e-14	1.056e-14	1.191e-09	3.825e-15	5.065e-10
8.322e-04	7.484e-13	5.606e-14	1.208e-14	1.123e-09	4.378e-15	4.736e-10
9.177e-04	8.452e-13	6.338e-14	1.366e-14	1.053e-09	4.950e-15	4.452e-10
1.058e-03	9.534e-13	7.157e-14	1.543e-14	9.792e-10	5.590e-15	4.191e-10
1.307e-03	1.139e-12	8.566e-14	1.847e-14	9.015e-10	6.691e-15	3.833e-10
1.581e-03	1.389e-12	1.046e-13	2.255e-14	8.149e-10	8.170e-15	3.468e-10
1.882e-03	1.664e-12	1.254e-13	2.704e-14	7.504e-10	9.796e-15	3.167e-10
2.208e-03	1.963e-12	1.481e-13	3.193e-14	6.846e-10	1.157e-14	2.914e-10
2.561e-03	2.287e-12	1.727e-13	3.724e-14	6.368e-10	1.349e-14	2.698e-10
2.940e-03	2.635e-12	1.992e-13	4.295e-14	5.954e-10	1.556e-14	2.512e-10
3.345e-03	3.007e-12	2.276e-13	4.908e-14	5.526e-10	1.778e-14	2.350e-10
3.777e-03	3.403e-12	2.579e-13	5.560e-14	5.224e-10	2.015e-14	2.208e-10
4.234e-03	3.822e-12	2.901e-13	6.254e-14	4.946e-10	2.266e-14	2.082e-10
5.763e-03	4.750e-12	3.620e-13	7.805e-14	4.411e-10	2.828e-14	1.869e-10
7.527e-03	6.244e-12	4.813e-13	1.038e-13	3.828e-10	3.759e-14	1.620e-10
1.025e-02	8.242e-12	6.436e-13	1.388e-13	3.333e-10	5.028e-14	1.403e-10
1.511e-02	1.150e-11	9.164e-13	1.979e-13	2.804e-10	7.193e-14	1.178e-10
2.091e-02	1.581e-11	1.297e-12	2.812e-13	2.359e-10	1.028e-13	9.883e-11
2.646e-02	2.017e-11	1.700e-12	3.699e-13	2.057e-10	1.387e-13	8.616e-11
3.267e-02	2.442e-11	2.114e-12	4.617e-13	1.868e-10	1.766e-13	7.925e-11
3.953e-02	2.881e-11	2.570e-12	5.637e-13	1.695e-10	2.188e-13	7.371e-11
4.704e-02	3.339e-11	3.067e-12	6.759e-13	1.574e-10	2.666e-13	6.874e-11
5.761e-02	3.871e-11	3.696e-12	8.196e-13	1.437e-10	3.289e-13	6.444e-11
7.002e-02	4.490e-11	4.532e-12	1.009e-12	1.292e-10	4.109e-13	6.084e-11
8.322e-02	5.119e-11	5.458e-12	1.220e-12	1.138e-10	5.068e-13	5.886e-11
9.891e-02	5.763e-11	6.513e-12	1.458e-12	9.600e-11	6.227e-13	5.850e-11
1.307e-01	6.696e-11	8.301e-12	1.870e-12	8.178e-11	8.146e-13	6.249e-11
1.819e-01	8.077e-11	1.157e-11	2.622e-12	7.288e-11	1.173e-12	8.957e-11
2.075e-01	9.153e-11	1.470e-11	3.352e-12	6.416e-11	1.549e-12	1.633e-10
2.417e-01	9.889e-11	1.716e-11	3.954e-12	6.197e-11	1.887e-12	2.701e-10
2.710e-01	1.061e-10	1.988e-11	4.633e-12	5.098e-11	2.284e-12	2.767e-10
2.940e-01	1.116e-10	2.213e-11	5.208e-12	6.005e-11	2.657e-12	1.902e-10
3.345e-01	1.178e-10	2.487e-11	5.932e-12	5.962e-11	3.160e-12	1.180e-10
3.776e-01	1.252e-10	2.865e-11	6.979e-12	6.007e-11	3.919e-12	7.453e-11
4.234e-01	1.325e-10	3.270e-11	8.142e-12	6.012e-11	4.891e-12	5.493e-11
5.123e-01	1.428e-10	3.917e-11	1.007e-11	6.193e-11	6.730e-12	4.251e-11

KKMM
(Gray Cm²)

Energy (MeV)	¹ H	² H	³ H	³ He	⁴ He	⁶ Li
6.325e-01	1.573e-10	4.783e-11	1.312e-11	6.723e-11	1.124e-11	3.474e-11
7.527e-01	1.721e-10	5.684e-11	1.673e-11	7.457e-11	1.988e-11	3.078e-11
8.834e-01	1.862e-10	6.599e-11	2.077e-11	8.271e-11	3.350e-11	2.897e-11
1.025e+00	2.001e-10	7.564e-11	2.543e-11	9.204e-11	5.043e-11	2.813e-11
1.176e+00	2.141e-10	8.469e-11	3.032e-11	1.018e-10	6.193e-11	2.803e-11
1.338e+00	2.278e-10	9.346e-11	3.554e-11	1.121e-10	6.172e-11	2.862e-11
1.511e+00	2.413e-10	1.024e-10	4.130e-11	1.228e-10	5.567e-11	2.967e-11
1.694e+00	2.543e-10	1.110e-10	4.792e-11	1.331e-10	5.141e-11	3.090e-11
1.887e+00	2.671e-10	1.189e-10	5.547e-11	1.421e-10	4.664e-11	3.237e-11
2.091e+00	2.794e-10	1.260e-10	6.351e-11	1.498e-10	4.447e-11	3.422e-11
2.305e+00	2.914e-10	1.280e-10	7.033e-11	1.561e-10	4.337e-11	3.631e-11
2.530e+00	3.032e-10	1.277e-10	7.687e-11	1.618e-10	4.185e-11	3.822e-11
2.741e+00	3.142e-10	1.294e-10	8.269e-11	1.659e-10	4.242e-11	3.984e-11
3.011e+00	3.254e-10	1.326e-10	8.830e-11	1.689e-10	4.355e-11	4.133e-11
3.267e+00	3.366e-10	1.363e-10	9.323e-11	1.700e-10	4.575e-11	4.339e-11
3.534e+00	3.469e-10	1.387e-10	9.638e-11	1.692e-10	4.793e-11	4.640e-11
3.811e+00	3.566e-10	1.391e-10	1.004e-10	1.681e-10	4.990e-11	5.004e-11
4.069e+00	3.655e-10	1.387e-10	1.039e-10	1.667e-10	5.159e-11	5.330e-11
4.396e+00	3.742e-10	1.369e-10	1.063e-10	1.668e-10	5.328e-11	5.459e-11
4.704e+00	3.832e-10	1.364e-10	1.082e-10	1.665e-10	5.492e-11	5.526e-11
4.991e+00	3.906e-10	1.407e-10	1.094e-10	1.660e-10	5.626e-11	5.532e-11
5.352e+00	3.979e-10	1.459e-10	1.094e-10	1.658e-10	5.738e-11	5.619e-11
5.658e+00	4.049e-10	1.514e-10	1.083e-10	1.662e-10	5.824e-11	5.721e-11
6.042e+00	4.113e-10	1.563e-10	1.062e-10	1.669e-10	5.889e-11	5.853e-11
6.367e+00	4.175e-10	1.600e-10	1.056e-10	1.672e-10	5.934e-11	5.969e-11
6.737e+00	4.226e-10	1.623e-10	1.059e-10	1.675e-10	5.954e-11	6.044e-11
7.156e+00	4.280e-10	1.642e-10	1.058e-10	1.685e-10	5.955e-11	6.064e-11
7.548e+00	4.331e-10	1.674e-10	1.048e-10	1.692e-10	6.002e-11	6.098e-11
7.910e+00	4.373e-10	1.703e-10	1.030e-10	1.698e-10	6.046e-11	6.156e-11
8.322e+00	4.410e-10	1.727e-10	1.013e-10	1.705e-10	6.087e-11	6.239e-11
8.787e+00	4.450e-10	1.752e-10	1.002e-10	1.715e-10	6.145e-11	6.360e-11
9.177e+00	4.486e-10	1.772e-10	9.874e-11	1.731e-10	6.185e-11	6.463e-11
9.665e+00	4.521e-10	1.791e-10	9.924e-11	1.749e-10	6.207e-11	6.606e-11
1.012e+01	4.554e-10	1.807e-10	9.969e-11	1.759e-10	6.214e-11	6.771e-11
1.058e+01	4.581e-10	1.820e-10	9.901e-11	1.768e-10	6.265e-11	6.916e-11
1.101e+01	4.604e-10	1.830e-10	9.805e-11	1.771e-10	6.320e-11	7.041e-11
1.155e+01	4.624e-10	1.825e-10	9.673e-11	1.779e-10	6.360e-11	7.181e-11
1.199e+01	4.643e-10	1.807e-10	9.493e-11	1.790e-10	6.380e-11	7.300e-11
1.250e+01	4.660e-10	1.789e-10	9.456e-11	1.804e-10	6.399e-11	7.317e-11
1.307e+01	4.675e-10	1.764e-10	9.558e-11	1.815e-10	6.422e-11	7.265e-11
1.354e+01	4.688e-10	1.731e-10	9.628e-11	1.818e-10	6.423e-11	7.239e-11

XXXXX
(Gray Cm²)

Energy (MeV)	1_H	2_H	3_H	3_{He}	4_{He}	6_{Li}
1.386e+01	4.698e-10	1.704e-10	9.701e-11	1.821e-10	6.411e-11	7.229e-11
1.413e+01	4.705e-10	1.684e-10	9.775e-11	1.824e-10	6.393e-11	7.235e-11
1.441e+01	4.707e-10	1.676e-10	9.839e-11	1.831e-10	6.372e-11	7.317e-11
1.468e+01	4.709e-10	1.671e-10	9.897e-11	1.839e-10	6.343e-11	7.400e-11
1.519e+01	4.715e-10	1.678e-10	9.882e-11	1.854e-10	6.274e-11	7.538e-11
1.575e+01	4.717e-10	1.690e-10	9.810e-11	1.871e-10	6.170e-11	7.702e-11
1.633e+01	4.719e-10	1.699e-10	9.700e-11	1.887e-10	6.030e-11	7.892e-11
1.692e+01	4.717e-10	1.708e-10	9.575e-11	1.904e-10	5.871e-11	8.189e-11
1.752e+01	4.715e-10	1.712e-10	9.509e-11	1.923e-10	5.710e-11	8.491e-11
1.813e+01	4.711e-10	1.714e-10	9.554e-11	1.946e-10	5.496e-11	8.779e-11
1.875e+01	4.704e-10	1.710e-10	9.598e-11	1.967e-10	5.200e-11	8.945e-11
2.000e+01	4.693e-10	1.696e-10	9.766e-11	1.997e-10	4.753e-11	9.098e-11

KKMA₂
(ccy Cm²)

Energy (MeV)	⁷ Li	⁷ Be	⁹ Be	¹⁰ B	¹¹ B	¹² C
1.307e-09						
5.227e-09	2.999e-16	3.320e-06	6.750e-16	2.551e-07	5.425e-17	9.577e-17
2.091e-08	1.600e-16	1.628e-06	3.380e-16	1.276e-07	3.064e-17	4.320e-17
3.267e-08	1.124e-16	1.079e-06	2.251e-16	8.505e-08	2.208e-17	2.798e-17
4.704e-08	9.583e-17	8.856e-07	1.850e-16	6.958e-08	1.878e-17	2.352e-17
8.322e-08	7.479e-17	6.942e-07	1.458e-16	5.475e-08	1.563e-17	1.872e-17
1.307e-07	6.029e-17	5.414e-07	1.138e-16	4.257e-08	1.304e-17	1.461e-17
1.882e-07	5.150e-17	4.434e-07	9.390e-17	3.479e-08	1.150e-17	1.359e-17
2.561e-07	4.385e-17	3.734e-07	8.050e-17	2.943e-08	1.058e-17	1.277e-17
3.345e-07	3.955e-17	3.201e-07	7.097e-17	2.551e-08	1.004e-17	1.181e-17
4.234e-07	3.488e-17	2.811e-07	6.405e-17	2.251e-08	9.812e-18	1.071e-17
5.123e-07	3.237e-17	2.548e-07	5.914e-17	2.025e-08	9.801e-18	9.554e-18
7.527e-07	2.948e-17	2.191e-07	5.391e-17	1.747e-08	1.014e-17	9.354e-18
1.176e-06	2.615e-17	1.784e-07	4.902e-17	1.417e-08	1.145e-17	1.006e-17
1.511e-06	2.475e-17	1.523e-07	4.765e-17	1.196e-08	1.336e-17	1.185e-17
2.091e-06	2.301e-17	1.304e-07	4.883e-17	1.035e-08	1.595e-17	1.432e-17
2.741e-06	2.272e-17	1.125e-07	5.239e-17	8.922e-09	1.965e-17	1.760e-17
3.534e-06	2.362e-17	9.880e-08	5.811e-17	7.827e-09	2.416e-17	2.142e-17
4.704e-06	2.514e-17	8.647e-08	6.718e-17	6.834e-09	3.046e-17	2.665e-17
5.658e-06	2.784e-17	7.719e-08	7.791e-17	6.084e-09	3.736e-17	3.229e-17
6.737e-06	3.055e-17	7.064e-08	8.861e-17	5.562e-09	4.404e-17	3.764e-17
8.321e-06	3.410e-17	6.388e-08	1.031e-16	5.049e-09	5.283e-17	4.460e-17
9.620e-06	3.803e-17	5.854e-08	1.192e-16	4.622e-09	6.240e-17	5.208e-17
1.101e-05	4.188e-17	5.449e-08	1.344e-16	4.310e-09	7.135e-17	5.905e-17
1.307e-05	4.726e-17	5.063e-08	1.541e-16	3.990e-09	8.286e-17	6.817e-17
1.468e-05	5.302e-17	4.658e-08	1.753e-16	3.715e-09	9.513e-17	7.787e-17
1.581e-05	5.733e-17	4.388e-08	1.912e-16	3.543e-09	1.043e-16	8.513e-17
1.758e-05	6.188e-17	4.223e-08	2.080e-16	3.387e-09	1.140e-16	9.280e-17
1.882e-05	6.659e-17	4.058e-08	2.256e-16	3.243e-09	1.241e-16	1.007e-16
2.075e-05	7.156e-17	3.888e-08	2.441e-16	3.111e-09	1.347e-16	1.091e-16
2.277e-05	7.794e-17	3.727e-08	2.672e-16	2.966e-09	1.480e-16	1.196e-16
2.417e-05	8.350e-17	3.599e-08	2.874e-16	2.856e-09	1.595e-16	1.286e-16
2.561e-05	8.812e-17	3.492e-08	3.041e-16	2.773e-09	1.690e-16	1.361e-16
2.710e-05	9.287e-17	3.383e-08	3.213e-16	2.695e-09	1.788e-16	1.439e-16
2.862e-05	9.775e-17	3.270e-08	3.391e-16	2.621e-09	1.890e-16	1.518e-16
2.940e-05	1.015e-16	3.183e-08	3.526e-16	2.568e-09	1.967e-16	1.579e-16
3.099e-05	1.053e-16	3.105e-08	3.666e-16	2.517e-09	2.046e-16	1.642e-16
3.345e-05	1.119e-16	3.016e-08	3.906e-16	2.437e-09	2.183e-16	1.749e-16
3.601e-05	1.201e-16	2.911e-08	4.203e-16	2.348e-09	2.351e-16	1.881e-16
3.866e-05	1.285e-16	2.802e-08	4.510e-16	2.264e-09	2.526e-16	2.019e-16
4.048e-05	1.358e-16	2.709e-08	4.775e-16	2.199e-09	2.677e-16	2.137e-16

