

TABLE I. Density Effect Parameters for Elemental Substances
See page 266 for Explanation of Tables

Material	Z	Z/A	I (ev)	Density, ρ_0 (g/cm ³)	$h\nu_D$ (eV)	ρ	-C	χ_0	χ_1	a	m	δ_0	Δ_{\max}
HYDROGEN	1	0.99216	19.2	8.3748E-05	0.263	1.412	9.5835	1.8639	3.2718	0.14092	5.7273	0.0	0.024
HYDROGEN, LIQUID	1	0.99216	21.8	6.0000E-02	7.031	1.546	3.2632	0.4759	1.9215	0.13483	5.6249	0.0	0.021
HELIUM	2	0.49967	41.8	1.6632E-04	0.263	1.700	11.1393	2.2017	3.6122	0.13443	5.8347	0.0	0.024
LITHIUM	3	0.43221	40.0	5.3400E-01	13.844	1.535	3.1221	0.1304	1.6397	0.95136	2.4993	0.14	0.062
BERYLLIUM	4	0.44384	63.7	1.8480E+00	26.098	1.908	2.7847	0.0592	1.6922	0.80392	2.4339	0.14	0.029
BORON	5	0.46254	76.0	2.3700E+00	30.170	2.320	2.8477	0.0305	1.9688	0.56224	2.4512	0.14	0.024
CARBON (GRAPHITE, DENS 2.265)	6	0.49954	78.0	2.2650E+00	30.652	2.290	2.8680	-0.0178	2.3415	0.26142	2.8697	0.12	0.038
CARBON (GRAPHITE, DENS 2.0)	6	0.49954	78.0	2.0000E+00	28.803	2.376	2.9925	-0.0351	2.4860	0.20240	3.0036	0.10	0.038
CARBON (GRAPHITE, DENS 1.7)	6	0.49954	78.0	1.7000E+00	26.555	2.490	3.1550	0.0480	2.5387	0.20762	2.9532	0.14	0.038
NITROGEN	7	0.49976	82.0	1.1653E-03	0.695	1.984	10.5400	1.7378	4.1323	0.15349	3.2125	0.0	0.086
OXYGEN	8	0.50002	95.0	1.3315E-03	0.744	2.314	10.7004	1.7541	4.3213	0.11778	3.2913	0.0	0.101
FLUORINE	9	0.47372	115.0	1.5803E-03	0.788	2.450	10.9653	1.8433	4.4096	0.11083	3.2962	0.0	0.121
NEON	10	0.49556	137.0	8.3851E-04	0.587	2.577	11.9041	2.0735	4.6421	0.08064	3.5771	0.0	0.110
SODIUM	11	0.47847	149.0	9.7100E-01	19.641	2.648	5.0526	0.2880	3.1962	0.07772	3.6452	0.08	0.098
MAGNESIUM	12	0.49373	156.0	1.7400E+00	26.708	2.331	4.5297	0.1499	3.0668	0.08163	3.6166	0.08	0.073
ALUMINUM	13	0.48181	166.0	2.6989E+00	32.860	2.180	4.2395	0.1708	3.0127	0.08024	3.6345	0.12	0.061
SILICON	14	0.49848	173.0	2.3300E+00	31.055	2.103	4.4351	0.2014	2.8715	0.14921	3.2546	0.14	0.059
PHOSPHORUS	15	0.48428	173.0	2.2000E+00	29.743	2.056	4.5214	0.1696	2.7815	0.23610	2.9158	0.14	0.057
SULFUR	16	0.49906	180.0	2.0000E+00	28.789	2.131	4.6659	0.1580	2.7159	0.33992	2.6456	0.14	0.059
CHLORINE	17	0.47951	174.0	2.9947E-03	1.092	1.734	11.1421	1.5555	4.2994	0.19849	2.9702	0.0	0.041
ARGON	18	0.45059	188.0	1.6620E-03	0.789	1.753	11.9480	1.7635	4.4855	0.19714	2.9618	0.0	0.037
POTASSIUM	19	0.48595	190.0	8.6200E-01	18.650	1.830	5.6423	0.3851	3.1724	0.19827	2.9233	0.10	0.035
CALCIUM	20	0.49900	191.0	1.5500E+00	25.342	1.666	5.0396	0.3228	3.1191	0.15643	3.0745	0.14	0.031
SCANDIUM	21	0.46712	216.0	2.9890E+00	34.050	1.826	4.6949	0.1640	3.0593	0.15754	3.0517	0.10	0.027
TITANIUM	22	0.45948	233.0	4.5400E+00	41.619	1.969	4.4450	0.0957	3.0386	0.15662	3.0302	0.12	0.025
VANADIUM	23	0.45150	245.0	6.1100E+00	47.861	2.070	4.2659	0.0691	3.0322	0.15436	3.0163	0.14	0.024
CHROMIUM	24	0.46157	257.0	7.1800E+00	52.458	2.181	4.1781	0.0340	3.0451	0.15419	2.9896	0.14	0.023
MANGANESE	25	0.45506	272.0	7.4400E+00	53.022	2.347	4.2702	0.0447	3.1074	0.14973	2.9796	0.14	0.021
IRON	26	0.46556	286.0	7.8740E+00	55.172	2.504	4.2911	-0.0012	3.1531	0.14680	2.9632	0.12	0.021
COBALT	27	0.45815	297.0	8.9000E+00	58.188	2.626	4.2601	-0.0187	3.1790	0.14474	2.9502	0.12	0.019
