

Isotope	Mass Excess	Isotope	Mass Excess	Isotope	Mass Excess	Isotope	Mass Excess
²²² Th	17.190	²³⁶ Pu	42.880	²⁵² Cf	76.100	²⁵⁹ Ha	102.150
²²³ Th	19.360	²³⁷ Pu	45.030	²⁵³ Cf	79.300	²⁶⁰ Ha	103.560
²²⁴ Th	19.980	²³⁸ Pu	46.090	²⁵⁴ Cf	81.290	²⁶¹ Ha	104.200
²²⁵ Th	22.330	²³⁹ Pu	48.620	²⁴¹ Es	63.870	²⁶² Ha	106.040
²²⁶ Th	23.160	²⁴⁰ Pu	50.020	²⁴² Es	64.720	²⁶⁰ Sg	106.960
²²⁷ Th	25.730	²⁴¹ Pu	52.850	²⁴³ Es	64.740	²⁶¹ Sg	108.260
²²⁸ Th	26.730	²⁴² Pu	54.560	²⁴⁴ Es	65.920	²⁶² Sg	108.470
²²⁹ Th	29.470	²⁴³ Pu	57.760	²⁴⁵ Es	66.190	²⁶³ Sg	110.180
²³⁰ Th	31.060	²⁴⁴ Pu	59.740	²⁴⁶ Es	67.660	²⁶² Ns	114.700
²³¹ Th	33.860	²⁴⁵ Pu	63.180	²⁴⁷ Es	68.380	²⁶³ Ns	114.850
²³² Th	35.520	²⁴⁶ Pu	65.400	²⁴⁸ Es	70.200	²⁶⁴ Ns	116.110
²³³ Th	38.620	²³³ Am	43.150	²⁴⁹ Es	71.250	²⁶⁴ Hs	120.150
²³⁴ Th	40.590	²³⁴ Am	44.320	²⁵⁰ Es	73.500	²⁶⁵ Hs	121.310
²³⁵ Th	44.040	²³⁵ Am	44.650	²⁵¹ Es	74.930	²⁶⁶ Mt	128.260
²¹⁵ Pa	17.710	²³⁶ Am	46.130	²⁵² Es	77.510		
²¹⁶ Pa	17.870	²³⁷ Am	46.690	²⁵³ Es	79.160		
²¹⁷ Pa	16.760	²³⁸ Am	48.460	²⁵⁴ Es	82.100		
²¹⁸ Pa	18.590	²³⁹ Am	49.460	²⁵⁵ Es	84.070		
²¹⁹ Pa	18.510	²⁴⁰ Am	51.570	²⁵⁶ Es	87.130		
²²⁰ Pa	20.170	²⁴¹ Am	52.890	²⁴³ Fm	69.400		
²²¹ Pa	20.290	²⁴² Am	55.410	²⁴⁴ Fm	68.980		
²²² Pa	21.950	²⁴³ Am	57.100	²⁴⁵ Fm	70.040		
²²³ Pa	22.230	²⁴⁴ Am	59.930	²⁴⁶ Fm	69.940		
²²⁴ Pa	23.890	²⁴⁵ Am	61.840	²⁴⁷ Fm	71.390		
²²⁵ Pa	24.340	²⁴⁶ Am	65.020	²⁴⁸ Fm	71.680		
²²⁶ Pa	26.110	²⁴⁷ Am	67.220	²⁴⁹ Fm	73.400		
²²⁷ Pa	26.880	²⁴⁸ Am	70.520	²⁵⁰ Fm	74.040		
²²⁸ Pa	28.860	²³⁵ Cm	47.960	²⁵¹ Fm	76.160		
²²⁹ Pa	29.810	²³⁶ Cm	47.860	²⁵² Fm	77.160		
²³⁰ Pa	32.070	²³⁷ Cm	49.230	²⁵³ Fm	79.600		
²³¹ Pa	33.430	²³⁸ Cm	49.440	²⁵⁴ Fm	80.930		
²³² Pa	35.810	²³⁹ Cm	51.180	²⁵⁵ Fm	83.750		
²³³ Pa	37.410	²⁴⁰ Cm	51.750	²⁵⁶ Fm	85.360		