**REMA
(Gray cm²)**

Energy (MeV)	⁷ Li	⁷ Be	⁹ Be	¹⁰ B	¹¹ B	¹² C
4.234e-03	1.418e-16	2.644e-08	4.993e-16	2.150e-09	2.801e-16	2.234e-16
4.328e-03	1.464e-16	2.597e-08	5.160e-16	2.114e-09	2.895e-16	2.308e-16
4.619e-03	1.528e-16	2.534e-08	5.308e-16	2.068e-09	3.024e-16	2.410e-16
4.717e-03	1.592e-16	2.470e-08	5.618e-16	2.024e-09	3.155e-16	2.512e-16
4.918e-03	1.641e-16	2.420e-08	5.796e-16	1.993e-09	3.256e-16	2.592e-16
5.123e-03	1.708e-16	2.358e-08	6.036e-16	1.952e-09	3.392e-16	2.699e-16
5.332e-03	1.777e-16	2.315e-08	6.282e-16	1.913e-09	3.532e-16	2.808e-16
5.654e-03	1.864e-16	2.262e-08	6.597e-16	1.866e-09	3.710e-16	2.948e-16
5.763e-03	1.935e-16	2.219e-08	6.853e-16	1.831e-09	3.855e-16	3.062e-16
6.097e-03	2.008e-16	2.175e-08	7.116e-16	1.796e-09	4.004e-16	3.179e-16
6.325e-03	2.101e-16	2.124e-08	7.450e-16	1.755e-09	4.194e-16	3.327e-16
6.557e-03	2.177e-16	2.083e-08	7.723e-16	1.724e-09	4.348e-16	3.448e-16
6.674e-03	2.235e-16	2.053e-08	7.931e-16	1.701e-09	4.466e-16	3.541e-16
7.033e-03	2.313e-16	2.011e-08	8.214e-16	1.671e-09	4.627e-16	3.666e-16
7.155e-03	2.393e-16	1.974e-08	8.501e-16	1.642e-09	4.789e-16	3.793e-16
7.527e-03	2.474e-16	1.947e-08	8.794e-16	1.614e-09	4.955e-16	3.924e-16
7.780e-03	2.577e-16	1.913e-08	9.166e-16	1.581e-09	5.165e-16	4.088e-16
7.908e-03	2.640e-16	1.892e-08	9.392e-16	1.562e-09	5.293e-16	4.189e-16
8.167e-03	2.704e-16	1.868e-08	9.622e-16	1.543e-09	5.424e-16	4.291e-16
8.431e-03	2.790e-16	1.828e-08	9.933e-16	1.518e-09	5.600e-16	4.429e-16
8.834e-03	2.900e-16	1.777e-08	1.033e-15	1.489e-09	5.824e-16	4.604e-16
9.108e-03	3.012e-16	1.727e-08	1.073e-15	1.460e-09	6.052e-16	4.783e-16
9.386e-03	3.104e-16	1.704e-08	1.106e-15	1.439e-09	6.238e-16	4.928e-16
9.668e-03	3.196e-16	1.685e-08	1.139e-15	1.417e-09	6.426e-16	5.076e-16
9.811e-03	3.267e-16	1.671e-08	1.165e-15	1.402e-09	6.570e-16	5.188e-16
1.025e-04	3.362e-16	1.652e-08	1.199e-15	1.381e-09	6.764e-16	5.340e-16
1.099e-04	3.558e-16	1.613e-08	1.269e-15	1.344e-09	7.161e-16	5.651e-16
1.176e-04	3.810e-16	1.563e-08	1.360e-15	1.298e-09	7.672e-16	6.050e-16
1.256e-04	4.070e-16	1.511e-08	1.453e-15	1.255e-09	8.200e-16	6.463e-16
1.338e-04	4.338e-16	1.458e-08	1.550e-15	1.216e-09	8.745e-16	6.889e-16
1.406e-04	4.587e-16	1.408e-08	1.639e-15	1.181e-09	9.251e-16	7.284e-16
1.511e-04	4.874e-16	1.351e-08	1.742e-15	1.146e-09	9.832e-16	7.737e-16
1.601e-04	5.197e-16	1.301e-08	1.858e-15	1.110e-09	1.049e-15	8.250e-16
1.694e-04	5.500e-16	1.265e-08	1.967e-15	1.078e-09	1.110e-15	8.731e-16
1.789e-04	5.813e-16	1.227e-08	2.079e-15	1.049e-09	1.174e-15	9.225e-16
1.887e-04	6.134e-16	1.189e-08	2.194e-15	1.021e-09	1.239e-15	9.732e-16
1.988e-04	6.463e-16	1.150e-08	2.313e-15	9.943e-10	1.306e-15	1.025e-15
2.091e-04	6.802e-16	1.116e-08	2.434e-15	9.691e-10	1.375e-15	1.079e-15
2.741e-04	8.053e-16	1.033e-08	2.883e-15	8.923e-10	1.628e-15	1.276e-15
3.267e-04	1.001e-15	9.087e-09	3.584e-15	7.991e-10	2.025e-15	1.584e-15
3.811e-04	1.178e-15	8.271e-09	4.221e-15	7.361e-10	2.385e-15	1.863e-15

KRAM
(Gray Cm²)

Energy (MeV)	⁷ Li	⁷ Be	⁹ Be	¹⁰ B	¹¹ B	¹² C
4.704e-04	1.417e-15	7.394e-09	5.078e-15	6.716e-10	2.869e-15	2.236e-15
4.991e-04	1.613e-15	6.862e-09	5.781e-15	6.285e-10	3.267e-15	2.543e-15
5.658e-04	1.772e-15	6.513e-09	6.350e-15	6.000e-10	3.588e-15	2.789e-15
6.043e-04	1.947e-15	6.166e-09	6.976e-15	5.722e-10	3.942e-15	3.061e-15
6.367e-04	2.065e-15	5.954e-09	7.399e-15	5.556e-10	4.181e-15	3.243e-15
7.156e-04	2.250e-15	5.650e-09	8.063e-15	5.324e-10	4.556e-15	3.530e-15
8.322e-04	2.574e-15	5.269e-09	9.228e-15	4.978e-10	5.215e-15	4.030e-15
9.177e-04	2.910e-15	4.906e-09	1.043e-14	4.680e-10	5.895e-15	4.546e-15
1.058e-03	3.287e-15	4.566e-09	1.178e-14	4.406e-10	6.658e-15	5.121e-15
1.307e-03	3.933e-15	4.121e-09	1.410e-14	4.030e-10	7.969e-15	6.126e-15
1.581e-03	4.802e-15	3.556e-09	1.722e-14	3.647e-10	9.730e-15	7.479e-15
1.882e-03	5.758e-15	3.136e-09	2.064e-14	3.330e-10	1.167e-14	8.967e-15
2.208e-03	6.801e-15	2.784e-09	2.438e-14	3.064e-10	1.378e-14	1.059e-14
2.561e-03	7.930e-15	2.533e-09	2.843e-14	2.838e-10	1.607e-14	1.235e-14
2.940e-03	9.147e-15	2.275e-09	3.279e-14	2.642e-10	1.853e-14	1.424e-14
3.345e-03	1.045e-14	2.047e-09	3.746e-14	2.472e-10	2.118e-14	1.627e-14
3.777e-03	1.184e-14	1.889e-09	4.245e-14	2.323e-10	2.399e-14	1.844e-14
4.234e-03	1.332e-14	1.729e-09	4.775e-14	2.191e-10	2.699e-14	2.074e-14
5.763e-03	1.662e-14	1.477e-09	5.959e-14	1.967e-10	3.368e-14	2.588e-14
7.527e-03	2.209e-14	1.212e-09	7.921e-14	1.706e-10	4.477e-14	3.493e-14
1.025e-02	2.954e-14	9.720e-10	1.059e-13	1.478e-10	5.987e-14	4.737e-14
1.511e-02	4.202e-14	7.642e-10	1.500e-13	1.242e-10	8.541e-14	6.634e-14
2.091e-02	5.938e-14	5.782e-10	2.104e-13	1.043e-10	1.213e-13	9.425e-14
2.646e-02	7.765e-14	4.685e-10	2.729e-13	9.109e-11	1.586e-13	1.240e-13
3.267e-02	9.635e-14	3.870e-10	3.381e-13	8.174e-11	1.960e-13	1.631e-13
3.953e-02	1.169e-13	3.267e-10	4.106e-13	7.420e-11	2.367e-13	1.912e-13
4.704e-02	1.391e-13	2.767e-10	4.893e-13	6.800e-11	2.803e-13	2.241e-13
5.761e-02	1.662e-13	2.326e-10	5.860e-13	6.216e-11	3.340e-13	2.709e-13
7.002e-02	1.988e-13	1.918e-10	7.034e-13	5.664e-11	4.013e-13	3.303e-13
8.322e-02	2.341e-13	1.622e-10	8.293e-13	5.204e-11	4.738e-13	3.966e-13
9.891e-02	2.718e-13	1.370e-10	9.652e-13	4.814e-11	5.525e-13	4.713e-13
1.307e-01	3.149e-13	1.144e-10	1.177e-12	4.354e-11	6.740e-13	5.860e-13
1.819e-01	4.100e-13	8.794e-11	1.513e-12	3.835e-11	8.690e-13	7.644e-13
2.075e-01	6.147e-13	7.433e-11	1.786e-12	3.517e-11	1.042e-12	9.107e-13
2.417e-01	1.855e-12	7.080e-11	1.966e-12	3.258e-11	1.173e-12	1.024e-12
2.710e-01	6.773e-12	7.358e-11	2.118e-12	3.150e-11	1.306e-12	1.140e-12
2.940e-01	5.011e-12	7.886e-11	2.251e-12	3.035e-11	1.409e-12	1.232e-12
3.345e-01	2.830e-12	8.413e-11	2.416e-12	2.828e-11	1.527e-12	1.337e-12
3.776e-01	1.964e-12	8.922e-11	2.631e-12	2.583e-11	1.689e-12	1.468e-12
4.234e-01	1.863e-12	8.758e-11	2.833e-12	2.470e-11	2.316e-12	1.595e-12
5.123e-01	1.996e-12	6.966e-11	3.086e-12	2.301e-11	2.230e-12	1.778e-12

KEMM
(Gray Cm²)

Energy (MeV)	⁷ Li	⁷ Be	⁹ Be	¹⁰ B	¹¹ B	¹² C
6.325e-01	2.319e-12	4.773e-11	4.831e-12	1.970e-11	1.914e-12	2.031e-12
7.527e-01	2.753e-12	3.694e-11	4.712e-12	1.500e-11	1.986e-12	2.356e-12
8.834e-01	3.452e-12	3.309e-11	5.084e-12	1.271e-11	1.927e-12	2.596e-12
1.025e+00	4.310e-12	3.081e-11	5.083e-12	1.080e-11	1.822e-12	2.760e-12
1.176e+00	5.297e-12	2.975e-11	5.407e-12	1.031e-11	2.967e-12	2.979e-12
1.338e+00	6.313e-12	2.898e-11	5.444e-12	1.127e-11	6.119e-12	3.222e-12
1.511e+00	7.121e-12	2.785e-11	5.248e-12	1.224e-11	5.040e-12	3.425e-12
1.694e+00	7.940e-12	2.818e-11	5.207e-12	1.640e-11	4.356e-12	3.564e-12
1.887e+00	8.789e-12	2.979e-11	5.451e-12	2.145e-11	4.727e-12	3.766e-12
2.091e+00	9.712e-12	3.144e-11	6.328e-12	2.241e-11	4.655e-12	4.521e-12
2.305e+00	1.105e-11	3.414e-11	8.253e-12	1.920e-11	5.145e-12	4.105e-12
2.530e+00	1.259e-11	3.714e-11	1.182e-11	1.803e-11	7.271e-12	4.482e-12
2.741e+00	1.400e-11	4.004e-11	1.501e-11	1.887e-11	7.093e-12	5.320e-12
3.011e+00	1.549e-11	4.318e-11	1.422e-11	1.906e-11	6.400e-12	7.951e-12
3.267e+00	1.721e-11	4.814e-11	1.406e-11	1.820e-11	5.968e-12	6.713e-12
3.534e+00	1.908e-11	5.461e-11	1.440e-11	1.806e-11	5.491e-12	1.021e-11
3.811e+00	2.106e-11	6.142e-11	1.488e-11	1.849e-11	5.132e-12	1.051e-11
4.069e+00	2.347e-11	6.838e-11	1.533e-11	2.065e-11	4.869e-12	8.958e-12
4.396e+00	2.687e-11	7.923e-11	1.612e-11	2.310e-11	5.017e-12	9.357e-12
4.704e+00	2.936e-11	9.235e-11	1.686e-11	2.288e-11	5.835e-12	8.120e-12
4.991e+00	3.082e-11	1.049e-10	1.699e-11	2.225e-11	6.450e-12	7.122e-12
5.352e+00	3.220e-11	1.206e-10	1.737e-11	2.288e-11	6.578e-12	6.925e-12
5.658e+00	3.419e-11	1.386e-10	1.792e-11	2.493e-11	6.395e-12	7.222e-12
6.042e+00	3.758e-11	1.574e-10	1.843e-11	2.722e-11	6.347e-12	6.338e-12
6.367e+00	3.963e-11	1.702e-10	1.896e-11	2.891e-11	6.576e-12	8.078e-12
6.737e+00	4.035e-11	1.779e-10	1.949e-11	3.021e-11	6.317e-12	5.255e-12
7.156e+00	4.103e-11	1.866e-10	2.028e-11	3.149e-11	6.274e-12	4.567e-12
7.548e+00	4.174e-11	1.965e-10	2.119e-11	3.244e-11	6.407e-12	8.672e-12
7.910e+00	4.239e-11	2.061e-10	2.199e-11	3.322e-11	6.691e-12	1.270e-11
8.322e+00	4.304e-11	2.147e-10	2.277e-11	3.406e-11	7.236e-12	1.229e-11
8.787e+00	4.401e-11	2.219e-10	2.372e-11	3.520e-11	8.460e-12	9.010e-12
9.177e+00	4.486e-11	2.288e-10	2.479e-11	3.632e-11	1.025e-11	1.003e-11
9.665e+00	4.580e-11	2.360e-10	2.577e-11	3.748e-11	1.212e-11	1.136e-11
1.012e+01	4.671e-11	2.436e-10	2.679e-11	3.872e-11	1.418e-11	1.147e-11
1.058e+01	4.745e-11	2.498e-10	2.768e-11	4.012e-11	1.595e-11	1.166e-11
1.101e+01	4.810e-11	2.554e-10	2.844e-11	4.156e-11	1.772e-11	1.392e-11
1.155e+01	4.881e-11	2.614e-10	2.892e-11	4.313e-11	1.958e-11	1.546e-11
1.199e+01	4.956e-11	2.674e-10	2.919e-11	4.477e-11	2.148e-11	1.627e-11
1.250e+01	4.945e-11	2.733e-10	2.972e-11	4.630e-11	2.300e-11	1.787e-11
1.307e+01	4.846e-11	2.800e-10	3.059e-11	4.792e-11	2.435e-11	1.856e-11
1.354e+01	4.765e-11	2.864e-10	3.145e-11	4.948e-11	2.574e-11	1.936e-11

