Update for the Appendix I - Activity concentrations for materials that could be encountered at international borders
From: The trade in radioactive materials - potential problems and possible solutions, NORM-V Proceedings, IAEA, 2008, pp.437-453

Raw materials – part 1	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Baddeleyite	0.003	0.03	0.34	13	0.3	6
Basalt	0.07	2.4	0.005	0.043	0.003	0.06
Bastnasite	n/a		0.8	1.1	4.6	7.8
Bauxite (general)	0.01	0.6	0.1	9	0.013	2.3
Bauxite (Australia)	0.028		0.057	0.41	0.082	0.76
Bauxite (Brazil)	0.013		0.038	1.5	0.086	0.11
Bauxite (China)	0.091		0.37	0.5	0.42	
Bauxite (Egypt)	n/a		0.03	0.09	0.003	0.011
Bauxite (Guinea)	n/a		0.044	0.27	0.15	0.27
Bauxite (Guyana)	0.024		0.068	0.097	0.23	
Bauxite (Hungary)	0.01	0.082	0.13	0.79	0.12	0.47
Bauxite (India)	0.027		0.029	0.11	0.44	0.52
Beryllium ore concentrate	n/a		0.59		0.022	
Cassiterite	0.065		0.001		0.021	0.3
Clay	0.5		0.04		0.02	
Coal (Australia)	0.01	0.5	0.005	0.05	0.002	0.07
Coal (Brazil)	0.14	1.2	0.018	0.7	0.015	0.1
Coal (China)	0.031	0.11	0.015	0.036	0.008	0.067
Coal (Czech Republic)	0.01	0.078	0.015	0.062	0.01	0.025
Coal (EU)	0.001	0.3	0.007	0.185	0.003	0.022
Coal (Hungary)	n/a		0.3	0.9	n/a	

Raw materials – part 2	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Coal (India)	0.015	0.16	0.025	0.067	0.039	0.055
Coal (Poland)	0.08	0.785	0.039	0.086	0.011	0.159
Coal (Russia)	0.12		0.024	0.028	0.012	
Coal (Serbia)	n/a		0.003	1.1	0.002	0.027
Coal (South Africa)	0.028	0.33	0.005	0.056	0.005	0.033
Coal (Spain)	0.104	0.39	0.036	0.064	0.018	0.032
Coal (Turkey)	0.016	1.1	0.013	0.16	0.016	0.28
Coal (UK)	0.055	0.31	0.008	0.6	0.007	0.2
Coal (Ukraine)	n/a		0.018	0.107	n/a	
Coal (USA)	0.026	0.075	0.005	0.06	0.005	0.012
Coltan (columbite-tantalite ore)	0.258	0.436	0.482	0.973	0.021	0.091
Columbite	n/a		n/a		50	
Copper concentrate (China)	n/a		0.142	1.065	0.034	0.183
Copper concentrate (South Africa)	0.098	0.8	0.08	1.43	0.14	1.04
Copper concentrate (USA)	n/a		25	50	n/a	
Copper ore (general)	0.466		0.03	40	0.02	0.11
Copper ore (India)	0.054	0.49	0.14	4.6	0.019	0.048
Copper ore (Italy)	n/a		0.013	0.066	n/a	
Copper reverts (South Africa)	n/a		0.603	0.662	0.616	0.779
Corundum (China)	0.035		0.2	0.27	0.28	
Dolomite	n/a		0.022	0.002	n/a	
Garnet (Australia)	n/a		0.03	0.14	0.12	1.13
Garnet (Bangladesh)	n/a		4		7.9	