NICKEL	28	0.47708	311.0	8.9020E+00	59.385	2.889	4.3115	-0.0566	3.1851	0.16496	2.8430	0.10	0.020
COPPER	29	0.45636	322.0	8.9600E+00	58.270	2.956	4.4190	-0.0254	3.2792	0.14339	2.9044	0.08	0.019
ZINC	30	0.45886	330.0	7.1330E+00	52.132	3.142	4.6906	0.0049	3.3668	0.14714	2.8652	0.08	0.019
GALLIUM	31	0.44464	334.0	5.9040E+00	46.688	2.747	4.9353	0.2267	3.5434	0.09440	3.1314	0.14	0.019
GERMANIUM	32	0.44083	350.0	5.3230E+00	44.141	2.461	5.1411	0.3376	3.6096	0.07188	3.3306	0.14	0.025
ARSENIC	33	0.44046	347.0	5.7300E+00	45.779	2.219	5.0510	0.1767	3.5702	0.06633	3.4176	0.08	0.030
SELENIUM	34	0.43060	348.0	4.5000E+00	40.112	2.104	5.3210	0.2258	3.6264	0.06568	3.4317	0.10	0.024
BROMINE	35	0.43803	343.0	7.0722E-03	1.604	1.845	11.7307	1.5262	4.9899	0.06335	3.4670	0.0	0.022
KRYPTON	36	0.42959	352.0	3.4783E-03	1.114	1.770	12.5115	1.7158	5.0748	0.07446	3.4051	0.0	0.025
RUBIDIUM	37	0.43291	363.0	1.5320E+00	23.467	1.823	6.4776	0.5737	3.7995	0.07261	3.4177	0.14	0.026
STRONTIUM	38	0.43369	366.0	2.5400E+00	30.244	1.707	5.9867	0.4585	3.6778	0.07165	3.4435	0.14	0.026
YTTRIUM	39	0.43867	379.0	4.4690E+00	40.346	1.649	5.4801	0.3608	3.5542	0.07138	3.4585	0.14	0.027
ZIRCONIUM	40	0.43850	393.0	6.5060E+00	48.671	1.638	5.1774	0.2957	3.4890	0.07177	3.4533	0.14	0.028
NIOBIUM	41	0.44130	417.0	8.5700E+00	56.039	1.734	5.0141	0.1785	3.2201	0.13883	3.0930	0.14	0.036
MOLYBDENUM	42	0.43777	424.0	1.0220E+01	60.951	1.658	4.8793	0.2267	3.2784	0.10525	3.2549	0.14	0.030
TECHNETIUM	43	0.43919	428.0	1.1500E+01	64.760	1.727	4.7769	0.0949	3.1253	0.16572	2.9738	0.14	0.040
RUTHENIUM	44	0.43534	441.0	1.2410E+01	66.978	1.780	4.7694	0.0599	3.0834	0.19342	2.8707	0.14	0.046
RHODIUM	45	0.43729	449.0	1.2410E+01	67.128	1.804	4.8008	0.0576	3.1069	0.19205	2.8633	0.14	0.046
PALLADIUM	46	0.43225	470.0	1.2020E+01	65.683	1.911	4.9358	0.0563	3.0555	0.24178	2.7239	0.14	0.047
SILVER	47	0.43572	470.0	1.0500E+01	61.635	1.933	5.0630	0.0657	3.1074	0.24585	2.6899	0.14	0.052
CADMIUM	48	0.42701	469.0	8.6500E+00	55.381	1.895	5.2727	0.1281	3.1667	0.24609	2.6772	0.14	0.051
INDIUM	49	0.42676	488.0	7.3100E+00	50.896	1.851	5.5211	0.2406	3.2032	0.23879	2.7144	0.14	0.044
TIN	50	0.42127	488.0	7.3100E+00	50.567	1.732	5.5340	0.2879	3.2959	0.18689	2.8576	0.14	0.037
ANTIMONY	51	0.41889	487.0	6.6910E+00	48.242	1.645	5.6241	0.3189	3.3489	0.16652	2.9319	0.14	0.034
TELLURIUM	52	0.40752	485.0	6.2400E+00	45.952	1.577	5.7131	0.3296	3.4418	0.13815	3.0354	0.14	0.033
IODINE	53	0.41764	491.0	4.9300E+00	41.348	1.498	5.9488	0.0549	3.2596	0.23766	2.7276	0.0	0.045
XENON	54	0.41130	482.0	5.4854E-03	1.369	1.435	12.7281	1.5630	4.7371	0.23314	2.7414	0.0	0.043
CESIUM	55	0.41383	488.0	1.8730E+00	25.370	1.462	6.9135	0.5473	5.5914	0.18233	2.8866	0.14	0.035
BARIUM	56	0.40778	491.0	3.5000E+00	34.425	1.410	6.3153	0.4190	3.4547	0.18268	2.8906	0.14	0.035
LANTHANUM	57	0.41035	501.0	6.1540E+00	45.792	1.392	5.7850	0.3161	3.3293	0.18591	2.8828	0.14	0.036
CERIUM	58	0.41393	523.0	6.6570E+00	47.834	1.461	5.7837	0.2713	3.3432	0.18885	2.8592	0.14	0.040
PRASEODYMIUM	59	0.41871	535.0	6.7100E+00	48.301	1.520	5.8096	0.2333	3.2773	0.23265	2.7331	0.14	0.041