XXXXX
(Gray cm²)

Energy (MeV)	⁷Li	⁷Be	⁹Be	¹⁰B	¹¹B	¹²C
1.386e+01	4.712e-11	2.913e-10	3.200e-11	5.066e-11	2.679e-11	1.986e-11
1.413e+01	4.677e-11	2.949e-10	3.242e-11	5.134e-11	2.754e-11	2.023e-11
1.441e+01	4.689e-11	2.982e-10	3.282e-11	5.236e-11	2.802e-11	2.056e-11
1.468e+01	4.710e-11	3.016e-10	3.346e-11	5.317e-11	2.847e-11	2.095e-11
1.519e+01	4.734e-11	3.064e-10	3.453e-11	5.405e-11	2.926e-11	2.203e-11
1.575e+01	4.740e-11	3.128e-10	3.634e-11	5.481e-11	3.036e-11	2.336e-11
1.633e+01	4.787e-11	3.200e-10	3.833e-11	5.560e-11	3.151e-11	2.447e-11
1.692e+01	5.047e-11	3.281e-10	4.021e-11	5.688e-11	3.266e-11	2.484e-11
1.752e+01	5.324e-11	3.365e-10	4.192e-11	5.822e-11	3.381e-11	2.495e-11
1.813e+01	5.585e-11	3.451e-10	4.302e-11	5.959e-11	3.497e-11	2.581e-11
1.875e+01	5.730e-11	3.540e-10	4.384e-11	6.073e-11	3.611e-11	2.725e-11
2.000e+01	5.866e-11	3.675e-10	4.470e-11	6.221e-11	3.776e-11	2.902e-11

KKMM
(Gray cm²)

Energy (MeV)	¹³ C	¹⁴ N	¹⁶ O	¹⁹ F	²³ Na	nat Na
1.307e-09						
3.227e-09	7.211e-17	2.363e-11	8.138e-21	1.676e-16	7.063e-15	1.281e-15
2.091e-08	3.611e-17	1.171e-11	3.255e-20	8.377e-17	3.560e-15	6.423e-16
3.267e-08	2.414e-17	7.837e-12	6.673e-20	5.556e-17	2.388e-15	4.290e-16
4.704e-08	1.984e-17	6.384e-12	9.928e-20	4.530e-17	1.957e-15	3.513e-16
8.322e-08	1.578e-17	5.014e-12	1.622e-19	3.570e-17	1.551e-15	2.771e-16
1.307e-07	1.293e-17	3.942e-12	2.664e-19	2.793e-17	1.211e-15	2.159e-16
1.882e-07	1.072e-17	3.296e-12	3.971e-19	2.302e-17	9.916e-16	1.766e-16
2.561e-07	9.673e-18	2.714e-12	5.533e-19	1.963e-17	8.407e-16	1.496e-16
3.343e-07	8.701e-18	2.344e-12	7.356e-19	1.722e-17	7.295e-16	1.298e-16
4.234e-07	8.385e-18	2.066e-12	9.439e-19	1.542e-17	6.460e-16	1.147e-16
5.123e-07	8.215e-18	1.873e-12	1.165e-18	1.412e-17	5.827e-16	1.033e-16
7.527e-07	8.149e-18	1.607e-12	1.575e-18	1.263e-17	5.055e-16	8.953e-17
1.176e-06	9.010e-18	1.302e-12	2.402e-18	1.112e-17	4.130e-16	7.319e-17
1.511e-06	1.036e-17	1.134e-12	3.346e-18	1.041e-17	3.497e-16	6.236e-17
2.091e-06	1.247e-17	9.676e-13	4.485e-18	1.024e-17	3.033e-16	5.465e-17
2.741e-06	1.542e-17	8.249e-13	6.018e-18	1.052e-17	2.628e-16	4.808e-17
3.534e-06	1.921e-17	7.182e-13	7.814e-18	1.121e-17	2.318e-16	4.326e-17
4.704e-06	2.450e-17	6.268e-13	1.026e-17	1.247e-17	2.047e-16	3.925e-17
5.658e-06	3.044e-17	5.611e-13	1.291e-17	1.405e-17	1.843e-16	3.650e-17
6.737e-06	3.638e-17	5.079e-13	1.544e-17	1.568e-17	1.705e-16	3.480e-17
8.321e-06	4.409e-17	4.611e-13	1.875e-17	1.794e-17	1.571e-16	3.346e-17
9.620e-06	5.252e-17	4.225e-13	2.234e-17	2.047e-17	1.464e-16	3.271e-17
1.101e-05	6.056e-17	3.960e-13	2.570e-17	2.287e-17	1.388e-16	3.247e-17
1.307e-05	7.110e-17	3.753e-13	2.999e-17	2.602e-17	1.313e-16	3.261e-17
1.468e-05	8.244e-17	3.539e-13	3.456e-17	2.942e-17	1.253e-16	3.310e-17
1.581e-05	9.080e-17	3.379e-13	3.798e-17	3.197e-17	1.218e-16	3.364e-17
1.758e-05	9.970e-17	3.209e-13	4.159e-17	3.469e-17	1.187e-16	3.433e-17
1.882e-05	1.090e-16	3.034e-13	4.533e-17	3.752e-17	1.162e-16	3.516e-17
2.075e-05	1.188e-16	2.860e-13	4.927e-17	4.051e-17	1.139e-16	3.610e-17
2.277e-05	1.313e-16	2.751e-13	5.420e-17	4.426e-17	1.118e-16	3.741e-17
2.417e-05	1.423e-16	2.681e-13	5.846e-17	4.752e-17	1.104e-16	3.861e-17
2.561e-05	1.514e-16	2.622e-13	6.200e-17	5.022e-17	1.095e-16	3.965e-17
2.710e-05	1.609e-16	2.562e-13	6.565e-17	5.302e-17	1.087e-16	4.076e-17
2.862e-05	1.704e-16	2.500e-13	6.939e-17	5.590e-17	1.082e-16	4.195e-17
2.940e-05	1.776e-16	2.453e-13	7.226e-17	5.811e-17	1.078e-16	4.286e-17
3.099e-05	1.851e-16	2.404e-13	7.521e-17	6.038e-17	1.076e-16	4.382e-17
3.345e-05	1.979e-16	2.321e-13	8.026e-17	6.426e-17	1.074e-16	4.551e-17
3.601e-05	2.139e-16	2.218e-13	8.651e-17	6.908e-17	1.074e-16	4.764e-17
3.866e-05	2.306e-16	2.111e-13	9.299e-17	7.409e-17	1.077e-16	4.990e-17
4.048e-05	2.451e-16	2.020e-13	9.856e-17	7.839e-17	1.082e-16	5.188e-17

KEDIM
(Gray cm^2)

Energy (MeV)	^{13}C	^{14}N	^{16}O	^{19}F	^{23}Na	Nat Na
4.234e-05	2.570e-16	1.975e-13	1.031e-16	8.193e-17	1.067e-16	3.353e-17
4.328e-05	2.662e-16	1.950e-13	1.066e-16	8.464e-17	1.091e-16	3.479e-17
4.619e-05	2.787e-16	1.915e-13	1.114e-16	8.835e-17	1.098e-16	3.654e-17
4.717e-05	2.915e-16	1.879e-13	1.163e-16	9.210e-17	1.106e-16	3.833e-17
4.918e-05	3.014e-16	1.852e-13	1.200e-16	9.499e-17	1.113e-16	3.971e-17
5.123e-05	3.148e-16	1.815e-13	1.250e-16	9.890e-17	1.122e-16	4.160e-17
5.332e-05	3.286e-16	1.777e-13	1.302e-16	1.029e-16	1.133e-16	4.354e-17
5.654e-05	3.464e-16	1.729e-13	1.368e-16	1.080e-16	1.147e-16	4.604e-17
5.763e-05	3.609e-16	1.689e-13	1.422e-16	1.122e-16	1.159e-16	4.809e-17
6.097e-05	3.759e-16	1.650e-13	1.477e-16	1.165e-16	1.173e-16	5.021e-17
6.325e-05	3.950e-16	1.613e-13	1.547e-16	1.219e-16	1.191e-16	5.289e-17
6.557e-05	4.107e-16	1.588e-13	1.604e-16	1.264e-16	1.206e-16	5.511e-17
6.674e-05	4.228e-16	1.569e-13	1.648e-16	1.297e-16	1.218e-16	5.681e-17
7.033e-05	4.391e-16	1.543e-13	1.707e-16	1.344e-16	1.235e-16	5.912e-17
7.155e-05	4.552e-16	1.517e-13	1.767e-16	1.390e-16	1.252e-16	6.145e-17
7.527e-05	4.716e-16	1.490e-13	1.829e-16	1.438e-16	1.270e-16	6.386e-17
7.780e-05	4.924e-16	1.456e-13	1.906e-16	1.498e-16	1.293e-16	6.692e-17
7.908e-05	5.051e-16	1.435e-13	1.954e-16	1.535e-16	1.308e-16	6.878e-17
8.167e-05	5.181e-16	1.416e-13	2.002e-16	1.573e-16	1.323e-16	7.069e-17
8.431e-05	5.356e-16	1.396e-13	2.067e-16	1.623e-16	1.344e-16	7.328e-17
8.834e-05	5.581e-16	1.370e-13	2.150e-16	1.688e-16	1.372e-16	7.658e-17
9.108e-05	5.809e-16	1.345e-13	2.235e-16	1.753e-16	1.400e-16	7.994e-17
9.386e-05	5.996e-16	1.325e-13	2.303e-16	1.807e-16	1.423e-16	8.027e-16
9.668e-05	6.187e-16	1.304e-13	2.373e-16	1.861e-16	1.446e-16	8.055e-16
9.811e-05	6.331e-16	1.288e-13	2.426e-16	1.902e-16	1.464e-16	8.076e-16
1.025e-04	6.528e-16	1.269e-13	2.498e-16	1.958e-16	1.489e-16	8.104e-16
1.099e-04	6.932e-16	1.246e-13	2.645e-16	2.070e-16	1.547e-16	8.164e-16
1.176e-04	7.456e-16	1.219e-13	2.833e-16	2.213e-16	1.623e-16	8.241e-16
1.256e-04	8.001e-16	1.191e-13	3.029e-16	2.360e-16	1.702e-16	8.320e-16
1.338e-04	8.568e-16	1.162e-13	3.231e-16	2.512e-16	1.783e-16	8.402e-16
1.406e-04	9.097e-16	1.135e-13	3.417e-16	2.653e-16	1.859e-16	8.478e-16
1.511e-04	9.711e-16	1.104e-13	3.632e-16	2.813e-16	1.946e-16	8.565e-16
1.601e-04	1.041e-15	1.069e-13	3.875e-16	2.994e-16	2.044e-16	8.663e-16
1.694e-04	1.106e-15	1.036e-13	4.103e-16	3.163e-16	2.136e-16	8.756e-16
1.789e-04	1.172e-15	1.003e-13	4.337e-16	3.336e-16	2.232e-16	8.851e-16
1.887e-04	1.240e-15	9.681e-14	4.578e-16	3.513e-16	2.330e-16	8.949e-16
1.988e-04	1.310e-15	9.324e-14	4.825e-16	3.693e-16	2.430e-16	9.049e-16
2.091e-04	1.382e-15	9.053e-14	5.079e-16	3.878e-16	2.534e-16	9.153e-16
2.741e-04	1.653e-15	8.586e-14	6.018e-16	4.552e-16	2.918e-16	9.539e-16
3.267e-04	2.083e-15	7.858e-14	7.482e-16	5.582e-16	3.525e-16	9.142e-16
3.811e-04	2.473e-15	7.196e-14	8.814e-16	6.492e-16	4.113e-16	9.690e-16

KEDMA
(Ocray Cm²)