Raw materials – part 3	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Garnet (India)	0.006	0.012	0.014	0.15	0.05	0.35
Garnet (USA)	n/a		n/a		0.29	
Granite	0.05	11	0.016	0.65	0.008	0.49
Gold ore concentrate (Brazil)	n/a		0.114		0.049	
Gold ore concentrate (Finland)	n/a		54		n/a	
Gold ore (Ghana)	0.59	0.74	0.042	0.052	0.032	0.044
Granite	0.12	4	0.006	0.62	0.001	0.39
Graphite	0.018		0.024		n/a	
Gypsum (natural)	0.002	1.1	0.002	0.091	0.003	0.04
Heavy mineral sands concentrate (general)	n/a		0.1	2.1	0.3	8
Heavy mineral sands concentrate (Australia)	n/a		0.8	2.23	0.3	3
Heavy mineral sands concentrate (Bangladesh)	n/a		2.58		4.68	
Heavy mineral sands concentrate (Brazil)	n/a		2.1		7.58	
Heavy mineral sands concentrate (Vietnam)	n/a		10.2	13.7	0.68	1
Ilmenite (general)	0.005		0.002	1	0.003	4.1
Ilmenite (Australia)	0.01	0.03	0.064	2	0.031	0.4
Ilmenite (Bangladesh)	n/a		0.348		0.388	
Ilmenite (Brazil)	n/a		0.13		0.62	
Ilmenite (India)	0.005	0.14	0.016	0.44	0.06	2.2
Ilmenite (Kenya)	n/a		0.04	0.08	0.12	0.21
Ilmenite (Madagascar)	n/a		0.73		0.64	
Ilmenite (Malaysia)	n/a		0.7	8.2	0.5	10.5
Ilmenite rock (Russia)	n/a		0.001		0.001	

Raw materials – part 4	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Ilmenite (Senegal)	n/a		0.5	0.31	0.24	0.51
Ilmenite (Vietnam)	0.024	0.03	0.14	0.22	0.19	0.31
Ilmenite slag (upgraded ilmenite)	n/a		0.001	0.12	0.02	0.25
Iron ore	0.025	0.509	0.005	0.271	0.002	0.061
Kaolin (general)	0.211		0.065		0.028	
Kaolin (Egypt)	0.008	0.038	0.048	0.17	0.096	0.03
Kaolin (Iran)	1.2		0.25		0.21	
Kaolin (Turkey)	0.05	1.6	0.013	0.13	0.021	0.18
Kyanite	0.04	0.057	0.167	1.331	0.055	0.505
Lead-zinc ore	n/a		0.649		0.069	
Leucoxene (Australia)	n/a		0.12	1	0.3	5
Leucoxene (Thailand)	n/a		1		2.2	
Lignite (Greece)	0.025	0.23	0.029	1.3	0.001	0.058
Lignite (Spain)	0.082	0.11	0.012	0.063	0.01	0.019
Lignite (Turkey)	0.014	0.36	0.006	0.52	0.005	0.074
Limestone	0.035	0.7	0.004	0.2	0.002	0.053
Magnetite	n/a		0.14		0.11	
Manganese ore	0.001		0.004		0.005	
Marble	0.001	1.003	0.003	0.37	0.001	0.21
Mica	1.463	2.805	0.061	0.131	0.01	0.031
Molybdenum ore	0.001	0.058	0.003	0.068	0.001	0.01
Monazite (general)	n/a		6	175	37	800
Monazite (Australia)	n/a		6	60	24	280

Raw materials – part 5	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Monazite (Brazil)	n/a		22	40	210	240
Monazite (China)	n/a		40	70	7	350
Monazite (Egypt)	9.8	20	40	61	170	230
Monazite (India)	n/a		13	63	230	830
Monazite (Korea)	n/a		19	47	163	205
Monazite (Malaysia)	n/a		20	46	67	330
Monazite (Thailand)	n/a		29		260	
Monazite (USA)	n/a		16		120	140
Natural building stones	0.001	4	0.001	0.87	0.001	0.54
Niobium ore (Brazil)	n/a		0.805	4.55	0.904	7.8
Niobium-tantalum concentrate	n/a		4.476	70	2.015	8
Orange juice concentrate	0.3	3.7	n/a		n/a	
Peat	0.006	0.028	0.001	0.012	0.001	0.4
Phonolite (feldspar)	2.004		0.131		0.016	
Phonolite (pyroxenite), Kenya	1		0.17		0.16	
Phosphate rock (Algeria)	0.022		0.47	0.9	0.001	0.09
Phosphate ore (Australia)	n/a		0.18		0.02	
Phosphate ore (Brazil)	0.45	1.3	0.014	1.5	0.056	3.2
Phosphate ore (China)	0.001	0.4	0.02	2	0.002	0.11
Phosphate ore (Christmas Island)	n/a		0.3		0.007	
Phosphate ore (Cuba)	0.027	0.238	0.09	2.7	0.003	0.039
Phosphate ore and rock (Egypt)	0.019	0.59	0.29	1	0.003	0.04
Phosphate ore (Greece)	n/a		0.037	1.7	0.004	0.042