NEODYMIUM	60	0.41597	546.0	6.9000E+00	48.819	1.588	5.8290	0.1984	3.3063	0.23530	2.7050	0.14	0.044
PROMETHIUM	61	0.42094	560.0	7.2200E+00	50.236	1.672	5.8224	0.1627	3.3199	0.24280	2.6674	0.14	0.048
SAMARIUM	62	0.41234	574.0	7.4600E+00	50.540	1.749	5.8597	0.1520	3.3460	0.24698	2.6403	0.14	0.053
EUROPIUM	63	0.41458	580.0	5.2430E+00	42.484	1.838	6.2278	0.1888	3.4633	0.24448	2.6245	0.14	0.060
GADOLINIUM	64	0.40699	591.0	7.9004E+00	51.672	1.882	5.8738	0.1058	3.3932	0.25109	2.5977	0.14	0.061
TERBIUM	65	0.40900	614.0	8.2290E+00	52.865	1.993	5.9045	0.0947	3.4224	0.24453	2.6056	0.14	0.063
DYSPROSIUM	66	0.40615	628.0	8.5500E+00	53.698	2.081	5.9183	0.0822	3.4474	0.24665	2.5849	0.14	0.061
HOLMIUM	67	0.40623	650.0	8.7950E+00	54.467	2.197	5.9587	0.0761	3.4782	0.24638	2.5726	0.14	0.062
ERBIUM	68	0.40655	658.0	9.0660E+00	55.322	2.260	5.9521	0.0648	3.4922	0.24823	2.5573	0.14	0.061
THULIUM	69	0.40844	674.0	9.3210E+00	56.225	2.333	5.9677	0.0812	3.5085	0.24889	2.5469	0.14	0.062
YTTERBIUM	70	0.40453	684.0	6.7300E+00	47.546	2.505	6.3325	0.1199	3.6246	0.25295	2.5141	0.14	0.071
LUTETIUM	71	0.40579	694.0	9.8400E+00	57.581	2.348	5.9785	0.1560	3.5218	0.24033	2.5643	0.14	0.054
HAFNIUM	72	0.40338	705.0	1.3310E+01	66.770	2.174	5.7139	0.1965	3.4337	0.22918	2.6155	0.14	0.035
TANTALUM	73	0.40343	718.0	1.6654E+01	74.692	2.070	5.5262	0.2117	3.4805	0.17798	2.7623	0.14	0.030
TUNGSTEN	74	0.40250	727.0	1.9300E+01	80.315	1.997	5.4059	0.2167	3.4960	0.15509	2.8447	0.14	0.027
RHENIUM	75	0.40278	736.0	2.1020E+01	83.846	1.976	5.3445	0.0559	3.4845	0.15184	2.8627	0.08	0.026

TABLE II. Density Effect Parameters for Compounds and Mixtures
See page 266 for Explanation of Tables

Material	Z/A	I (ev)	Density, ρ_0 (g/cm ³)	$h\nu_p$ (ev)	ρ	-C	X_0	X_1	a	m	Δ_{\max}
A-150 TISSUE-EQUIVALENT PLASTIC	0.54903	65.1	1.1270E+00	22.667	1.950	3.1100	0.1329	2.6234	0.10783	3.4442	0.048
ACETONE	0.55097	64.2	7.8990E-01	19.010	1.976	3.4341	0.2197	2.6928	0.11100	3.4047	0.069
ACETYLENE	0.53768	58.2	1.0967E-03	0.700	1.784	9.8419	1.6017	4.0074	0.12167	3.4277	0.080
ADENINE	0.51803	71.4	1.3500E+00	24.098	1.892	3.1724	0.1295	2.4219	0.20908	3.0271	0.052
ADIPOSE TISSUE (ICRP)	0.55847	63.2	9.2000E-01	20.655	1.987	3.2367	0.1827	2.6530	0.10278	3.4817	0.060
AIR, DRY (NEAR SEA LEVEL)	0.49919	85.7	1.2048E-03	0.707	2.054	10.5961	1.7418	4.2759	0.10914	3.3994	0.090
ALANINE	0.53876	71.9	1.4200E+00	25.204	2.074	3.0965	0.1354	2.6336	0.11484	3.3526	0.056
ALUMINUM OXIDE	0.49038	145.2	3.9700E+00	40.206	2.394	3.5682	0.0402	2.8665	0.08500	3.5458	0.031
AMBER	0.55178	63.2	1.1000E+00	22.450	1.946	3.0701	0.1335	2.5610	0.11934	3.4098	0.053
AMMONIA	0.58719	53.7	8.2602E-04	0.635	1.814	9.8763	1.6822	4.1158	0.08315	3.6464	0.102
ANILINE	0.53689	66.2	1.0235E+00	21.361	1.938	3.2622	0.1618	2.5805	0.13134	3.3434	0.052
ANTHRACENE	0.52740	69.5	1.2850E+00	23.704	1.954	3.1514	0.1146	2.5213	0.14677	3.2831	0.042
B-100 BONE-EQUIVALENT PLASTIC	0.52740	85.9	1.4500E+00	25.199	2.013	3.4528	0.1252	3.0420	0.05268	3.7365	0.043
BAKELITE	0.52792	72.4	1.1000E+00	23.408	2.046	3.2582	0.1471	2.6055	0.12713	3.3470	0.052