Energy (MeV)	¹³ C	¹⁴ N	¹⁶ O	¹⁹ F	²³ Na	Nat.Ng
4.704e-04	2.998e-15	6.509e-14	1.061e-15	7.675e-16	4.920e-16	4.428e-16
4.991e-04	3.434e-15	6.196e-14	1.207e-15	8.616e-16	5.591e-16	5.033e-16
5.658e-04	3.791e-15	5.955e-14	1.326e-15	9.331e-16	6.146e-16	5.522e-16
6.043e-04	4.188e-15	5.688e-14	1.457e-15	1.014e-15	6.766e-16	6.060e-16
6.367e-04	4.458e-15	5.557e-14	1.545e-15	1.066e-15	7.222e-16	6.423e-16
7.156e-04	4.886e-15	5.406e-14	1.684e-15	1.146e-15	7.998e-16	6.993e-16
8.322e-04	5.649e-15	5.147e-14	1.928e-15	1.305e-15	9.425e-16	7.993e-16
9.177e-04	6.430e-15	4.956e-14	2.179e-15	1.476e-15	1.097e-15	9.030e-16
1.058e-03	7.298e-15	4.796e-14	2.461e-15	1.667e-15	1.281e-15	1.020e-15
1.307e-03	8.809e-15	4.682e-14	2.946e-15	1.995e-15	1.729e-15	1.232e-15
1.581e-03	1.087e-14	4.564e-14	3.597e-15	2.436e-15	2.598e-15	1.524e-15
1.882e-03	1.320e-14	4.429e-14	4.313e-15	2.921e-15	4.905e-15	1.852e-15
2.208e-03	1.575e-14	4.328e-14	5.094e-15	3.451e-15	1.186e-14	2.212e-15
2.561e-03	1.850e-14	4.405e-14	5.940e-15	4.024e-15	4.653e-14	2.582e-15
2.940e-03	2.149e-14	4.500e-14	6.852e-15	4.642e-15	2.542e-13	2.977e-15
3.345e-03	2.475e-14	4.598e-14	7.828e-15	5.305e-15	1.708e-13	3.401e-15
3.777e-03	2.827e-14	4.700e-14	8.870e-15	6.011e-15	5.562e-14	3.851e-15
4.234e-03	3.199e-14	4.818e-14	9.976e-15	6.762e-15	3.093e-14	4.328e-15
5.763e-03	4.026e-14	5.257e-14	1.245e-14	8.442e-15	1.965e-14	5.386e-15
7.527e-03	5.427e-14	6.023e-14	1.655e-14	1.123e-14	1.760e-14	7.126e-15
1.025e-02	7.393e-14	7.156e-14	2.213e-14	1.503e-14	1.691e-14	9.594e-15
1.511e-02	1.077e-13	9.220e-14	3.157e-14	2.130e-14	2.000e-14	1.406e-14
2.091e-02	1.555e-13	1.179e-13	4.485e-14	3.000e-14	2.558e-14	2.893e-14
2.646e-02	2.081e-13	1.432e-13	5.899e-14	4.353e-14	3.254e-14	3.624e-14
3.267e-02	2.635e-13	1.675e-13	7.364e-14	1.529e-13	3.946e-14	2.795e-14
3.953e-02	3.248e-13	1.933e-13	8.992e-14	5.835e-14	5.372e-14	3.775e-14
4.704e-02	3.933e-13	2.202e-13	1.078e-13	9.026e-14	5.644e-14	5.021e-14
5.761e-02	4.813e-13	2.534e-13	1.303e-13	3.144e-13	1.598e-13	5.419e-14
7.002e-02	5.919e-13	2.910e-13	1.590e-13	9.879e-14	8.270e-14	8.410e-14
8.322e-02	7.160e-13	3.269e-13	1.908e-13	1.394e-13	9.432e-14	3.972e-13
9.891e-02	8.581e-13	3.615e-13	2.268e-13	5.669e-13	1.036e-13	6.572e-13
1.307e-01	1.097e-12	4.215e-13	2.859e-13	4.932e-13	1.320e-13	1.888e-13
1.819e-01	1.460e-12	5.267e-13	3.921e-13	2.839e-13	1.743e-13	1.874e-13
2.075e-01	1.559e-12	6.244e-13	5.076e-13	3.213e-13	2.339e-13	2.449e-13
2.417e-01	1.614e-12	6.886e-13	6.070e-13	4.704e-13	3.443e-13	4.006e-13
2.710e-01	1.661e-12	7.468e-13	7.196e-13	7.402e-13	3.874e-13	6.864e-13
2.940e-01	1.703e-12	7.875e-13	8.164e-13	1.145e-12	2.621e-13	6.751e-13
3.345e-01	1.750e-12	8.375e-13	9.403e-13	1.044e-12	3.386e-13	5.839e-13
3.776e-01	1.800e-12	9.080e-13	1.252e-12	1.134e-12	3.691e-13	4.330e-13
4.234e-01	1.860e-12	9.868e-13	2.081e-12	1.299e-12	5.364e-13	5.733e-13
5.123e-01	1.932e-12	1.420e-12	2.284e-12	1.047e-12	4.438e-13	8.343e-13

KEDMA
(Oxay Ca²⁺)

Energy (MeV)	¹³C	¹⁴N	¹⁶O	¹⁹F	²³Na	Nat.Ng
6.325e-01	2.021e-12	1.163e-12	9.523e-13	1.046e-12	6.789e-13	5.652e-13
7.527e-01	2.112e-12	2.047e-12	1.202e-12	9.064e-13	1.119e-12	6.043e-13
8.834e-01	2.196e-12	1.309e-12	1.534e-12	1.239e-12	9.075e-13	6.883e-13
1.025e+00	2.293e-12	1.244e-12	3.696e-12	1.271e-12	8.548e-13	5.627e-13
1.176e+00	2.400e-12	1.696e-12	3.192e-12	1.466e-12	9.562e-13	6.301e-13
1.338e+00	2.458e-12	1.982e-12	2.961e-12	1.811e-12	9.495e-13	8.236e-13
1.511e+00	2.466e-12	4.498e-12	1.873e-12	1.638e-12	8.302e-13	7.646e-13
1.694e+00	2.465e-12	3.068e-12	2.206e-12	2.055e-12	9.216e-13	7.311e-13
1.887e+00	3.244e-12	4.233e-12	2.201e-12	1.917e-12	1.060e-12	1.084e-12
2.091e+00	3.181e-12	3.420e-12	2.340e-12	2.288e-12	1.215e-12	1.108e-12
2.305e+00	3.202e-12	4.526e-12	1.634e-12	2.165e-12	1.432e-12	1.173e-12
2.530e+00	4.404e-12	4.622e-12	9.695e-13	2.528e-12	1.500e-12	1.078e-12
2.741e+00	4.077e-12	6.049e-12	1.878e-12	2.889e-12	1.421e-12	1.518e-12
3.011e+00	4.474e-12	7.956e-12	2.112e-12	2.628e-12	1.421e-12	1.344e-12
3.267e+00	5.939e-12	1.030e-11	3.859e-12	2.590e-12	1.352e-12	1.233e-12
3.534e+00	9.349e-12	1.203e-11	6.114e-12	2.561e-12	1.598e-12	1.437e-12
3.811e+00	8.607e-12	1.322e-11	5.693e-12	2.706e-12	1.766e-12	1.490e-12
4.069e+00	6.703e-12	1.533e-11	4.772e-12	2.715e-12	1.620e-12	1.341e-12
4.396e+00	5.281e-12	1.632e-11	5.674e-12	3.465e-12	1.797e-12	1.787e-12
4.704e+00	4.522e-12	1.444e-11	4.745e-12	4.371e-12	1.767e-12	1.804e-12
4.991e+00	6.880e-12	1.081e-11	4.447e-12	4.425e-12	1.833e-12	1.873e-12
5.352e+00	5.180e-12	1.223e-11	5.475e-12	5.136e-12	1.960e-12	1.817e-12
5.658e+00	5.483e-12	1.012e-11	3.861e-12	6.456e-12	2.108e-12	2.020e-12
6.042e+00	6.220e-12	9.887e-12	4.901e-12	6.986e-12	2.166e-12	1.999e-12
6.367e+00	6.882e-12	1.240e-11	3.970e-12	6.524e-12	2.443e-12	1.929e-12
6.737e+00	7.108e-12	9.32e-12	5.678e-12	6.214e-12	2.450e-12	2.427e-12
7.156e+00	6.702e-12	9.457e-12	5.584e-12	6.275e-12	2.533e-12	2.747e-12
7.548e+00	6.181e-12	1.280e-11	7.150e-12	6.681e-12	2.867e-12	3.030e-12
7.910e+00	6.771e-12	1.167e-11	5.771e-12	6.749e-12	3.189e-12	3.400e-12
8.322e+00	9.247e-12	1.201e-11	5.095e-12	6.920e-12	3.443e-12	3.792e-12
8.787e+00	8.690e-12	1.080e-11	5.729e-12	7.318e-12	3.771e-12	4.222e-12
9.177e+00	7.297e-12	1.179e-11	5.989e-12	7.086e-12	4.040e-12	4.689e-12
9.665e+00	6.802e-12	1.286e-11	6.145e-12	7.311e-12	4.562e-12	5.272e-12
1.012e+01	6.561e-12	1.413e-11	6.934e-12	7.472e-12	5.217e-12	5.974e-12
1.058e+01	7.282e-12	1.506e-11	7.423e-12	7.696e-12	5.996e-12	6.742e-12
1.101e+01	8.090e-12	1.537e-11	7.928e-12	7.816e-12	6.459e-12	7.550e-12
1.155e+01	8.528e-12	1.629e-11	9.875e-12	7.916e-12	7.089e-12	8.329e-12
1.199e+01	8.638e-12	1.765e-11	1.132e-11	8.029e-12	7.660e-12	9.050e-12
1.250e+01	8.844e-12	1.897e-11	1.139e-11	8.084e-12	8.011e-12	9.646e-12
1.307e+01	9.157e-12	2.060e-11	1.243e-11	8.138e-12	8.330e-12	1.018e-11
1.354e+01	9.431e-12	2.183e-11	1.318e-11	8.173e-12	8.584e-12	1.063e-11

**KERMA
(Gray Cm²)**

Energy (MeV)	¹²C	¹⁴N	¹⁶O	¹⁹F	²³Na	Nat. ²⁸Si
1.386e+01	9.625e-12	2.218e-11	1.383e-11	8.186e-12	8.705e-12	1.095e-11
1.413e+01	9.760e-12	2.220e-11	1.419e-11	8.201e-12	8.810e-12	1.115e-11
1.441e+01	9.802e-12	2.263e-11	1.465e-11	8.283e-12	8.981e-12	1.121e-11
1.468e+01	9.843e-12	2.310e-11	1.515e-11	8.376e-12	9.168e-12	1.124e-11
1.519e+01	9.899e-12	2.313e-11	1.584e-11	8.508e-12	9.433e-12	1.125e-11
1.575e+01	9.916e-12	2.277e-11	1.645e-11	8.680e-12	9.846e-12	1.127e-11
1.633e+01	9.934e-12	2.235e-11	1.717e-11	8.863e-12	1.015e-11	1.124e-11
1.692e+01	9.951e-12	2.244e-11	1.774e-11	9.012e-12	1.055e-11	1.117e-11
1.752e+01	1.000e-11	2.257e-11	1.798e-11	9.153e-12	1.113e-11	1.104e-11
1.813e+01	1.007e-11	2.267e-11	1.769e-11	9.291e-12	1.168e-11	1.077e-11
1.875e+01	1.014e-11	2.316e-11	1.796e-11	9.400e-12	1.211e-11	1.055e-11
2.000e+01	1.025e-11	2.427e-11	1.903e-11	9.513e-12	1.250e-11	1.025e-11

**EXXRA
(Gray cm²)**

Energy (MeV)	²⁷Al	Net_{Si}	³¹P	³²S	Net_{Cl}	Net_{Ar}
1.307e-09						
5.227e-09	2.797e-15	2.157e-15	1.803e-15	6.471e-15	3.395e-15	2.233e-15
2.091e-08	1.998e-15	1.874e-15	9.461e-16	4.416e-15	1.806e-15	1.128e-15
3.267e-08	9.320e-16	7.176e-16	6.426e-16	3.686e-15	1.300e-15	7.670e-16
4.704e-08	7.620e-16	5.825e-16	5.311e-16	3.404e-15	1.259e-15	6.436e-16
6.322e-08	6.082e-16	4.582e-16	4.107e-16	3.124e-15	1.102e-15	4.904e-16
1.307e-07	4.675e-16	3.571e-16	3.157e-16	2.898e-15	9.746e-16	3.660e-16
1.882e-07	3.825e-16	2.922e-16	2.570e-16	2.738e-15	8.965e-16	3.119e-16
2.561e-07	3.233e-16	2.500e-16	2.162e-16	2.625e-15	8.262e-16	2.640e-16
3.345e-07	2.802e-16	2.171e-16	1.864e-16	2.543e-15	7.819e-16	2.262e-16
4.234e-07	2.472e-16	1.898e-16	1.638e-16	2.479e-15	7.473e-16	2.015e-16
5.123e-07	2.224e-16	1.715e-16	1.469e-16	2.428e-15	7.209e-16	1.791e-16
7.527e-07	1.920e-16	1.475e-16	1.268e-16	2.367e-15	6.878e-16	1.546e-16
1.176e-06	1.558e-16	1.188e-16	1.050e-16	2.296e-15	6.492e-16	1.280e-16
1.511e-06	1.316e-16	1.024e-16	8.952e-17	2.280e-15	6.273e-16	1.123e-16
2.091e-06	1.141e-16	8.972e-17	7.804e-17	2.279e-15	6.046e-16	9.552e-17
2.741e-06	9.874e-17	8.160e-17	6.809e-17	2.277e-15	5.856e-16	8.139e-17
3.534e-06	8.699e-17	7.581e-17	6.053e-17	2.274e-15	5.716e-16	7.076e-17
4.704e-06	7.646e-17	6.998e-17	5.370e-17	2.271e-15	5.585e-16	6.136e-17
5.658e-06	6.856e-17	6.546e-17	4.868e-17	2.268e-15	5.492e-16	5.437e-17
6.737e-06	6.318e-17	6.134e-17	4.553e-17	2.264e-15	5.430e-16	4.957e-17
8.321e-06	5.802e-17	5.677e-17	4.296e-17	2.260e-15	5.384e-16	4.491e-17
9.620e-06	5.387e-17	5.308e-17	4.129e-17	2.258e-15	5.327e-16	4.106e-17
1.101e-05	5.081e-17	5.076e-17	4.192e-17	2.257e-15	5.288e-16	3.841e-17
1.307e-05	4.790e-17	5.137e-17	4.318e-17	2.256e-15	5.263e-16	3.610e-17
1.468e-05	4.554e-17	5.219e-17	4.453e-17	2.256e-15	5.236e-16	3.412e-17
1.581e-05	4.404e-17	5.280e-17	4.554e-17	2.255e-15	5.217e-16	3.289e-17
1.758e-05	4.281e-17	5.345e-17	4.660e-17	2.254e-15	5.196e-16	3.180e-17
1.882e-05	4.179e-17	5.411e-17	4.771e-17	2.254e-15	5.175e-16	3.077e-17
2.075e-05	4.077e-17	5.482e-17	4.887e-17	2.253e-15	5.153e-16	2.986e-17
2.277e-05	3.992e-17	5.570e-17	5.032e-17	2.252e-15	5.137e-16	2.887e-17
2.417e-05	3.927e-17	5.646e-17	5.157e-17	2.251e-15	5.126e-16	2.812e-17
2.561e-05	3.875e-17	5.709e-17	5.262e-17	2.250e-15	5.116e-16	2.764e-17
2.710e-05	3.843e-17	5.774e-17	5.369e-17	2.250e-15	5.107e-16	2.714e-17
2.862e-05	3.818e-17	5.841e-17	5.480e-17	2.249e-15	5.097e-16	2.664e-17
2.940e-05	3.798e-17	5.892e-17	5.564e-17	2.249e-15	5.089e-16	2.625e-17
3.099e-05	3.778e-17	5.945e-17	5.651e-17	2.249e-15	5.082e-16	2.590e-17
3.345e-05	3.753e-17	6.035e-17	5.800e-17	2.249e-15	5.071e-16	2.542e-17
3.601e-05	3.746e-17	6.147e-17	5.984e-17	2.249e-15	5.059e-16	2.487e-17
3.866e-05	3.740e-17	6.263e-17	6.175e-17	2.250e-15	5.047e-16	2.439e-17
4.048e-05	3.736e-17	6.362e-17	6.339e-17	2.250e-15	5.036e-16	2.402e-17

EXXAS₂
(Gray cm²)