Raw materials – part 6	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Phosphate rock (India)	n/a		0.033	1.7	n/a	
Phosphate rock (Iran)	0.162	0.35	0.016	1.7	0.061	
Phosphate ore and rock (Israel)	n/a		1.3	2.6	0.006	0.016
Phosphate rock (Italy)	n/a		1.24	1.25	n/a	
Phosphate ore (Japan)	n/a		0.037		0.011	
Phosphate rock (Jordan)	0.008	0.5	0.47	1.9	0.004	0.08
Phosphate ore and rock (Morocco)	0.002	0.35	0.47	2.58	0.008	0.3
Phosphate ore (Nauru)	n/a		0.5	0.85	0.002	
Phosphate ore (Nigeria)	0.54		1		0.54	
Phosphate ore (Pakistan)	0.093	0.36	0.023	0.85	0.023	0.081
Phosphate ore (Palau)	n/a		0.35	0.38	0.003	0.005
Phosphate ore (Russia)	0.029	0.1	0.16	0.39	0.04	0.23
Phosphate rock (Senegal)	0.022		0.7	1.3	0.008	0.014
Phosphate ore and rock (South Africa)	n/a		0.11	0.2	0.28	0.61
Phosphate rock (Spain)	n/a		1.648	1.815	n/a	
Phosphate ore (Sudan)	0.01	0.36	0.15	15	0.001	0.02
Phosphate ore (Syria)	n/a		0.52	0.908	n/a	
Phosphate ore (Tanzania)	0.28		0.02	11	0.007	1.1
Phosphate ore (Togo)	n/a		1	2.3	0.03	1
Phosphate rock (Tunisia)	n/a		0.5	0.8	0.09	0.29
Phosphate rock (Ukraine)	n/a		0.07		0.1	
Phosphate ore (USA)	n/a		0.06	5	0.01	0.08
Pyrochlore (general)	n/a		6	10	7	80

Raw materials – part 7	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Pyrochlore concentrate (Brazil)	n/a		1.37	14.62	83	
Rare earth concentrate (general)	n/a		0.1	30	3	270
Rare earth concentrate (USA)	n/a		0.15		3.1	4.6
Rare earth ore (USA)	n/a		0.25	0.3	0.8	4
Rhyolite	0.065	2.4	0.008	0.13	0.025	0.12
Rutile – natural and synthetic (general)	n/a		0.1	1.24	0.06	2.9
Rutile (Australia)	0.11	0.33	0.12	0.64	0.12	1.4
Rutile synthetic (Australia, standard)	n/a		0.09	0.8	0.14	1.9
Rutile synthetic (Australia, SREP)	n/a		0.04	0.15	0.16	0.37
Rutile (Bangladesh)	n/a		5.9	7.4	9.3	14
Rutile (Brazil)	n/a		1.24		1.6	
Rutile (India)	0.003	0.12	0.094	1.2	0.08	0.15
Rutile (Iran)	0.3		0.64		0.19	
Rutile (Kenya)	n/a		0.37	0.48	0.08	1.9
Rutile (Senegal)	n/a		0.47		0.17	
Rutile (South Africa)	0.026	0.043	0.074	0.54	0.16	0.17
Rutile (Thailand)	n/a		0.9		0.4	
Sand and gravel	n/a		0.015		0.02	
Sandstone	0.04	1	0.02	0.07	0.02	0.07
Silica	0.021		0.02		0.09	
Sillimanite (India)	n/a		0.2	0.25	0.06	0.15
Silver ore	0.221		0.002		0.006	
Slate	0.43	1	0.046	0.07	0.04	0.07