BARIUM FLUORIDE	0.42207	375.9	4.8900E+00	41.398	1.727	5.4122	-0.0098	3.3871	0.15991	2.8867	0.034
BARIUM SULFATE	0.44561	285.7	4.5000E+00	40.805	1.893	4.8923	-0.0128	3.4069	0.11747	3.0427	0.030
BENZENE	0.53768	63.4	8.7865E-01	19.806	1.873	3.3269	0.1710	2.5091	0.16519	3.2174	0.052
BERYLLIUM OXIDE	0.47978	93.2	3.0100E+00	34.629	2.296	2.9801	0.0241	2.5846	0.10755	3.4927	0.031
BISMUTH GERMANIUM OXIDE	0.42065	534.1	7.1300E+00	49.904	2.121	5.7409	0.0456	3.7816	0.09569	3.0781	0.023
BLOOD (ICRP)	0.54995	75.2	1.0600E+00	22.001	2.184	3.4581	0.2239	2.8017	0.08492	3.5406	0.088
BONE, COMPACT (ICRU)	0.53010	91.9	1.8500E+00	28.536	2.091	3.3390	0.0944	3.0201	0.05822	3.6419	0.042
BONE, CORTICAL (ICRP)	0.52130	106.4	1.8500E+00	28.298	2.118	3.6488	0.1161	3.0919	0.06198	3.5919	0.040
BORON CARBIDE	0.47058	84.7	2.5200E+00	31.380	2.140	2.9859	0.0093	2.1006	0.37087	2.8076	0.022
BORON OXIDE	0.48838	99.6	1.8120E+00	27.107	2.446	3.6027	0.1843	2.7379	0.11548	3.3832	0.053
BRAIN (ICRP)	0.55423	73.3	1.0300E+00	21.772	2.162	3.4279	0.2206	2.8021	0.08255	3.5585	0.086
BUTANE	0.58497	48.3	2.4934E-03	1.101	1.727	8.5633	1.3788	3.7524	0.10852	3.4884	0.100
N-BUTYL ALCOHOL	0.56663	59.9	8.0980E-01	19.520	1.942	3.2425	0.1937	2.6439	0.10081	3.5139	0.065
C-552 AIR-EQUIVALENT PLASTIC	0.49969	86.8	1.7600E+00	27.023	2.128	3.3338	0.1510	2.7083	0.10492	3.4344	0.053
CADMIUM TELLURIDE	0.41665	539.3	6.2000E+00	46.314	1.935	5.9096	0.0438	3.2836	0.24840	2.6665	0.057
CADMIUM TUNGSTATE	0.42747	468.3	7.9000E+00	52.954	2.289	5.3594	0.0123	3.5941	0.12861	2.9150	0.027
CALCIUM CARBONATE	0.49955	136.4	2.8000E+00	34.080	2.141	3.7738	0.0492	3.0549	0.08301	3.4120	0.037
CALCIUM FLUORIDE	0.48670	166.0	3.1800E+00	35.849	2.127	4.0653	0.0676	3.1683	0.06942	3.5263	0.044
CALCIUM OXIDE	0.49929	176.1	3.3000E+00	36.988	1.973	4.1209	-0.0172	3.0171	0.12128	3.1936	0.024
CALCIUM SULFATE	0.49950	152.3	2.9600E+00	35.038	2.179	3.9388	0.0587	3.1229	0.07708	3.4495	0.021
CALCIUM TUNGSTATE	0.43761	395.0	6.0620E+00	46.934	2.262	5.2603	0.0323	3.8932	0.06210	3.2649	0.021
CARBON DIOXIDE	0.49989	85.0	1.8421E-03	0.874	2.118	10.1537	1.6294	4.1825	0.11768	3.3227	0.091
CARBON TETRACHLORIDE	0.48107	166.3	1.5940E+00	25.234	1.742	4.7712	0.1773	2.9165	0.19018	3.0116	0.041
CELLULOSE ACETATE, CELLOPHANE	0.53040	77.6	1.4200E+00	25.008	2.170	3.2647	0.1580	2.6778	0.11151	3.3810	0.060
CELLULOSE ACETATE BUTYRATE	0.53279	74.6	1.2000E+00	23.041	2.128	3.3497	0.1794	2.6809	0.11444	3.3738	0.056
CELLULOSE NITRATE	0.51424	87.0	1.4900E+00	25.224	2.252	3.4762	0.1897	2.7253	0.11813	3.3237	0.063
CERIC SULFATE DOSIMETER SOLUTION	0.55278	76.7	1.0300E+00	21.743	2.205	3.5212	0.2363	2.8769	0.07666	3.5607	0.095
CESIUM FLUORIDE	0.42132	440.7	4.1150E+00	37.942	1.714	5.9046	0.0084	3.3374	0.22052	2.7280	0.044
CESIUM IODIDE	0.41569	553.1	4.5100E+00	39.455	1.672	6.2807	0.0395	3.3353	0.25381	2.6657	0.067
CHLOROBENZENE	0.51529	89.1	1.1058E+00	21.752	1.889	3.8201	0.1714	2.9272	0.09586	3.3797	0.031
CHLOROFORM	0.48585	156.0	1.4832E+00	24.462	1.734	4.7055	0.1786	2.9581	0.16959	3.0627	0.038
CONCRETE, PORTLAND	0.50274	135.2	2.3000E+00	30.986	2.322	3.9464	0.1301	3.0466	0.07515	3.5467	0.024
