

relatively insensitive to temperature in the range of 100° to 923° K. β_{100} decreases to a broad minimum between 200° and 600° K and increases by about 5% before the α - β transformation. β_{010} shows a very small but continuous increase from 100° to 700° K and no significant change between 700° and 923° K. In

contrast, β_{001} increases by 50% between 70° and 923° K with an almost linear temperature dependence up to 400° K and a positive curvature above 400° K. At 923° K, β_{001} and β_{010} have about the same value, with β_{100} being about 30% greater. The β_V values reflect primarily the β_{001} changes above 200° K.

TABLE 4

Young's moduli and compressibility parameters for α -U at various temperature between 44° and 923° K

Temp. (°K)	$(10^{12} \text{ dyn/cm}^2)$			$10^{-12} \text{ cm}^2/\text{dyn}$			
	E_{100}	E_{010}	E_{001}	β_{100}	β_{010}	β_{001}	β_V
44	1.447	1.632	2.236	0.572	0.321	0.154	1.048
46	1.557	1.637	2.261	0.531	0.315	0.166	1.012
48	1.629	1.637	2.273	0.504	0.308	0.175	0.987
50	1.680	1.635	2.281	0.485	0.303	0.181	0.969
60	1.827	1.626	2.294	0.440	0.293	0.196	0.929
73	1.915	1.625	2.299	0.419	0.291	0.202	0.912
98	1.977	1.604	2.277	0.402	0.290	0.207	0.899
123	2.013	1.588	2.253	0.394	0.290	0.210	0.894
148	2.033	1.574	2.231	0.389	0.291	0.212	0.892
173	2.043	1.560	2.209	0.386	0.291	0.215	0.892
198	2.047	1.546	2.187	0.384	0.291	0.217	0.892
223	2.048	1.532	2.164	0.382	0.292	0.219	0.893
248	2.048	1.518	2.139	0.381	0.292	0.221	0.895
273	2.045	1.502	2.114	0.380	0.293	0.223	0.896
298	2.037	1.486	2.088	0.380	0.293	0.226	0.899
323	2.033	1.470	2.062	0.379	0.293	0.228	0.899
348	2.024	1.455	2.038	0.378	0.293	0.230	0.901
373	2.014	1.437	2.010	0.378	0.293	0.231	0.902
398	2.004	1.423	1.985	0.379	0.293	0.234	0.906
423	1.992	1.407	1.959	0.380	0.295	0.237	0.912
448	1.981	1.391	1.931	0.380	0.295	0.240	0.915
473	1.967	1.375	1.907	0.380	0.296	0.242	0.918
498	1.953	1.361	1.884	0.380	0.297	0.245	0.922
523	1.938	1.345	1.858	0.380	0.298	0.248	0.926
548	1.921	1.332	1.835	0.380	0.298	0.251	0.929
573	1.902	1.316	1.811	0.381	0.300	0.253	0.934
598	1.883	1.299	1.785	0.381	0.301	0.256	0.938
623	1.862	1.281	1.758	0.382	0.302	0.259	0.942
648	1.842	1.261	1.726	0.383	0.302	0.261	0.946
673	1.822	1.238	1.694	0.384	0.303	0.263	0.951
698	1.799	1.219	1.664	0.386	0.304	0.266	0.956
723	1.775	1.196	1.629	0.388	0.305	0.268	0.960
748	1.746	1.170	1.594	0.389	0.306	0.271	0.965
773	1.714	1.140	1.558	0.389	0.305	0.275	0.969
798	1.681	1.107	1.516	0.390	0.304	0.279	0.973
823	1.643	1.072	1.476	0.392	0.303	0.283	0.977
848	1.606	1.042	1.440	0.393	0.303	0.286	0.982
873	1.567	1.007	1.397	0.395	0.304	0.289	0.987
898	1.526	0.977	1.359	0.397	0.302	0.292	0.992
923	1.484	0.941	1.315	0.401	0.305	0.295	0.999