Raw materials – part 8	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Spodumene lithium concentrate (Australia)	n/a		0.031	0.084	0.014	0.064
Talc	n/a		0.112		0.027	
Tantalum ore (general)	n/a		0.06		0.005	
Tantalite (Africa)	n/a		3.58	74.1	0.1	10.8
Tantalum concentrate (Australia)	n/a		0.332	11.554	0.35	0.79
Tantalum concentrate (Ethiopia)	n/a		53.81		0.515	
Tin ore	n/a		0.218	2	0.3	0.872
Tin by-product (amang), Malaysia	n/a		0.886	27	0.626	326.7
Tin oxide (Malaysia)	n/a		0.04		0.02	
Tuff	0.23	2.4	0.006	0.55	0.007	0.35
Vanadium ore (China)	n/a		1.036	12.2	1.501	27
Wollastonite	0.023		0.027		n/a	
Xenotime (Australia)	n/a		50		60	
Xenotime (Malaysia)	n/a		37	247	13	200
Zinc ore (Australia)	0.063		0.011	0.012	0.004	0.005
Zircon sand (general)	0	0.05	1	13.4	0.4	11
Zircon sand (Australia)	0.029	0.7	1	5.8	0.3	1.9
Zircon sand (Bangladesh)	n/a		6.4		1.3	
Zircon sand (Belgium)	0.077		3.1		0.57	
Zircon sand (Brazil)	n/a		2.3	500	0.5	6
Zircon sand (China)	2.2	2.3	14.4	14.7	8	8.2
Zircon sand (Egypt)	0.17	0.21	4.7	5.1	1.1	1.3
Zircon sand (France)	0.15	0.47	0.92	2	0.19	0.49

Raw materials – part 9	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Zircon sand (Germany)	0.065	0.42	2	4.1	0.23	0.62
Zircon sand (India)	0.13	0.16	1.6	6.3	0.38	2
Zircon sand (Iran)	1.3		13		1.3	
Zircon sand (Italy)	0.04	0.69	1.7	4.4	0.35	0.89
Zircon sand (Japan)	0.002	0.034	3.9	4.1	0.69	1.3
Zircon sand (Kenya)	n/a		3.2	3.67	0.52	0.62
Zicron sand (Madagascar)	n/a		12.77		0.42	
Zircon sand (Malaysia)	n/a		4.8	62	1	88
Zircon sand (Senegal)	n/a		2.29	7.84	0.4	2.25
Zircon sand (Slovakia)	n/a		4.1	6.5	0.55	
Zircon sand (Slovenia)	n/a		0.67	2.7	0.19	0.46
Zircon sand (South Africa)	0.058	0.74	2.8	7.8	0.45	1.4
Zircon sand (Spain)	0.1	0.11	2.9	3.8	0.59	0.61
Zircon sand (Sweden)	n/a		2.9		0.57	
Zircon sand (UK)	n/a		1.9	4.1	0.4	0.78
Zircon sand (Ukraine)	0.026	0.065	1.8	4.3	0.38	0.46
Zircon sand (USA)	n/a		1.9	4	0.1	0.6

Building materials & intermediate products – part 1	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Bricks (general)	0	1.2	0.014	2.893	0	0.649
Bricks (Azerbaijan)	0.2	0.7	0.014	0.152	0	0.067
Bricks (UK)	n/a		0.03	0.08	0.01	0.17
Bricks made from RE processing slag	n/a		0.051		0.212	
Cement (general)	0.04	0.523	0.002	0.2	0.01	0.33
Cement with 20% fly ash	0.18		0.055		0.04	
Cement with 20% blast furnace slag	0.219		0.02		0.038	
Cement with phosphogypsum	0.613	0.73	0.027	0.056	0.013	0.017
Cement with RE processing slag	n/a		0.02	0.08	0.24	0.33
Cement (Australia)	0.12		0.052		0.048	
Cement (Cameroon)	0.26	0.29	0.022	0.03	0.015	0.016
Cement (China)	0.14	0.34	0.029	0.076	0.019	0.087
Cement (Egypt)	0.02	0.7	0.02	0.15	0.01	0.17
Cement (Greece)	0.25	0.31	0.015	0.16	0.008	0.046
Cement (India)	0.013	0.43	0.007	0.15	0.01	0.058
Cement (Ireland)	0.066	0.25	0.027	0.11	0.003	0.015
Cement (Italy)	0.043		0.11	0.13	0.13	
Cement (Japan)	0.076	0.23	0.022	0.085	0.002	0.034
Cement (Jordan)	0.099	0.27	0.04	0.057	0.008	0.017
Cement (Malaysia)	0.082	0.38	0.024	0.07	0.016	0.025
Cement (Pakistan)	0.017	0.37	0.015	0.065	0.01	0.037
Cement (Qatar)	0.063	0.19	0.017	0.024	0.006	0.013
Cement (Romania)	0.21	0.63	0.004		0.016	
Cement (Saudi Arabia)	0.039	0.18	0.017	0.031	0.004	0.011