CYCLOHEXANE	0.57034	56.4	7.7900E-01	19.207	1.861	3.1544	0.1728	2.5549	0.12035	3.4278	0.057
1,2-DICHLOROBENZENE	0.50339	106.5	1.3048E+00	23.354	1.862	4.0348	0.1587	2.8276	0.16010	3.0836	0.029
DICHLORODIETHYL ETHER	0.51744	103.3	1.2199E+00	22.894	1.903	4.0135	0.1773	3.1586	0.06799	3.5250	0.026
1,2-DICHLOROETHANE	0.50526	111.9	1.2351E+00	22.764	1.618	4.1849	0.1375	2.9529	0.13383	3.1675	0.030
DIETHYL ETHER	0.56663	60.0	7.1378E-01	18.326	1.951	3.3721	0.2231	2.6745	0.10550	3.4586	0.070
N,N-DIMETHYL FORMAMIDE	0.54724	66.6	9.4870E-01	20.763	2.005	3.3311	0.1977	2.6686	0.11470	3.3710	0.065
DIMETHYL SULFOXIDE	0.53757	98.6	1.1014E+00	22.173	2.075	3.9844	0.2021	3.1263	0.06619	3.5708	0.030
ETHANE	0.59861	45.4	1.2532E-03	0.789	1.690	9.1043	1.5107	3.8743	0.09627	3.6095	0.097
ETHYL ALCOHOL	0.56437	62.9	7.8930E-01	19.232	2.013	3.3699	0.2218	2.7052	0.09878	3.4834	0.071
ETHYL CELLULOSE	0.54405	69.3	1.1300E+00	22.594	2.065	3.2415	0.1683	2.6527	0.11077	3.4098	0.057
ETHYLENE	0.57034	50.7	1.1750E-03	0.746	1.733	9.4380	1.5528	3.9327	0.10636	3.3387	0.085
EYE LENS (ICRP)	0.54877	73.3	1.1000E+00	22.388	2.154	3.3720	0.2070	2.7446	0.09690	3.4550	0.077
FERRIC OXIDE	0.47592	227.3	5.2000E+00	45.331	2.747	4.2245	-0.0074	3.2573	0.16478	3.1313	0.026
FERRBORIDE	0.46507	261.0	7.1500E+00	52.546	2.726	4.2057	-0.0988	3.1749	0.12911	3.0240	0.022
FERROUS OXIDE	0.47323	248.6	5.7000E+00	47.327	2.769	4.3175	-0.0279	3.2002	0.12959	3.0168	0.022
FERROUS SULFATE DOSIMETER SOLN.	0.55328	76.4	1.0240E+00	21.690	2.208	3.5183	0.2378	2.8254	0.08759	3.4923	0.096
FREON-12	0.47968	143.0	1.1200E+00	21.121	1.974	4.8251	0.3035	3.2659	0.07978	3.4626	0.025
FREON-12B2	0.44801	284.9	1.8000E+00	25.877	2.195	5.7976	0.3406	3.7956	0.05144	3.5565	0.021
FREON-13	0.47866	126.6	9.5000E-01	19.432	2.116	4.7483	0.3659	3.2337	0.07238	3.5551	0.050
FREON-13B1	0.45665	210.5	1.5000E+00	23.849	2.233	5.3555	0.3522	3.7554	0.03925	3.7194	0.036
FREON-1311	0.43897	293.5	1.8000E+00	25.615	1.924	5.8774	0.2847	3.7280	0.09112	3.1658	0.025
GADOLINIUM OXSULFIDE	0.42266	493.3	7.4400E+00	51.099	2.179	5.5347	-0.1774	3.4045	0.22161	2.6300	0.056
GALLIUM ARSENIDE	0.44247	384.9	5.3100E+00	44.170	2.652	5.3299	0.1764	3.6420	0.07152	3.3356	0.027
GEL IN PHOTOGRAPHIC EMULSION	0.53973	74.8	1.2914E+00	24.058	2.156	3.2687	0.1709	2.7058	0.10102	3.4418	0.060
GLASS, BOROSILICATE (PYREX)	0.49707	134.0	2.2300E+00	30.339	2.369	3.9708	0.1479	2.9933	0.08270	3.5224	0.022
GLASS, LEAD	0.42101	526.4	6.2200E+00	46.631	2.085	5.8476	0.0614	3.8146	0.09544	3.0740	0.025
GLASS, PLATE	0.49731	145.4	2.4000E+00	33.481	2.329	4.0602	0.1237	3.0649	0.07678	3.5381	0.025
GLUCOSE	0.53489	77.2	1.5400E+00	26.153	2.174	3.1649	0.1411	2.6700	0.10783	3.3946	0.061
GLUTAMINE	0.53371	73.3	1.4600E+00	25.437	2.077	3.1167	0.1347	2.6301	0.11931	3.3254	0.055
GLYCEROL	0.54292	72.6	1.2613E+00	23.846	2.120	3.2267	0.1653	2.6862	0.10168	3.4481	0.067
GUANINE	0.51612	75.0	1.5800E+00	26.022	1.970	3.1171	0.1163	2.4296	0.20530	3.0186	0.049
GYPSON, PLASTER OF PARIS	0.51113	129.7	2.3200E+00	31.379	2.187	3.8382	0.0995	3.1206	0.06949	3.5134	0.038
N-HEPTANE	0.57882	54.4	6.8376E-01	18.128	1.848	3.1978	0.1928	2.5706	0.11255	3.4885	0.059