Energy (MeV)	²⁷ Al	Net _{Si}	³¹ P	³² S	Net _{Cl}	Net _{Ar}
4.234e-05	3.747e-17	6.444e-17	6.474e-17	2.250e-15	3.030e-14	2.376e-17
4.328e-05	3.739e-17	6.506e-17	6.578e-17	2.250e-15	3.076e-14	2.357e-17
4.619e-05	3.774e-17	6.592e-17	6.723e-17	2.250e-15	3.020e-14	2.333e-17
4.717e-05	3.798e-17	6.679e-17	6.869e-17	2.250e-15	3.015e-14	2.313e-17
4.918e-05	3.802e-17	6.745e-17	6.981e-17	2.250e-15	3.010e-14	2.297e-17
5.123e-05	3.821e-17	6.835e-17	7.133e-17	2.250e-15	3.005e-14	2.278e-17
5.332e-05	3.852e-17	6.927e-17	7.289e-17	2.251e-15	3.000e-14	2.265e-17
5.654e-05	3.893e-17	7.046e-17	7.488e-17	2.251e-15	4.995e-14	2.249e-17
5.763e-05	3.927e-17	7.141e-17	7.650e-17	2.251e-15	4.990e-14	2.236e-17
6.097e-05	3.961e-17	7.240e-17	7.816e-17	2.251e-15	4.986e-14	2.222e-17
6.325e-05	4.005e-17	7.365e-17	8.027e-17	2.251e-15	4.980e-14	2.205e-17
6.557e-05	4.047e-17	7.467e-17	8.199e-17	2.251e-15	4.977e-14	2.195e-17
6.674e-05	4.084e-17	7.545e-17	8.331e-17	2.251e-15	4.974e-14	2.192e-17
7.033e-05	4.133e-17	7.651e-17	8.510e-17	2.251e-15	4.970e-14	2.187e-17
7.155e-05	4.183e-17	7.758e-17	8.693e-17	2.252e-15	4.966e-14	2.181e-17
7.527e-05	4.234e-17	7.868e-17	8.881e-17	2.252e-15	4.963e-14	2.176e-17
7.780e-05	4.300e-17	8.007e-17	9.119e-17	2.252e-15	4.959e-14	2.169e-17
7.908e-05	4.339e-17	8.091e-17	9.265e-17	2.252e-15	4.956e-14	2.165e-17
8.167e-05	4.383e-17	8.177e-17	9.412e-17	2.252e-15	4.954e-14	2.164e-17
8.431e-05	4.447e-17	8.294e-17	9.612e-17	2.252e-15	4.951e-14	2.166e-17
8.834e-05	4.528e-17	8.442e-17	9.866e-17	2.253e-15	4.948e-14	2.168e-17
9.108e-05	4.611e-17	8.592e-17	1.012e-16	2.253e-15	4.945e-14	2.171e-17
9.386e-05	4.679e-17	8.715e-17	1.033e-16	2.253e-15	4.942e-14	2.173e-17
9.668e-05	4.748e-17	8.840e-17	1.055e-16	2.253e-15	4.940e-14	2.175e-17
9.811e-05	4.800e-17	8.934e-17	1.071e-16	2.253e-15	4.939e-14	2.177e-17
1.025e-04	4.874e-17	9.066e-17	1.093e-16	2.254e-15	4.937e-14	2.180e-17
1.099e-04	5.045e-17	9.354e-17	1.138e-16	2.254e-15	4.935e-14	2.194e-17
1.176e-04	5.269e-17	9.728e-17	1.196e-16	2.254e-15	4.932e-14	2.216e-17
1.256e-04	5.500e-17	1.012e-16	1.256e-16	2.255e-15	4.929e-14	2.239e-17
1.338e-04	5.742e-17	1.051e-16	1.319e-16	2.255e-15	4.926e-14	2.265e-17
1.406e-04	5.971e-17	1.088e-16	1.377e-16	2.256e-15	4.924e-14	2.296e-17
1.511e-04	6.234e-17	1.131e-16	1.443e-16	2.257e-15	4.920e-14	2.333e-17
1.601e-04	6.532e-17	1.179e-16	1.518e-16	2.259e-15	4.917e-14	2.385e-17
1.694e-04	6.815e-17	1.224e-16	1.588e-16	2.261e-15	4.913e-14	2.442e-17
1.789e-04	7.110e-17	1.270e-16	1.661e-16	2.263e-15	4.909e-14	2.501e-17
1.887e-04	7.412e-17	1.318e-16	1.736e-16	2.265e-15	4.905e-14	2.563e-17
1.988e-04	7.723e-17	1.367e-16	1.813e-16	2.266e-15	4.901e-14	2.630e-17
2.091e-04	8.044e-17	1.417e-16	1.892e-16	2.268e-15	4.898e-14	2.698e-17
2.741e-04	9.246e-17	1.603e-16	2.184e-16	2.276e-15	4.894e-14	2.954e-17
3.267e-04	1.114e-16	1.893e-16	2.640e-16	2.287e-15	4.920e-14	3.370e-17
3.811e-04	1.288e-16	2.156e-16	3.054e-16	2.297e-15	4.999e-14	3.763e-17

TABLE 2
(Oxy Cu²⁺)

Energy (MeV)	²⁷ Al	Hot _{Si}	³¹ P	³² S	Hot _{Cl}	Hot _{Ar}
4.704e-04	1.522e-16	2.510e-16	3.613e-16	2.311e-15	5.070e-14	4.304e-17
4.991e-04	1.716e-16	2.001e-16	4.072e-16	2.322e-15	4.993e-14	4.750e-17
5.690e-04	1.073e-16	3.036e-16	4.443e-16	2.331e-15	4.951e-14	5.129e-17
6.043e-04	2.046e-16	3.295e-16	4.832e-16	2.341e-15	4.915e-14	5.546e-17
6.367e-04	2.163e-16	3.470e-16	5.128e-16	2.348e-15	4.904e-14	5.828e-17
7.156e-04	2.347e-16	3.744e-16	5.561e-16	2.350e-15	4.902e-14	6.276e-17
8.322e-04	2.671e-16	4.226e-16	6.323e-16	2.377e-15	4.898e-14	7.075e-17
9.177e-04	3.006e-16	4.724e-16	7.110e-16	2.395e-15	4.897e-14	7.914e-17
1.058e-03	3.382e-16	5.282e-16	7.992e-16	2.415e-15	4.899e-14	8.869e-17
1.307e-03	4.039e-16	6.245e-16	9.509e-16	2.431e-15	4.904e-14	1.055e-16
1.581e-03	4.923e-16	7.539e-16	1.155e-15	2.455e-15	4.908e-14	1.287e-16
1.882e-03	5.896e-16	8.962e-16	1.379e-15	2.492e-15	4.917e-14	1.551e-16
2.208e-03	6.957e-16	1.052e-15	1.624e-15	2.536e-15	4.916e-14	1.849e-16
2.561e-03	8.106e-16	1.220e-15	1.889e-15	2.585e-15	4.931e-14	2.183e-16
2.940e-03	9.343e-16	1.401e-15	2.174e-15	2.645e-15	4.950e-14	2.555e-16
3.345e-03	1.065e-15	1.595e-15	2.480e-15	2.709e-15	4.963e-14	2.970e-16
3.777e-03	1.199e-15	1.802e-15	2.807e-15	2.778e-15	4.958e-14	3.429e-16
4.234e-03	1.340e-15	2.022e-15	3.153e-15	2.855e-15	5.020e-14	3.936e-16
5.763e-03	1.729e-15	2.514e-15	3.929e-15	3.027e-15	5.039e-14	5.148e-16
7.527e-03	3.941e-15	3.291e-15	5.732e-15	3.350e-15	5.073e-14	7.362e-16
1.025e-02	2.846e-15	4.166e-15	8.812e-15	3.864e-15	5.485e-14	1.082e-15
1.511e-02	3.812e-15	5.268e-15	1.196e-14	4.889e-15	5.560e-14	1.852e-15
2.091e-02	3.968e-15	6.597e-15	1.420e-14	5.344e-15	5.689e-14	3.263e-15
2.646e-02	3.864e-15	8.047e-15	1.711e-14	5.493e-15	7.016e-14	4.565e-15
3.267e-02	1.777e-14	9.657e-15	2.300e-14	7.470e-15	6.569e-14	5.635e-15
3.953e-02	1.782e-13	1.160e-14	3.077e-14	6.412e-15	6.342e-14	6.811e-15
4.704e-02	4.854e-14	1.454e-14	3.833e-14	6.917e-15	6.791e-14	8.091e-15
5.761e-02	3.043e-14	1.943e-14	4.499e-14	7.568e-15	7.237e-14	9.678e-15
7.002e-02	2.664e-14	3.021e-14	5.319e-14	8.977e-15	7.869e-14	1.166e-14
8.322e-02	8.836e-14	3.113e-14	6.258e-14	2.081e-14	8.143e-14	1.377e-14
9.891e-02	2.944e-13	2.576e-14	6.747e-14	6.027e-14	8.162e-14	1.608e-14
1.307e-01	9.922e-14	2.075e-14	5.283e-14	2.450e-13	8.745e-14	1.990e-14
1.819e-01	2.643e-13	7.181e-14	7.765e-14	1.206e-13	1.044e-13	2.738e-14
2.075e-01	1.959e-13	5.269e-13	1.053e-13	1.226e-13	1.397e-13	3.452e-14
2.417e-01	2.316e-13	4.102e-13	9.491e-14	1.099e-13	1.257e-13	4.018e-14
2.710e-01	1.322e-13	3.192e-13	1.285e-13	9.829e-14	1.321e-13	4.623e-14
2.940e-01	3.036e-13	2.952e-13	1.409e-13	1.744e-13	1.539e-13	5.135e-14
3.345e-01	2.977e-13	2.873e-13	1.128e-13	1.200e-13	1.509e-13	5.488e-14
3.776e-01	2.940e-13	2.889e-13	2.167e-13	8.760e-14	1.862e-13	4.815e-14
4.234e-01	3.129e-13	2.984e-13	1.678e-13	2.076e-13	2.035e-13	4.002e-14
5.123e-01	4.108e-13	3.099e-13	2.784e-13	1.574e-13	2.071e-13	5.501e-14

EDSMA₂
(Gray Cm²)

Energy (MeV)	²⁷ Al	Net _{Si}	Si _P	³² S	Net _{Cl}	Net _{Ar}
6.325e-01	4.461e-13	4.429e-13	2.505e-13	1.973e-13	2.316e-13	9.631e-14
7.527e-01	4.648e-13	4.604e-13	2.488e-13	2.099e-13	2.492e-13	1.201e-13
8.834e-01	6.785e-13	5.628e-13	2.871e-13	2.201e-13	3.093e-13	9.476e-14
1.025e+00	4.971e-13	5.576e-13	4.245e-13	2.610e-13	3.522e-13	1.059e-13
1.176e+00	6.386e-13	4.001e-13	4.564e-13	2.780e-13	4.003e-13	1.402e-13
1.338e+00	6.541e-13	4.697e-13	5.243e-13	3.550e-13	4.532e-13	1.701e-13
1.511e+00	7.263e-13	6.581e-13	5.580e-13	4.308e-13	5.091e-13	2.110e-13
1.694e+00	7.874e-13	9.936e-13	6.253e-13	4.741e-13	5.772e-13	2.017e-13
1.887e+00	8.343e-13	8.921e-13	7.021e-13	6.887e-13	6.475e-13	2.704e-13
2.091e+00	1.025e-12	9.098e-13	7.719e-13	1.052e-12	6.919e-13	3.060e-13
2.305e+00	1.030e-12	9.384e-13	8.313e-13	1.181e-12	7.520e-13	3.333e-13
2.530e+00	9.380e-13	1.007e-12	9.037e-13	1.324e-12	8.391e-13	3.628e-13
2.741e+00	1.103e-12	1.003e-12	1.127e-12	1.590e-12	9.252e-13	3.941e-13
3.011e+00	1.134e-12	1.005e-12	1.200e-12	2.307e-12	1.018e-12	4.158e-13
3.267e+00	1.181e-12	1.061e-12	1.354e-12	2.555e-12	1.109e-12	4.332e-13
3.534e+00	1.230e-12	1.074e-12	1.231e-12	2.791e-12	1.218e-12	4.586e-13
3.811e+00	1.317e-12	9.478e-13	1.470e-12	3.452e-12	1.351e-12	4.912e-13
4.069e+00	1.313e-12	1.231e-12	1.517e-12	3.950e-12	1.501e-12	5.244e-13
4.396e+00	1.377e-12	1.363e-12	1.606e-12	3.334e-12	1.675e-12	5.674e-13
4.704e+00	1.432e-12	1.575e-12	1.627e-12	3.220e-12	1.869e-12	6.009e-13
4.991e+00	1.540e-12	1.790e-12	1.637e-12	3.308e-12	2.057e-12	6.288e-13
5.352e+00	1.686e-12	1.677e-12	1.585e-12	3.412e-12	2.264e-12	6.675e-13
5.658e+00	1.773e-12	1.669e-12	1.765e-12	3.647e-12	2.465e-12	6.968e-13
6.042e+00	1.971e-12	2.096e-12	1.861e-12	4.110e-12	2.677e-12	7.193e-13
6.367e+00	2.062e-12	2.280e-12	2.064e-12	4.519e-12	2.908e-12	7.477e-13
6.737e+00	2.246e-12	2.723e-12	2.320e-12	4.760e-12	3.108e-12	7.832e-13
7.156e+00	2.455e-12	3.437e-12	2.574e-12	5.019e-12	3.318e-12	8.241e-13
7.548e+00	2.638e-12	4.199e-12	2.839e-12	5.328e-12	3.511e-12	8.644e-13
7.910e+00	2.937e-12	5.362e-12	3.115e-12	5.619e-12	3.678e-12	9.014e-13
8.322e+00	3.155e-12	5.502e-12	3.430e-12	5.924e-12	3.834e-12	9.411e-13
8.787e+00	3.504e-12	6.335e-12	3.844e-12	6.282e-12	3.986e-12	9.901e-13
9.177e+00	3.805e-12	7.260e-12	4.262e-12	6.633e-12	4.131e-12	1.038e-12
9.665e+00	4.252e-12	8.059e-12	4.559e-12	7.000e-12	4.292e-12	1.093e-12
1.012e+01	4.736e-12	8.880e-12	4.859e-12	7.404e-12	4.421e-12	1.154e-12
1.058e+01	5.188e-12	9.629e-12	5.118e-12	7.786e-12	4.593e-12	1.212e-12
1.101e+01	5.703e-12	1.023e-11	5.354e-12	8.156e-12	4.786e-12	1.271e-12
1.155e+01	6.277e-12	1.081e-11	5.612e-12	8.403e-12	4.985e-12	1.336e-12
1.199e+01	6.775e-12	1.133e-11	5.875e-12	8.524e-12	5.177e-12	1.402e-12
1.250e+01	7.206e-12	1.152e-11	6.095e-12	8.581e-12	5.340e-12	1.465e-12
1.307e+01	7.683e-12	1.192e-11	6.303e-12	8.590e-12	5.499e-12	1.538e-12
1.354e+01	8.102e-12	1.229e-11	6.496e-12	8.594e-12	5.655e-12	1.605e-12