²³⁴ Pa	40.200	²⁴¹ Cm	53.770	²⁵⁷ Fm	88.440		
²³⁵ Pa	42.140	²⁴² Cm	54.690	²⁴⁷ Md	75.870		
²³⁶ Pa	45.240	²⁴³ Cm	57.080	²⁴⁸ Md	76.890		
²³⁷ Pa	47.390	²⁴⁴ Cm	58.340	²⁴⁹ Md	77.010		
²³⁸ Pa	50.820	²⁴⁵ Cm	61.050	²⁵⁰ Md	78.340		
²²⁶ U	27.200	²⁴⁶ Cm	62.630	²⁵¹ Md	78.920		
²²⁷ U	28.920	²⁴⁷ Cm	65.710	²⁵² Md	80.600		
²²⁸ U	29.070	²⁴⁸ Cm	67.560	²⁵³ Md	81.510		
²²⁹ U	30.970	²⁴⁹ Cm	70.880	²⁵⁴ Md	83.630		
²³⁰ U	31.810	²⁵⁰ Cm	72.990	²⁵⁵ Md	84.920		
²³¹ U	33.850	²⁵¹ Cm	76.650	²⁵⁶ Md	87.380		
²³² U	34.720	²³⁷ Bk	53.150	²⁵⁷ Md	88.900		
²³³ U	37.010	²³⁸ Bk	54.160	²⁵⁸ Md	91.720		
²³⁴ U	38.210	²³⁹ Bk	54.340	²⁵¹ No	82.580		
²³⁵ U	40.880	²⁴⁰ Bk	55.670	²⁵² No	82.720		
²³⁶ U	42.410	²⁴¹ Bk	56.080	²⁵³ No	84.300		
²³⁷ U	45.380	²⁴² Bk	57.700	²⁵⁴ No	84.800		
²³⁸ U	47.220	²⁴³ Bk	58.560	²⁵⁵ No	86.780		
²³⁹ U	50.540	²⁴⁴ Bk	60.530	²⁵⁶ No	87.640		
²⁴⁰ U	52.640	²⁴⁵ Bk	61.720	²⁵⁷ No	89.960		
²²⁹ Np	33.630	²⁴⁶ Bk	64.100	²⁵⁸ No	91.150		
²³⁰ Np	34.940	²⁴⁷ Bk	65.650	²⁵⁹ No	93.850		
²³¹ Np	35.680	²⁴⁸ Bk	68.360	²⁵³ Lr	88.560		
²³² Np	37.320	²⁴⁹ Bk	70.140	²⁵⁴ Lr	89.740		
²³³ Np	38.030	²⁵⁰ Bk	73.200	²⁵⁵ Lr	90.170		
²³⁴ Np	39.940	²⁵¹ Bk	75.290	²⁵⁶ Lr	91.720		
²³⁵ Np	41.090	²⁵² Bk	78.460	²⁵⁷ Lr	92.500		
²³⁶ Np	43.330	²³⁹ Cf	58.320	²⁵⁸ Lr	94.480		
²³⁷ Np	44.790	²⁴⁰ Cf	58.060	²⁵⁹ Lr	95.640		
²³⁸ Np	47.440	²⁴¹ Cf	59.270	²⁶⁰ Lr	97.960		
²³⁹ Np	49.260	²⁴² Cf	59.330	²⁵⁵ Rf	94.480		
²⁴⁰ Np	52.220	²⁴³ Cf	60.920	²⁵⁶ Rf	94.480		
²⁴¹ Np	54.250	²⁴⁴ Cf	61.350	²⁵⁷ Rf	95.920		
²⁴² Np	57.560	²⁴⁵ Cf	63.230	²⁵⁸ Rf	96.280		
²⁴³ Np	59.880	²⁴⁶ Cf	64.010	²⁵⁹ Rf	98.120		
²³¹ Pu	38.330	²⁴⁷ Cf	66.260	²⁶⁰ Rf	98.850		
²³² Pu	38.380	²⁴⁸ Cf	67.390	²⁶¹ Rf	101.030		
²³³ Pu	39.900	²⁴⁹ Cf	69.970	²⁵⁷ Ha	100.820		
²³⁴ Pu	40.260	²⁵⁰ Cf	71.420	²⁵⁸ Ha	101.860		
²³⁵ Pu	42.150	²⁵¹ Cf	74.370				