N-HEXANE	0.58020	54.0	6.6030E-01	17.836	1.843	3.2156	0.1984	2.5757	0.11085	3.5027	0.061
"KAPTON" POLYIMIDE FILM	0.51264	79.6	1.4200E+00	24.586	2.109	3.3497	0.1509	2.5631	0.15972	3.1921	0.050
LANTHANUM OXYBROMIDE	0.42588	439.7	6.2800E+00	47.125	1.831	5.4666	-0.0350	3.3288	0.17830	2.8457	0.040
LANTHANUM OXSULFIDE	0.42348	456.2	5.8600E+00	45.394	1.681	5.6151	-0.0934	3.2741	0.22579	2.7075	0.065
LEAD OXIDE	0.40323	766.7	9.5300E+00	56.488	2.012	6.2162	0.0356	3.5456	0.19645	2.7299	0.039
LITHIUM AMIDE	0.52257	55.5	1.1780E+00	22.609	1.740	2.7961	0.0198	2.5152	0.08740	3.7534	0.050
LITHIUM CARBONATE	0.48720	87.9	2.1100E+00	29.217	2.246	3.2029	0.0551	2.6598	0.09936	3.5417	0.062
LITHIUM FLUORIDE	0.46262	94.0									

TABLE II. Density Effect Parameters for Compounds and Mixtures
See page 266 for Explanation of Tables

Material	Z/A	I (ev)	Density, ρ_0 (g/cm ³)	$h\nu_p$ (ev)	ρ	-C	X_0	X_1	a	m	Δ_{\max}
LITHIUM TETRABORATE	0.48487	94.6	2.4400E+00	31.343	2.360	3.2093	0.0737	2.6502	0.11075	3.4389	0.048
LUNG (ICRP)	0.54965	75.3	1.0500E+00	21.891	2.184	3.4708	0.2261	2.8001	0.08588	3.5353	0.089
M3 WAX	0.55512	67.9	1.0500E+00	22.000	1.975	3.2540	0.1523	2.7529	0.07864	3.6412	0.044
MAGNESIUM CARBONATE	0.49814	118.0	2.9580E+00	34.979	2.388	3.4319	0.0860	2.7997	0.09219	3.5003	0.045
MAGNESIUM FLUORIDE	0.48153	134.3	3.0000E+00	34.634	2.330	3.7105	0.1369	2.8630	0.07934	3.6485	0.085
MAGNESIUM OXIDE	0.49622	143.8	3.5800E+00	38.407	2.412	3.6404	0.0575	2.8580	0.08313	3.5968	0.055
MAGNESIUM TETRABORATE	0.49014	108.3	2.5300E+00	32.089	2.430	3.4328	0.1147	2.7635	0.09703	3.4893	0.044
MERCURIC IODIDE	0.40933	684.5	6.3600E+00	46.494	1.892	6.3787	0.1040	3.4728	0.21513	2.7264	0.047
METHANE	0.62334	41.7	6.6715E-04	0.588	1.662	9.5243	1.6263	3.9716	0.09253	3.6257	0.112
METHANOL	0.56176	67.6	7.9140E-01	19.214	2.125	3.5160	0.2529	2.7639	0.08970	3.5477	0.080
MIX D WAX	0.56479	60.9	9.9000E-01	21.547	1.905	3.0780	0.1371	2.7145	0.07490	3.6823	0.047
MS20 TISSUE SUBSTITUTE	0.53886	75.1	1.0000E+00	21.153	2.070	3.5341	0.1997	2.8033	0.08294	3.6061	0.053
MUSCLE, SKELETAL (ICRP)	0.54938	75.3	1.0400E+00	21.781	1.85	3.4809	0.2282	2.7999	0.08636	3.5330	0.089
MUSCLE, STRIATED (ICRU)	0.55005	74.7	1.0400E+00	21.795	2.174	3.4636	0.2249	2.8032	0.08507	3.5383	0.086
MUSCLE-EQUIV. LIQ., WITH SUCROSE	0.54828	74.3	1.1100E+00	22.480	2.169	3.3910	0.2098	2.7550	0.09481	3.4699	0.080
MUSCLE-EQUIV. LIQ., W/O SUCROSE	0.55014	74.2	1.0700E+00	22.109	2.173	3.4216	0.2187	2.7680	0.09143	3.4982	0.086
NAPHTHALENE	0.53053	68.4	1.1450E+00	22.459	1.956	3.2274	0.1374	2.5429	0.14766	3.2654	0.051
NITROBENZENE	0.51986	75.8	1.1987E+00	22.747	2.065	3.4073	0.1777	2.6630	0.12727	3.3091	0.051
NITROUS OXIDE	0.49985	84.9	1.8309E-03	0.872	2.059	10.1575	1.6477	4.1565	0.11192	3.3318	0.086
NYLON, DU PONT ELVAMIDE 8062	0.55063	64.3	1.0800E+00	22.221	1.967	3.1250	0.1503	2.6004	0.11513	3.4044	0.054
NYLON, TYPE 6 AND TYPE 6/6	0.54790	63.9	1.1400E+00	22.774	1.931	3.0634	0.1336	2.5834	0.11818	3.3826	0.051
NYLON, TYPE 6/10	0.55236	63.2	1.1400E+00	22.866	1.942	3.0333	0.1304	2.5681	0.11852	3.3912	0.050