**XRMM
(Gray cm²)**

Energy (MeV)	²⁷Al	Net_{Si}	³¹P	³²S	Net_{Cl}	Net_{Kr}
1.386e+01	8.389e-12	1.241e-11	6.638e-12	8.593e-12	5.771e-12	1.634e-12
1.413e+01	8.598e-12	1.242e-11	6.732e-12	8.688e-12	5.853e-12	1.693e-12
1.441e+01	8.777e-12	1.226e-11	6.763e-12	8.727e-12	5.931e-12	1.747e-12
1.468e+01	8.968e-12	1.218e-11	6.778e-12	8.855e-12	6.007e-12	1.802e-12
1.519e+01	9.199e-12	1.186e-11	6.796e-12	8.976e-12	6.100e-12	1.867e-12
1.575e+01	9.406e-12	1.158e-11	6.813e-12	9.149e-12	6.196e-12	1.937e-12
1.633e+01	9.526e-12	1.125e-11	6.798e-12	9.277e-12	6.274e-12	2.005e-12
1.692e+01	9.475e-12	1.106e-11	6.707e-12	9.297e-12	6.343e-12	2.064e-12
1.752e+01	9.318e-12	1.092e-11	6.631e-12	9.560e-12	6.401e-12	2.121e-12
1.813e+01	9.089e-12	1.069e-11	6.610e-12	9.851e-12	6.428e-12	2.179e-12
1.875e+01	8.920e-12	1.022e-11	6.576e-12	1.018e-11	6.512e-12	2.236e-12
2.000e+01	8.654e-12	9.281e-12	6.483e-12	1.072e-11	6.602e-12	2.319e-12

ENRGA²
(Gray Cu²)

Energy (MeV)	Net _G	Net _{Ca}	Net _{Ti}	Si ₄	Net _{Cr}	ES _{Na}
1.307e-09						
3.227e-09	1.224e-14	2.681e-15	2.715e-14	1.560e-14	1.488e-14	4.029e-14
2.091e-08	6.108e-15	1.395e-15	1.358e-14	7.784e-15	7.362e-15	1.801e-14
3.267e-08	4.066e-15	9.272e-16	9.051e-15	5.180e-15	4.890e-15	1.127e-14
4.704e-08	3.313e-15	7.613e-16	7.405e-15	4.236e-15	3.992e-15	9.379e-15
8.322e-08	2.592e-15	5.978e-16	5.826e-15	3.333e-15	3.120e-15	7.319e-15
1.307e-07	2.004e-15	4.639e-16	4.530e-15	2.597e-15	2.417e-15	5.571e-15
1.862e-07	1.630e-15	3.812e-16	3.702e-15	2.127e-15	1.981e-15	4.637e-15
2.561e-07	1.374e-15	3.235e-16	3.132e-15	1.798e-15	1.661e-15	3.877e-15
3.345e-07	1.187e-15	2.799e-16	2.715e-15	1.559e-15	1.448e-15	3.129e-15
4.234e-07	1.044e-15	2.470e-16	2.395e-15	1.375e-15	1.281e-15	2.695e-15
5.123e-07	9.368e-16	2.221e-16	2.155e-15	1.237e-15	1.151e-15	2.542e-15
7.527e-07	8.059e-16	1.915e-16	1.860e-15	1.068e-15	9.934e-16	2.281e-15
1.176e-06	6.506e-16	1.552e-16	1.509e-15	8.650e-16	8.107e-16	1.823e-15
1.511e-06	5.470e-16	1.310e-16	1.273e-15	7.286e-16	7.089e-16	1.572e-15
2.091e-06	4.721e-16	1.135e-16	1.102e-15	6.304e-16	6.043e-16	1.436e-15
2.741e-06	4.059e-16	9.823e-17	9.504e-16	5.441e-16	5.144e-16	1.293e-15
3.534e-06	3.552e-16	8.669e-17	8.341e-16	4.773e-16	4.475e-16	1.126e-15
4.704e-06	3.095e-16	7.646e-17	7.289e-16	4.173e-16	3.904e-16	9.360e-16
5.658e-06	2.751e-16	6.933e-17	6.494e-16	3.721e-16	3.486e-16	8.585e-16
6.737e-06	2.515e-16	6.432e-17	5.943e-16	3.406e-16	3.195e-16	7.998e-16
8.321e-06	2.282e-16	5.942e-17	5.401e-16	3.099e-16	2.904e-16	7.229e-16
9.620e-06	2.089e-16	5.556e-17	4.952e-16	2.845e-16	2.655e-16	6.396e-16
1.101e-05	1.950e-16	5.240e-17	4.625e-16	2.660e-16	2.499e-16	5.796e-16
1.307e-05	1.808e-16	4.880e-17	4.291e-16	2.474e-16	2.375e-16	5.607e-16
1.468e-05	1.687e-16	4.570e-17	4.005e-16	2.315e-16	2.245e-16	5.433e-16
1.581e-05	1.611e-16	4.391e-17	3.827e-16	2.216e-16	2.148e-16	5.303e-16
1.758e-05	1.544e-16	4.227e-17	3.666e-16	2.127e-16	2.046e-16	5.165e-16
1.882e-05	1.482e-16	4.092e-17	3.519e-16	2.046e-16	1.939e-16	5.023e-16
2.075e-05	1.425e-16	3.969e-17	3.384e-16	1.972e-16	1.834e-16	4.873e-16
2.277e-05	1.365e-16	3.868e-17	3.237e-16	1.892e-16	1.764e-16	4.685e-16
2.417e-05	1.319e-16	3.807e-17	3.126e-16	1.831e-16	1.717e-16	4.523e-16
2.561e-05	1.284e-16	3.762e-17	3.043e-16	1.787e-16	1.677e-16	4.388e-16
2.710e-05	1.253e-16	3.718e-17	2.965e-16	1.744e-16	1.637e-16	4.250e-16
2.862e-05	1.222e-16	3.689e-17	2.892e-16	1.706e-16	1.595e-16	4.107e-16
2.940e-05	1.201e-16	3.670e-17	2.840e-16	1.678e-16	1.564e-16	3.998e-16
3.099e-05	1.181e-16	3.649e-17	2.790e-16	1.650e-16	1.534e-16	3.886e-16
3.345e-05	1.150e-16	3.622e-17	2.713e-16	1.610e-16	1.498e-16	3.695e-16
3.601e-05	1.115e-16	3.605e-17	2.626e-16	1.564e-16	1.456e-16	3.457e-16
3.866e-05	1.084e-16	3.590e-17	2.547e-16	1.524e-16	1.411e-16	3.212e-16
4.048e-05	1.059e-16	3.590e-17	2.486e-16	1.491e-16	1.373e-16	3.005e-16

ENHANC
(Gray Cm²)

Energy (MeV)	En_T	En_{Ca}	En_{Ti}	Sl_T	En_{Cr}	Sl_{En}
4.234e-05	1.042e-16	3.592e-17	2.440e-16	1.470e-16	1.348e-16	2.931e-16
4.328e-05	1.029e-16	3.593e-17	2.407e-16	1.455e-16	1.331e-16	2.902e-16
4.619e-05	1.012e-16	3.597e-17	2.366e-16	1.436e-16	1.307e-16	2.863e-16
4.717e-05	9.976e-17	3.607e-17	2.326e-16	1.421e-16	1.283e-16	2.823e-16
4.918e-05	9.064e-17	3.618e-17	2.290e-16	1.409e-16	1.265e-16	2.793e-16
5.123e-05	9.730e-17	3.633e-17	2.262e-16	1.393e-16	1.242e-16	2.751e-16
5.332e-05	9.603e-17	3.648e-17	2.228e-16	1.376e-16	1.230e-16	2.710e-16
5.654e-05	9.454e-17	3.677e-17	2.188e-16	1.362e-16	1.216e-16	2.657e-16
5.763e-05	9.347e-17	3.703e-17	2.158e-16	1.351e-16	1.205e-16	2.614e-16
6.097e-05	9.240e-17	3.729e-17	2.129e-16	1.340e-16	1.194e-16	2.570e-16
6.325e-05	9.123e-17	3.765e-17	2.096e-16	1.326e-16	1.181e-16	2.514e-16
6.557e-05	9.034e-17	3.801e-17	2.071e-16	1.317e-16	1.172e-16	2.468e-16
6.674e-05	8.967e-17	3.828e-17	2.052e-16	1.312e-16	1.164e-16	2.433e-16
7.033e-05	8.894e-17	3.866e-17	2.029e-16	1.305e-16	1.154e-16	2.385e-16
7.155e-05	8.821e-17	3.904e-17	2.008e-16	1.298e-16	1.145e-16	2.338e-16
7.527e-05	8.752e-17	3.945e-17	1.987e-16	1.291e-16	1.136e-16	2.289e-16
7.780e-05	8.678e-17	4.003e-17	1.963e-16	1.283e-16	1.125e-16	2.234e-16
7.908e-05	8.635e-17	4.039e-17	1.949e-16	1.281e-16	1.118e-16	2.215e-16
8.167e-05	8.592e-17	4.075e-17	1.936e-16	1.278e-16	1.112e-16	2.198e-16
8.431e-05	8.546e-17	4.125e-17	1.920e-16	1.274e-16	1.107e-16	2.176e-16
8.834e-05	8.492e-17	4.189e-17	1.901e-16	1.272e-16	1.101e-16	2.149e-16
9.108e-05	8.440e-17	4.259e-17	1.882e-16	1.271e-16	1.095e-16	2.122e-16
9.386e-05	8.409e-17	4.318e-17	1.869e-16	1.271e-16	1.091e-16	2.100e-16
9.668e-05	8.379e-17	4.377e-17	1.857e-16	1.270e-16	1.087e-16	2.078e-16
9.811e-05	8.356e-17	4.422e-17	1.848e-16	1.270e-16	1.084e-16	2.062e-16
1.025e-04	8.333e-17	4.484e-17	1.837e-16	1.271e-16	1.081e-16	2.050e-16
1.099e-04	8.297e-17	4.619e-17	1.818e-16	1.283e-16	1.084e-16	2.084e-16
1.176e-04	8.270e-17	4.794e-17	1.797e-16	1.300e-16	1.089e-16	2.139e-16
1.256e-04	8.261e-17	4.981e-17	1.780e-16	1.324e-16	1.095e-16	2.200e-16
1.338e-04	8.271e-17	5.179e-17	1.767e-16	1.368e-16	1.100e-16	2.269e-16
1.406e-04	8.296e-17	5.364e-17	1.758e-16	1.437e-16	1.105e-16	2.337e-16
1.511e-04	8.337e-17	5.583e-17	1.752e-16	1.614e-16	1.111e-16	2.421e-16
1.601e-04	8.400e-17	5.831e-17	1.753e-16	2.296e-16	1.117e-16	2.571e-16
1.694e-04	8.472e-17	6.070e-17	1.759e-16	1.347e-15	1.124e-16	2.761e-16
1.789e-04	8.560e-17	6.317e-17	1.765e-16	4.429e-16	1.130e-16	2.973e-16
1.887e-04	8.658e-17	6.572e-17	1.771e-16	1.902e-16	1.136e-16	3.236e-16
1.988e-04	8.770e-17	6.839e-17	1.777e-16	1.583e-16	1.143e-16	3.572e-16
2.091e-04	8.933e-17	7.114e-17	1.783e-16	1.514e-16	1.156e-16	4.003e-16
2.741e-04	9.792e-17	8.148e-17	1.842e-16	1.566e-16	1.238e-16	1.193e-15
3.267e-04	1.113e-16	9.791e-17	1.965e-16	1.787e-16	1.366e-16	1.022e-14
3.811e-04	1.235e-16	1.131e-16	2.078e-16	1.989e-16	1.482e-16	3.153e-14

KEDM
(Grey Cu^2)

Energy (MeV)	Net _K	Net _{Ca}	Net _{Ti}	Si _V	Net _{Cr}	SS _{Mn}
4.704e-04	1.400e-16	1.337e-16	2.263e-16	2.273e-16	1.650e-16	2.216e-15
4.991e-04	1.335e-16	1.300e-16	2.433e-16	2.517e-16	1.803e-16	1.111e-15
5.650e-04	1.644e-16	1.647e-16	2.579e-16	2.721e-16	1.927e-16	9.121e-16
6.043e-04	1.765e-16	1.799e-16	2.740e-16	2.949e-16	2.064e-16	8.281e-16
6.367e-04	1.847e-16	1.903e-16	2.849e-16	3.105e-16	2.173e-16	8.440e-16
7.156e-04	1.974e-16	2.066e-16	3.024e-16	3.354e-16	2.364e-16	8.643e-16
8.322e-04	2.199e-16	2.352e-16	3.341e-16	3.804e-16	2.696e-16	9.160e-16
9.177e-04	2.432e-16	2.649e-16	3.675e-16	4.328e-16	2.982e-16	1.094e-15
1.058e-03	2.704e-16	2.982e-16	4.052e-16	4.985e-16	3.293e-16	2.927e-15
1.307e-03	3.354e-16	3.570e-16	4.775e-16	6.516e-16	4.088e-16	7.614e-15
1.581e-03	4.369e-16	4.394e-16	5.780e-16	9.346e-16	5.216e-16	1.608e-15
1.882e-03	5.639e-16	5.184e-16	6.910e-16	1.029e-15	6.505e-16	5.165e-15
2.208e-03	7.437e-16	6.072e-16	8.364e-16	1.271e-15	7.551e-16	2.761e-14
2.561e-03	1.063e-15	7.061e-16	1.088e-15	1.699e-15	9.345e-16	7.115e-14
2.940e-03	1.481e-15	8.126e-16	1.764e-15	2.513e-15	1.263e-15	3.354e-14
3.345e-03	1.742e-15	9.230e-16	5.375e-15	4.526e-15	1.871e-15	1.179e-14
3.777e-03	1.536e-15	1.033e-15	3.905e-15	1.307e-14	3.240e-15	6.495e-15
4.234e-03	1.316e-15	1.150e-15	5.568e-15	6.742e-14	5.771e-15	4.416e-15
5.763e-03	2.196e-15	1.417e-15	3.784e-15	4.173e-14	7.352e-15	2.688e-15
7.527e-03	2.199e-15	1.837e-15	6.515e-15	5.643e-14	8.051e-15	2.007e-14
1.025e-02	4.784e-15	2.390e-15	1.557e-14	1.983e-14	7.974e-15	2.406e-14
1.511e-02	5.218e-15	3.220e-15	5.442e-14	7.014e-14	4.630e-15	4.765e-15
2.091e-02	5.106e-15	4.296e-15	1.477e-13	4.266e-14	3.854e-15	1.180e-14
2.646e-02	1.237e-14	6.152e-15	9.406e-14	3.403e-14	4.851e-15	2.656e-14
3.267e-02	7.132e-15	5.898e-15	4.324e-14	2.064e-14	7.971e-15	1.567e-14
3.953e-02	6.738e-15	6.900e-15	5.356e-14	1.029e-14	8.544e-15	5.407e-14
4.704e-02	2.978e-14	7.864e-15	3.173e-14	1.400e-14	6.186e-15	2.471e-14
5.761e-02	1.002e-14	1.041e-14	7.378e-14	2.016e-14	3.428e-14	1.494e-14
7.002e-02	4.949e-14	8.654e-15	4.585e-14	6.011e-14	1.556e-14	3.589e-14
8.322e-02	2.441e-14	1.071e-14	2.954e-14	3.306e-14	1.062e-14	3.099e-14
9.891e-02	2.477e-14	1.891e-14	2.739e-14	3.063e-14	3.318e-14	3.063e-14
1.307e-01	3.442e-14	1.479e-14	2.164e-14	6.068e-14	4.945e-14	5.557e-14
1.819e-01	3.557e-14	6.665e-14	1.886e-14	7.387e-14	6.865e-14	4.355e-14
2.075e-01	3.248e-14	1.420e-14	5.516e-14	1.124e-13	4.312e-14	5.715e-14
2.417e-01	3.408e-14	1.024e-13	2.750e-14	8.113e-14	4.199e-14	6.509e-14
2.710e-01	4.302e-14	2.030e-13	6.031e-14	9.246e-14	4.383e-14	6.137e-14
2.940e-01	9.336e-14	7.858e-14	8.159e-14	8.863e-14	3.392e-14	6.710e-14
3.345e-01	7.217e-14	9.314e-14	5.789e-14	1.165e-13	5.470e-14	7.470e-14
3.776e-01	8.331e-14	1.319e-13	6.298e-14	1.020e-13	6.732e-14	8.475e-14
4.234e-01	9.299e-14	6.545e-14	4.890e-14	8.146e-14	7.484e-14	9.520e-14
5.123e-01	1.082e-13	1.336e-13	9.842e-14	9.902e-14	8.681e-14	1.110e-13