NYLON, TYPE 11 ("RILSAN")	0.55649	61.6	1.4250E+00	25.661	1.902	2.7514	0.0678	2.4281	0.14868	3.2576	0.044
OCTANE, LIQUID	0.57778	54.7	7.0260E-01	18.360	1.851	3.1834	0.1882	2.5664	0.11387	3.4776	0.057
PARAFFIN WAX	0.57275	55.9	9.3000E-01	21.031	1.844	2.9551	0.1289	2.5084	0.12087	3.4288	0.052
N-PENTANE	0.58212	53.6	6.2620E-01	17.398	1.842	3.2504	0.2086	2.5855	0.10809	3.5265	0.064
PHOTOGRAPHIC EMULSION	0.45453	331.0	3.8150E+00	37.946	2.264	5.3319	0.1009	3.4866	0.12399	3.0094	0.028
PLASTIC SCINT. (VINYLTOLENE)	0.54141	64.7	1.0320E+00	21.540	1.929	3.1997	0.1464	2.4855	0.16101	3.2393	0.050
PLUTONIUM DIOXIDE	0.40583	746.5	1.1460E+01	62.143	1.846	5.9719	-0.2311	3.5554	0.20594	2.6522	0.111
POLYACRYLONITRILE	0.52767	69.6	1.1700E+00	22.642	1.955	3.2459	0.1504	2.5159	0.16275	3.1975	0.050
POLYCARBONATE (MAKROLON, LEXAN)	0.52697	73.1	1.2000E+00	22.915	2.060	3.3201	0.1606	2.6225	0.12860	3.3288	0.049
POLYCHLOROSTYRENE	0.52518	81.7	1.3000E+00	23.810	1.902	3.4659	0.1238	2.9241	0.07530	3.5441	0.029
POLYETHYLENE	0.57034	57.4	9.4000E-01	21.099	1.882	3.0016	0.1370	2.5177	0.12108	3.4292	0.051
POLYETHYLENE TEREPHTHALATE, MYLAR	0.52037	78.7	1.4000E+00	24.595	2.144	3.3262	0.1562	2.6507	0.12679	3.3076	0.052
POLYMETHYL METHACRYLATE (LUCITE)	0.53937	74.0	1.1900E+00	23.086	2.173	3.3297	0.1824	2.6681	0.11433	3.3836	0.056
POLYOXYMETHYLENE	0.53287	77.4	1.4250E+00	25.110	2.175	3.2514	0.1584	2.6838	0.10808	3.4002	0.063
POLYPROPYLENE	0.55998	59.2	9.0000E-01	20.457	1.884	3.1252	0.1534	2.4822	0.15045	3.2855	0.055
POLYSTYRENE	0.53768	68.7	1.0600E+00	21.754	2.027	3.2999	0.1647	2.5031	0.16454	3.2224	0.051
POLYTETRAFLUOROETHYLENE (TEFLON)	0.47992	99.1	2.2000E+00	29.609	2.142	3.4161	0.1648	2.7404	0.10606	3.4046	0.073
POLYTRIFLUOROCHLOROETHYLENE	0.48081	120.7	2.1000E+00	28.955	2.094	3.8551	0.1714	3.0265	0.07727	3.5085	0.035
POLYVINYL ACETATE	0.53432	73.7	1.1900E+00	22.978	2.116	3.3309	0.1769	2.6747	0.11442	3.3762	0.055
POLYVINYL ALCOHOL	0.54480	69.7	1.3000E+00	24.251	1.902	3.1115	0.1401	2.6315	0.11178	3.3893	0.056
POLYVINYL BUTYRAL	0.54537	67.2	1.1200E+00	22.521	2.021	3.1865	0.1555	2.6186	0.11544	3.3983	0.054
POLYVINYL CHLORIDE	0.51201	108.2	1.3000E+00	23.510	1.840	4.0532	0.1559	2.9415	0.12438	3.2104	0.027
POLYVINYLIDENE CHLORIDE, SARAN	0.49513	134.3	1.7000E+00	26.437	1.814	4.2506	0.1314	2.9009	0.15466	3.1020	0.034
POLYVINYLIDENE FLUORIDE	0.49973	88.8	1.7600E+00	27.024	2.160	3.3793	0.1717	2.7375	0.10316	3.4200	0.067
POLYVINYL PYRROLIDONE	0.53984	67.7	1.2500E+00	23.671	1.989	3.1017	0.1324	2.5867	0.12504	3.3326	0.051
POTASSIUM IODIDE	0.43373	431.9	3.1300E+00	33.575	1.784	6.1088	0.1044	3.3442	0.22053	2.7558	0.042
POTASSIUM OXIDE	0.48834	189.9	2.3200E+00	30.672	2.065	4.6463	0.0480	3.0110	0.16789	3.0121	0.027
PROPANE	0.58962	47.1	1.8794E-03	0.959	1.708	8.7878	1.4326	3.7998	0.09916	3.5920	0.093
PROPANE, LIQUID	0.58962	52.0	4.3000E-01	14.509	1.844	3.5529	0.2861	2.6568	0.10329	3.5620	0.068
N-PROPYL ALCOHOL	0.56577	61.1	8.0350E-01	19.429	1.972	3.2915	0.2046	2.6681	0.09644	3.5415	0.070
PYRIDINE	0.53096	66.2	9.8190E-01	20.807	1.895	3.3148	0.1670	2.5245	0.16399	3.1977	0.051