**ESRMA
(Gray Cr²⁺)**

Energy (MeV)	Net_K	Net_{Ca}	Net_{Ti}	Si_γ	Net_{Cr}	Si_{Mn}
6.325e-01	1.143e-13	1.881e-13	1.818e-13	9.308e-14	9.117e-14	1.253e-13
7.527e-01	1.397e-13	2.023e-13	1.606e-13	1.393e-13	1.255e-13	1.303e-13
8.834e-01	1.651e-13	2.355e-13	1.690e-13	1.482e-13	1.607e-13	1.341e-13
1.023e+00	1.985e-13	3.140e-13	1.974e-13	1.996e-13	1.621e-13	1.510e-13
1.176e+00	2.496e-13	2.949e-13	1.951e-13	2.137e-13	1.683e-13	1.760e-13
1.338e+00	2.853e-13	3.707e-13	2.393e-13	2.558e-13	2.223e-13	2.038e-13
1.511e+00	3.558e-13	2.814e-13	3.086e-13	2.907e-13	2.163e-13	2.295e-13
1.694e+00	4.308e-13	4.019e-13	3.173e-13	3.264e-13	2.190e-13	2.527e-13
1.887e+00	4.975e-13	4.915e-13	3.113e-13	3.532e-13	2.616e-13	2.664e-13
2.091e+00	6.204e-13	5.752e-13	3.523e-13	3.815e-13	3.689e-13	2.800e-13
2.305e+00	7.039e-13	6.441e-13	3.989e-13	4.156e-13	3.591e-13	3.043e-13
2.530e+00	8.518e-13	7.597e-13	4.490e-13	4.200e-13	3.923e-13	3.284e-13
2.741e+00	9.546e-13	9.603e-13	4.859e-13	4.654e-13	4.002e-13	3.517e-13
3.011e+00	1.109e-12	1.281e-12	5.148e-13	4.765e-13	4.137e-13	3.767e-13
3.267e+00	1.370e-12	1.691e-12	5.409e-13	4.867e-13	4.162e-13	4.014e-13
3.534e+00	1.722e-12	2.151e-12	5.617e-13	5.210e-13	4.294e-13	4.233e-13
3.811e+00	2.069e-12	2.647e-12	5.804e-13	5.250e-13	4.374e-13	4.443e-13
4.069e+00	2.416e-12	2.992e-12	5.960e-13	5.423e-13	4.399e-13	4.623e-13
4.396e+00	2.780e-12	3.340e-12	6.201e-13	5.571e-13	4.607e-13	4.782e-13
4.704e+00	3.075e-12	3.681e-12	6.588e-13	5.706e-13	4.883e-13	4.918e-13
4.991e+00	3.333e-12	4.033e-12	6.938e-13	5.860e-13	5.039e-13	5.017e-13
5.352e+00	3.581e-12	4.393e-12	7.310e-13	5.921e-13	5.246e-13	5.210e-13
5.658e+00	3.813e-12	4.729e-12	7.682e-13	6.015e-13	5.509e-13	5.494e-13
6.042e+00	4.054e-12	5.059e-12	8.045e-13	6.384e-13	5.782e-13	5.794e-13
6.367e+00	4.341e-12	5.395e-12	8.498e-13	6.647e-13	6.139e-13	6.051e-13
6.737e+00	4.647e-12	5.737e-12	9.019e-13	6.959e-13	6.566e-13	6.261e-13
7.156e+00	4.980e-12	6.128e-12	9.615e-13	7.160e-13	7.127e-13	6.511e-13
7.548e+00	5.324e-12	6.430e-12	1.012e-12	7.419e-13	7.704e-13	6.905e-13
7.910e+00	5.639e-12	6.678e-12	1.059e-12	7.644e-13	8.300e-13	7.313e-13
8.322e+00	5.962e-12	6.921e-12	1.109e-12	8.008e-13	9.044e-13	7.787e-13
8.787e+00	6.317e-12	7.210e-12	1.169e-12	8.513e-13	1.013e-12	8.465e-13
9.177e+00	6.658e-12	7.455e-12	1.237e-12	9.043e-13	1.141e-12	9.278e-13
9.665e+00	7.008e-12	7.665e-12	1.319e-12	9.677e-13	1.293e-12	1.113e-12
1.012e+01	7.383e-12	7.906e-12	1.411e-12	1.048e-12	1.476e-12	1.405e-12
1.058e+01	7.703e-12	8.261e-12	1.516e-12	1.138e-12	1.656e-12	1.758e-12
1.101e+01	7.994e-12	8.660e-12	1.627e-12	1.249e-12	1.829e-12	2.155e-12
1.155e+01	8.288e-12	9.139e-12	1.756e-12	1.374e-12	2.010e-12	2.602e-12
1.199e+01	8.562e-12	9.686e-12	1.895e-12	1.503e-12	2.189e-12	3.088e-12
1.250e+01	8.827e-12	1.022e-11	2.060e-12	1.621e-12	2.368e-12	3.550e-12
1.307e+01	9.124e-12	1.083e-11	2.272e-12	1.750e-12	2.574e-12	4.046e-12
1.354e+01	9.363e-12	1.153e-11	2.455e-12	1.890e-12	2.725e-12	4.561e-12

TABLE 2
(Gross Cr²⁺)

Energy (MeV)	Net_K	Net_{Ca}	Net_{Fe}	Si_γ	Net_{Cr}	SS_{Fe}
1.386e+01	9.503e-12	1.212e-11	2.387e-12	2.006e-12	2.800e-12	4.972e-12
1.413e+01	9.591e-12	1.236e-11	2.683e-12	2.092e-12	2.846e-12	5.280e-12
1.441e+01	9.679e-12	1.290e-11	2.744e-12	2.174e-12	2.888e-12	5.497e-12
1.468e+01	9.760e-12	1.323e-11	2.793e-12	2.260e-12	2.926e-12	5.703e-12
1.519e+01	9.838e-12	1.367e-11	2.815e-12	2.391e-12	2.968e-12	5.981e-12
1.575e+01	9.904e-12	1.407e-11	2.841e-12	2.578e-12	3.030e-12	6.160e-12
1.633e+01	9.893e-12	1.436e-11	2.866e-12	2.800e-12	3.092e-12	6.258e-12
1.692e+01	9.701e-12	1.460e-11	2.904e-12	3.051e-12	3.147e-12	6.287e-12
1.752e+01	9.427e-12	1.480e-11	2.926e-12	3.334e-12	3.192e-12	6.316e-12
1.813e+01	9.101e-12	1.499e-11	2.924e-12	3.636e-12	3.224e-12	6.384e-12
1.875e+01	8.726e-12	1.557e-11	2.911e-12	3.961e-12	3.250e-12	6.443e-12
2.000e+01	8.106e-12	1.668e-11	2.871e-12	4.525e-12	3.266e-12	6.478e-12

KRAM
(Gray cm²)

Energy (MeV)	K_{Fe}	K_{Co}	K_{Ni}	K_{Al}	K_{Cu}
1.307e-09					
5.227e-09	7.462e-15	9.121e-14	1.475e-14	1.393e-14	8.386e-15
2.091e-08	3.731e-15	4.649e-14	7.376e-15	7.194e-15	4.200e-15
3.267e-08	2.493e-15	3.025e-14	4.920e-15	4.943e-15	2.804e-15
4.704e-08	2.037e-15	2.489e-14	4.022e-15	4.107e-15	2.296e-15
8.322e-08	1.600e-15	1.950e-14	3.160e-15	3.293e-15	1.808e-15
1.307e-07	1.241e-15	1.523e-14	2.463e-15	2.619e-15	1.406e-15
1.882e-07	1.014e-15	1.262e-14	2.022e-15	2.189e-15	1.148e-15
2.561e-07	8.622e-16	1.049e-14	1.705e-15	1.891e-15	9.711e-16
3.345e-07	7.463e-16	9.095e-15	1.475e-15	1.673e-15	8.405e-16
4.234e-07	6.622e-16	8.121e-15	1.295e-15	1.504e-15	7.414e-16
5.123e-07	5.904e-16	7.206e-15	1.165e-15	1.390e-15	6.664e-16
7.527e-07	5.115e-16	6.245e-15	1.009e-15	1.229e-15	5.750e-16
1.176e-06	4.147e-16	5.111e-15	8.177e-16	1.041e-15	4.672e-16
1.511e-06	3.521e-16	4.422e-15	6.947e-16	9.139e-16	3.952e-16
2.091e-06	3.031e-16	3.779e-15	5.978e-16	8.250e-16	3.420e-16
2.741e-06	2.639e-16	3.262e-15	5.185e-16	7.438e-16	2.955e-16
3.534e-06	2.309e-16	2.907e-15	4.565e-16	6.809e-16	2.596e-16
4.704e-06	2.026e-16	2.619e-15	3.967e-16	6.259e-16	2.272e-16
5.658e-06	1.807e-16	2.310e-15	3.548e-16	5.852e-16	2.020e-16
6.737e-06	1.660e-16	2.141e-15	3.259e-16	5.563e-16	1.829e-16
8.321e-06	1.531e-16	2.001e-15	2.984e-16	5.297e-16	1.642e-16
9.620e-06	1.401e-16	1.850e-15	2.739e-16	5.053e-16	1.490e-16
1.101e-05	1.318e-16	1.732e-15	2.586e-16	4.878e-16	1.361e-16
1.307e-05	1.248e-16	1.672e-15	2.443e-16	4.754e-16	1.182e-16
1.468e-05	1.176e-16	1.613e-15	2.312e-16	4.648e-16	1.037e-16
1.581e-05	1.132e-16	1.569e-15	2.232e-16	4.586e-16	9.576e-17
1.758e-05	1.126e-16	1.523e-15	2.156e-16	4.529e-16	9.119e-17
1.882e-05	1.122e-16	1.475e-15	2.077e-16	4.470e-16	8.720e-17
2.075e-05	1.118e-16	1.427e-15	2.015e-16	4.430e-16	8.344e-17
2.277e-05	1.113e-16	1.404e-15	1.957e-16	4.399e-16	7.830e-17
2.417e-05	1.108e-16	1.394e-15	1.915e-16	4.381e-16	7.432e-17
2.561e-05	1.105e-16	1.386e-15	1.881e-16	4.366e-16	7.151e-17
2.710e-05	1.100e-16	1.378e-15	1.847e-16	4.352e-16	6.896e-17
2.862e-05	1.097e-16	1.369e-15	1.819e-16	4.346e-16	6.663e-17
2.940e-05	1.093e-16	1.362e-15	1.803e-16	4.345e-16	6.506e-17
3.099e-05	1.087e-16	1.359e-15	1.787e-16	4.346e-16	6.369e-17
3.345e-05	1.060e-16	1.376e-15	1.760e-16	4.347e-16	6.228e-17
3.601e-05	1.026e-16	1.402e-15	1.734e-16	4.356e-16	6.062e-17
3.866e-05	9.911e-17	1.428e-15	1.711e-16	4.369e-16	5.929e-17
4.048e-05	9.608e-17	1.451e-15	1.691e-16	4.381e-16	5.836e-17

KEMM²
(Gray Cm²)

Energy (MeV)	Mat _{Fe}	⁵⁹ Co	Mat _{NI}	⁵⁸ NI	Mat _{Cu}
4.234e-05	9.357e-17	1.470e-15	1.677e-16	4.393e-16	5.760e-17
4.328e-05	9.167e-17	1.484e-15	1.669e-16	4.404e-16	5.710e-17
4.619e-05	8.940e-17	1.504e-15	1.657e-16	4.420e-16	5.665e-17
4.717e-05	8.886e-17	1.525e-15	1.649e-16	4.438e-16	5.620e-17
4.918e-05	8.900e-17	1.541e-15	1.646e-16	4.457e-16	5.585e-17
5.123e-05	8.920e-17	1.565e-15	1.642e-16	4.476e-16	5.520e-17
5.332e-05	8.940e-17	1.614e-15	1.639e-16	4.476e-16	5.385e-17
5.654e-05	8.966e-17	1.683e-15	1.634e-16	4.474e-16	5.211e-17
5.763e-05	8.987e-17	1.739e-15	1.630e-16	4.472e-16	5.100e-17
6.097e-05	9.014e-17	1.797e-15	1.626e-16	4.469e-16	4.996e-17
6.325e-05	9.131e-17	1.899e-15	1.624e-16	4.470e-16	4.888e-17
6.557e-05	9.257e-17	1.997e-15	1.625e-16	4.473e-16	4.814e-17
6.674e-05	9.353e-17	2.073e-15	1.626e-16	4.475e-16	4.769e-17
7.033e-05	9.484e-17	2.176e-15	1.627e-16	4.477e-16	4.718e-17
7.155e-05	9.615e-17	2.294e-15	1.627e-16	4.480e-16	4.693e-17
7.527e-05	9.750e-17	2.473e-15	1.630e-16	4.484e-16	4.709e-17
7.780e-05	9.921e-17	2.701e-15	1.637e-16	4.494e-16	4.730e-17
7.908e-05	1.003e-16	2.840e-15	1.642e-16	4.501e-16	4.749e-17
8.167e-05	1.013e-16	2.997e-15	1.647e-16	4.507e-16	4.768e-17
8.431e-05	1.025e-16	3.320e-15	1.653e-16	4.516e-16	4.795e-17
8.834e-05	1.041e-16	3.764e-15	1.662e-16	4.527e-16	4.836e-17
9.108e-05	1.057e-16	4.224e-15	1.670e-16	4.539e-16	4.881e-17
9.386e-05	1.070e-16	4.859e-15	1.679e-16	4.550e-16	4.919e-17
9.668e-05	1.083e-16	5.643e-15	1.689e-16	4.562e-16	4.963e-17
9.811e-05	1.093e-16	6.240e-15	1.697e-16	4.571e-16	4.996e-17
1.025e-04	1.110e-16	7.224e-15	1.709e-16	4.586e-16	5.046e-17
1.099e-04	1.167e-16	1.132e-14	1.742e-16	4.625e-16	5.178e-17
1.176e-04	1.243e-16	2.105e-14	1.789e-16	4.678e-16	5.349e-17
1.256e-04	1.322e-16	6.544e-14	1.840e-16	4.735e-16	5.525e-17
1.338e-04	1.403e-16	4.813e-13	1.892e-16	4.795e-16	5.705e-17
1.406e-04	1.479e-16	2.282e-13	1.942e-16	4.851e-16	5.871e-17
1.511e-04	1.565e-16	3.635e-14	2.002e-16	4.919e-16	6.136e-17
1.601e-04	1.663e-16	1.155e-14	2.070e-16	4.996e-16	6.477e-17
1.694e-04	1.690e-16	6.059e-15	2.134e-16	5.068e-16	6.920e-17
1.789e-04	1.655e-16	4.306e-15	2.203e-16	5.145e-16	8.255e-17
1.887e-04	1.637e-16	3.031e-15	2.275e-16	5.225e-16	1.126e-16
1.988e-04	1.647e-16	1.817e-15	2.348e-16	5.307e-16	1.679e-16
2.091e-04	1.658e-16	1.436e-15	2.427e-16	5.395e-16	2.332e-16
2.741e-04	1.885e-16	7.534e-16	2.727e-16	5.730e-16	3.158e-16
3.267e-04	2.692e-16	3.390e-16	3.208e-16	6.265e-16	1.889e-16
3.811e-04	3.144e-16	2.421e-16	3.660e-16	6.763e-16	1.482e-16

KEDAKA
(Oxy Cu²⁺)

Energy (MeV)	Nat_{Fe}	⁵⁹Co	Nat_{Ni}	⁵⁸Ni	Nat_{Cu}
4.704e-04	3.012e-16	1.929e-16	4.274e-16	7.443e-16	2.081e-16
4.991e-04	3.030e-16	1.747e-16	4.783e-16	8.006e-16	3.296e-16
5.658e-04	3.102e-16	1.610e-16	5.196e-16	8.462e-16	5.224e-16
6.043e-04	3.193e-16	1.523e-16	5.657e-16	8.970e-16	9.812e-16
6.367e-04	3.235e-16	1.507e-16	5.968e-16	9.313e-16	8.090e-16
7.156e-04	3.281e-16	1.483e-16	6.462e-16	9.857e-16	6.914e-16
8.322e-04	3.923e-16	1.507e-16	7.332e-16	1.082e-15	4.941e-16
9.177e-04	4.923e-16	1.575e-16	8.233e-16	1.181e-15	3.870e-16
1.058e-03	5.563e-16	1.707e-16	9.246e-16	1.292e-15	3.463e-16
1.307e-03	6.381e-16	1.761e-16	1.106e-15	1.478e-15	4.150e-16
1.581e-03	7.384e-16	2.137e-16	1.336e-15	1.714e-15	1.151e-15
1.882e-03	8.345e-16	1.893e-16	1.595e-15	1.979e-15	2.341e-15
2.208e-03	9.273e-16	2.037e-16	1.879e-15	2.270e-15	3.078e-15
2.561e-03	1.030e-15	2.306e-16	2.459e-15	2.681e-15	1.570e-15
2.940e-03	1.126e-15	5.098e-16	2.591e-15	2.907e-15	1.336e-15
3.345e-03	1.270e-15	3.955e-16	3.181e-15	3.497e-15	9.531e-16
3.777e-03	1.494e-15	9.177e-16	4.170e-15	4.493e-15	9.982e-16
4.234e-03	1.565e-15	5.602e-15	5.982e-15	6.339e-15	1.478e-15
5.763e-03	1.576e-15	4.087e-14	7.734e-15	8.052e-15	1.949e-15
7.527e-03	4.257e-15	7.807e-15	4.974e-15	5.169e-15	1.663e-15
1.025e-02	6.902e-15	5.187e-15	4.481e-15	4.817e-15	4.167e-15
1.511e-02	3.671e-15	5.007e-15	2.691e-14	3.050e-14	6.105e-15
2.091e-02	2.828e-15	6.800e-15	5.476e-14	5.012e-14	8.691e-15
2.646e-02	2.872e-15	3.152e-14	2.266e-14	1.952e-14	1.061e-14
3.267e-02	5.178e-14	2.069e-14	2.835e-14	2.382e-14	1.220e-14
3.953e-02	1.631e-14	2.114e-14	2.390e-14	1.924e-14	1.274e-14
4.704e-02	1.363e-14	1.610e-14	2.128e-14	1.688e-14	1.431e-14
5.761e-02	1.717e-14	2.353e-14	1.647e-14	1.186e-14	1.583e-14
7.002e-02	1.125e-14	2.038e-14	6.267e-14	5.173e-14	1.769e-14
8.322e-02	2.448e-14	2.563e-14	5.192e-14	3.479e-14	2.064e-14
9.891e-02	3.830e-14	4.100e-14	5.157e-14	2.811e-14	2.379e-14
1.307e-01	2.041e-14	4.403e-14	3.538e-14	3.243e-14	2.875e-14
1.819e-01	3.631e-14	3.476e-14	4.591e-14	5.709e-14	3.690e-14
2.075e-01	5.857e-14	5.092e-14	5.277e-14	6.329e-14	4.356e-14
2.417e-01	3.530e-14	4.609e-14	7.622e-14	8.728e-14	4.859e-14
2.710e-01	3.396e-14	5.295e-14	6.096e-14	7.064e-14	5.345e-14
2.940e-01	4.639e-14	6.079e-14	9.072e-14	1.064e-13	5.720e-14
3.345e-01	4.440e-14	6.756e-14	7.419e-14	8.526e-14	6.127e-14
3.776e-01	4.467e-14	7.785e-14	7.638e-14	8.813e-14	6.707e-14
4.234e-01	1.243e-13	6.977e-14	5.807e-14	6.607e-14	7.418e-14
5.123e-01	1.008e-13	9.926e-14	9.707e-14	1.010e-13	8.413e-14

KEDS
(Gray Cm²)

Energy (MeV)	Nat_{Fe}	⁵⁹Co	Nat_{Ni}	⁵⁸Ni	Nat_{Cu}
6.325e-01	7.531e-14	1.012e-13	9.265e-14	9.382e-14	9.775e-14
7.527e-01	9.854e-14	1.231e-13	1.046e-13	1.062e-13	1.136e-13
8.834e-01	1.317e-13	1.289e-13	1.244e-13	1.314e-13	1.280e-13
1.025e+00	1.013e-13	1.499e-13	1.404e-13	1.567e-13	1.406e-13
1.176e+00	1.286e-13	1.614e-13	1.633e-13	1.742e-13	1.553e-13
1.338e+00	1.735e-13	1.822e-13	2.193e-13	2.111e-13	1.669e-13
1.511e+00	1.842e-13	1.882e-13	2.295e-13	2.504e-13	1.670e-13
1.694e+00	2.176e-13	2.035e-13	2.392e-13	2.825e-13	1.764e-13
1.887e+00	2.197e-13	2.099e-13	2.576e-13	3.179e-13	1.909e-13
2.091e+00	2.679e-13	2.217e-13	2.971e-13	3.605e-13	2.071e-13
2.305e+00	2.823e-13	2.399e-13	3.429e-13	4.189e-13	2.303e-13
2.530e+00	3.416e-13	2.616e-13	4.229e-13	4.503e-13	2.565e-13
2.741e+00	3.852e-13	2.761e-13	4.774e-13	5.496e-13	2.830e-13
3.011e+00	3.828e-13	2.963e-13	5.775e-13	7.544e-13	3.135e-13
3.267e+00	4.267e-13	3.335e-13	6.520e-13	9.886e-13	3.469e-13
3.534e+00	4.479e-13	3.538e-13	7.846e-13	9.345e-13	3.795e-13
3.811e+00	4.802e-13	3.743e-13	9.437e-13	9.573e-13	4.119e-13
4.069e+00	5.290e-13	3.820e-13	1.071e-12	1.227e-12	4.422e-13
4.396e+00	5.761e-13	4.039e-13	1.233e-12	1.449e-12	4.737e-13
4.704e+00	5.997e-13	4.349e-13	1.376e-12	1.713e-12	5.076e-13
4.991e+00	6.118e-13	4.629e-13	1.515e-12	1.980e-12	5.385e-13
5.352e+00	6.561e-13	4.900e-13	1.749e-12	2.249e-12	5.726e-13
5.658e+00	7.260e-13	5.167e-13	2.004e-12	2.501e-12	6.110e-13
6.042e+00	8.154e-13	5.402e-13	2.253e-12	2.775e-12	6.552e-13
6.367e+00	9.096e-13	5.749e-13	2.504e-12	3.028e-12	7.064e-13
6.737e+00	1.007e-12	6.193e-13	2.737e-12	3.252e-12	7.596e-13
7.156e+00	1.110e-12	6.739e-13	2.980e-12	3.513e-12	8.207e-13
7.548e+00	1.258e-12	7.402e-13	3.207e-12	3.769e-12	8.720e-13
7.910e+00	1.403e-12	8.106e-13	3.400e-12	4.014e-12	9.166e-13
8.322e+00	1.546e-12	8.900e-13	3.600e-12	4.275e-12	9.804e-13
8.787e+00	1.703e-12	9.913e-13	3.849e-12	4.580e-12	1.092e-12
9.177e+00	1.863e-12	1.093e-12	4.111e-12	4.899e-12	1.216e-12
9.665e+00	2.022e-12	1.184e-12	4.371e-12	5.232e-12	1.359e-12
1.012e+01	2.183e-12	1.281e-12	4.644e-12	5.626e-12	1.534e-12
1.058e+01	2.334e-12	1.369e-12	4.932e-12	6.011e-12	1.696e-12
1.101e+01	2.484e-12	1.454e-12	5.208e-12	6.411e-12	1.859e-12
1.155e+01	2.646e-12	1.543e-12	5.508e-12	6.792e-12	2.035e-12
1.199e+01	2.815e-12	1.641e-12	5.790e-12	7.128e-12	2.216e-12
1.250e+01	2.970e-12	1.741e-12	6.050e-12	7.356e-12	2.381e-12
1.307e+01	3.136e-12	1.838e-12	6.292e-12	7.627e-12	2.535e-12
1.354e+01	3.287e-12	1.923e-12	6.509e-12	8.012e-12	2.678e-12

**RESULTS
(per cm^2)**

Energy (MeV)	Net_{Fe}	Net_{Co}	Net_{Ni}	Net_{Si}	Net_{Cu}
1.386e+01	3.393e-12	1.981e-12	6.670e-12	8.233e-12	2.706e-12
1.413e+01	3.477e-12	2.018e-12	6.794e-12	8.433e-12	2.866e-12
1.441e+01	3.556e-12	2.043e-12	6.909e-12	8.576e-12	2.948e-12
1.468e+01	3.636e-12	2.063e-12	7.019e-12	8.717e-12	3.031e-12
1.519e+01	3.736e-12	2.085e-12	7.149e-12	8.919e-12	3.136e-12
1.575e+01	3.846e-12	2.097e-12	7.397e-12	9.233e-12	3.192e-12
1.633e+01	3.938e-12	2.100e-12	7.708e-12	9.561e-12	3.214e-12
1.692e+01	4.073e-12	2.093e-12	8.108e-12	9.829e-12	3.212e-12
1.752e+01	4.170e-12	2.077e-12	8.564e-12	1.008e-11	3.238e-12
1.813e+01	4.274e-12	2.059e-12	9.087e-12	1.032e-11	3.318e-12
1.875e+01	4.371e-12	2.041e-12	9.589e-12	1.054e-11	3.343e-12
2.000e+01	4.501e-12	2.015e-12	1.038e-11	1.086e-11	3.336e-12

Weight Fractions of Composite Materials

Tissue Approximation:

Hydrogen	.1002
Carbon	.1493
Nitrogen	.0348
Oxygen	.7157

Bone (Femur):

Hydrogen	.0640
Carbon	.2780
Nitrogen	.0270
Oxygen	.4100
Magnesium	.0020
Phosphorus	.0700
Sulfur	.0020
Calcium	.1470

Muscle (ICRU):

Hydrogen	.1020
Carbon	.1230
Nitrogen	.0350
Oxygen	.7290
Sodium	.0008
Magnesium	.0002
Phosphorus	.0020
Sulfur	.0050
Potassium	.0030
Calcium	.0001

Standard Man:

Hydrogen	.1000
Carbon	.1800
Nitrogen	.0300
Oxygen	.6500
Sodium	.0015
Magnesium	.0005
Phosphorus	.0100
Sulfur	.0025
Chlorine	.0015
Potassium	.0020
Calcium	.0150
Iron	.0070

Weight Fractions of Composite Materials

A-130 Plastic:

Hydrogen	.1015
Carbon	.7754
Nitrogen	.0352
Oxygen	.0521
Fluorine	.0174
Calcium	.0104

Nylon Type 6 or 6/6:

Hydrogen	.0980
Carbon	.6368
Nitrogen	.1238
Oxygen	.1414

Lucite:

Hydrogen	.0805
Carbon	.5998
Oxygen	.3196

Liquid, Muscle Equivalent:

Hydrogen	.1020
Carbon	.1201
Nitrogen	.0354
Oxygen	.7425

Water:

Hydrogen	.1119
Oxygen	.8881

Acetylene:

Hydrogen	.0774
Carbon	.9226

Air, Dry:

Carbon	.0001
Nitrogen	.7552
Oxygen	.2318
Argon	.0129

Weight Fractions of Composite Materials

Air, Water Saturated:

Hydrogen	.0016
Carbon	.0001
Nitrogen	.7443
Oxygen	.2413
Argon	.0127

Carbon Dioxide:

Carbon	.2729
Oxygen	.7271

Ethylene:

Hydrogen	.1437
Carbon	.8563

TE Gas, with Methane:

Hydrogen	.1019
Carbon	.4562
Nitrogen	.0352
Oxygen	.4068