RUBBER, BUTYL	0.57034	56.5	9.2000E-01	20.873	1.852	2.9915	0.1347	2.5154	0.12108	3.4296	0.051
RUBBER, NATURAL	0.55785	59.8	9.2000E-01	20.644	1.889	3.1272	0.1512	2.4815	0.15058	3.2879	0.053
RUBBER, NEOPRENE	0.51956	93.0	1.2300E+00	23.036	1.874	3.7911	0.1501	2.9461	0.09763	3.3632	0.026
SILICON DIOXIDE	0.49930	139.2	2.3200E+00	31.014	2.335	4.0029	0.1385	3.0025	0.08408	3.5064	0.018
SILVER BROMIDE	0.43670	486.6	6.4730E+00	48.448	2.271	5.6139	0.0352	3.2109	0.24582	2.6820	0.043
SILVER CHLORIDE	0.44655	398.4	5.5600E+00	45.405	2.096	5.3437	-0.0139	3.2022	0.22968	2.7041	0.062
SILVER HALIDES IN PHOTO EMULSION	0.43663	487.1	6.4700E+00	48.433	2.270	5.6166	0.0353	3.2117	0.24593	2.6814	0.043
SILVER IODIDE	0.42594	543.5	6.0100E+00	46.105	1.945	5.9342	0.0148	3.2908	0.25059	2.6572	0.071
SKIN (ICRP)	0.54932	72.7	1.1000E+00	22.400	2.140	3.3546	0.2019	2.7526	0.09459	3.4643	0.076
SODIUM CARBONATE	0.49062	125.0	2.5320E+00	32.117	2.557	3.7178	0.1287	2.8591	0.08715	3.5638	0.074
SODIUM IODIDE	0.42697	452.0	3.6670E+00	36.057	1.857	6.0572	0.1203	3.5920	0.12516	3.0398	0.031
SODIUM MONOXIDE	0.48404	148.8	2.2700E+00	30.205	2.689	4.1892	0.1652	2.9793	0.07501	3.6943	0.097
SODIUM NITRATE	0.49415	114.6	2.2610E+00	30.459	2.456	3.6502	0.1534	2.8221	0.09391	3.5097	0.081
STILBENE	0.53260	67.7	9.7070E-01	20.719	1.963	3.3680	0.1734	2.5142	0.16659	3.2168	0.052
SUCROSE	0.53170	77.5	1.5805E+00	26.416	2.167	3.1526	0.1341	2.6558	0.11301	3.3630	0.057
TERPHENYL	0.52148	71.7	1.2340E+00	23.116	1.976	3.2639	0.1322	2.5429	0.14964	3.2685	0.043
TESTES (ICRP)	0.55108	75.0	1.0400E+00	21.815	2.185	3.4698	0.2274	2.7988	0.08533	3.5428	0.091
TETRACHLOROETHYLENE	0.48241	159.2	1.6250E+00	25.513	1.790	4.6619	0.1713	2.9083	0.18595	3.0156	0.038
THALLIUM CHLORIDE	0.40861	690.3	7.0040E+00	48.749	1.997	6.3009	0.0705	3.5716	0.18599	2.7690	0.040
TISSUE, SOFT (ICRP)	0.55121	72.3	1.0000E+00	21.394	2.144	3.4354	0.2211	2.7799	0.08926	3.5110	0.077
TISSUE, SOFT (ICRU FOUR-COMP.)	0.54975	74.9	1.0000E+00	21.366	2.192	3.5087	0.2377	2.7908	0.09629	3.4371	0.092
TISSUE-EQUIV. GAS (METHANE BASE)	0.54993	61.2	1.0641E-03	0.697	1.890	9.9500	1.6442	4.1399	0.09946	3.4708	0.098
TISSUE-EQUIV. GAS (PROPANE BASE)	0.55027	59.5	1.8263E-03	0.913	1.856	9.3529	1.5139	3.9916	0.09802	3.5159	0.092
TITANIUM DIOXIDE	0.47572	179.5	4.2600E+00	41.022	2.307	3.9522	-0.0119	3.1647	0.08569	3.3267	0.027
TOLUENE	0.54265	62.5	8.6690E-01	19.764	1.880	3.3026	0.1722	2.5728	0.13284	3.3558	0.052
TRICHLOROETHYLENE	0.48710	148.1	1.4600E+00	24.301	1.789	4.6148	0.1803	2.9140	0.18272	3.0137	0.036
TRIETHYL PHOSPHATE	0.53800	81.2	1.0700E+00	21.863	2.100	3.6242	0.2054	2.9428	0.06922	3.6302	0.049
TUNGSTEN HEXAFLUORIDE	0.42976	354.4	2.4000E+00	29.265	2.325	5.9881	0.3020	4.2602	0.03658	3.5134	0.055
URANIUM DICARBIDE	0.39687	752.0	1.1280E+01	60.969	1.703	6.0247	-0.2191	3.2508	0.21120	2.6577	0.120
URANIUM MONOCARBIDE	0.39194	862.0	1.3630E+01	66.602	1.680	6.1210	-0.2524	3.4941	0.22972	2.6169	0.132
URANIUM OXIDE	0.39996	720.6	1.0960E+01	60.332	1.760	5.9605	-0.1938	3.5292	0.20463	2.6711	0.098
UREA	0.53284	72.8	1.3230E+00	24.194	2.022	3.2032	0.1603	2.6525	0.11609	3.3461	0.06