Building materials & intermediate products – part 2	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Cement (Turkey)	0.21	0.88	0.025	0.13	0.007	0.11
Cement (Zambia)	0.13		0.023		0.032	
Ceramic glaze (frit)	0.1	1.202	0.068	5.079	0.03	1.218
Ceramic glazes (zirconium)	0.266	1.202	0.068	5.079	0.03	1.218
Ceramic glazes (zinc)	1.261		0.026		0.011	
Ceramic tiles (general)	0.19	1	0.028	0.32	0.014	0.2
Ceramic tiles (coloured porcelain)	0.63	1	0.04	0.05	0.04	0.07
Ceramic tiles (glazed)	0.06	0.98	0.06	0.32	0.02	0.11
Ceramic tiles (porcelain)	0.52		0.05		0.06	
Ceramic tiles (unglazed)	0.39	0.98	0.03	0.08	0.04	0.07
Ceramic tiles (white porcelain)	0.53	1	0.18	0.25	0.04	0.09
Concrete	0.15	1.6	0.04	2.2	0.04	0.2
Concrete with 20% copper slag	n/a		0.14		0.035	
Coal ash (general)	0.69	0.44	0.1	0.3	0.1	0.12
Coal ash (Australia)	0.114	0.203	0.052	0.113	0.064	0.17
Coal ash (Bangladesh)	0.506	0.523	0.027	0.029	0.054	0.132
Coal ash (Canada)	0.2	0.25	0.091	0.092	0.058	0.061
Coal ash (China)	0.174	0.52	0.033	0.17	0.039	0.2
Coal ash (Colombia)	0.235		0.046	0.071	0.034	
Coal ash (Croatia)	0.066	0.19	0.069	0.32	0.033	0.22
Coal ash (Egypt)	0.04		0.025		0.01	
Coal ash (France)	0.17	1.7	0.054	0.246	0.066	0.173
Coal ash (Greece)	0.143	0.661	0.087	1.443	0.027	0.068

Building materials & intermediate products – part 3	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Coal ash (Hungary)	0.35		1	2.4	0.069	0.12
Coal ash (India)	0.088	0.84	0.037	0.12	0.024	0.29
Coal ash (Indonesia)	0.229		0.072	0.118	0.09	
Coal ash (Philippines)	0.2	0.4	0.06	0.27	0.06	0.16
Coal ash (Poland)	0.608	0.72	0.086	0.156	0.066	0.084
Coal ash (Romania)	0.62	0.73	0.11	0.12	0.077	0.097
Coal ash (Russia)	0.36	0.37	0.078	0.093	n/a	
Coal ash (Serbia)	0.067	0.49	0.021	0.27	0.029	0.12
Coal ash (South Africa)	0.122	0.15	0.027	0.149	0.034	0.172
Coal ash (Spain)	0.14	1.1	0.023	0.19	0.02	0.15
Coal ash (Syria)	n/a		0.019	0.14	0.008	0.042
Coal ash (Turkey)	0.28	0.63	0.22	0.58	0.07	0.21
Coal ash (UK)	n/a		0.043	0.11	0.019	0.094
Coal ash (Ukraine)	n/a		0.185		0.085	0.322
Coal ash (USA)	0.087	0.93	0.072	0.22	0.053	0.12
Coal sludge (Egypt)	1.1	18	2.2	20	1.2	11
Coal sludge (USA)	0.009	0.54	0.002	0.17	0.003	0.085
Lignite ash (Greece)	0.24	0.5	0.14	1.1	0.007	0.068
Lignite ash (Turkey)	0.009	0.023	0.15	0.78	0.041	0.93
Niobium slag (Brazil)	n/a		800	1200	1800	2200
Peat ash	0.008	0.19	0.026	0.17	0.002	0.011
Pyrochlore slag	n/a		17	140	190	800
Phosphogypsum (general)	0.12		1		0.3	

Building materials & intermediate products – part 4	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Phosphogypsum (Australia)	n/a		0.5		0.01	
Phosphogypsum (Belgium)	n/a		0.44	0.45	0.01	0.011
Phosphogypsum (Brazil)	0.004	0.081	0.018	728	0.008	0.35
Phosphogypsum (Canada)	n/a		0.9		0.001	
Phosphogypsum (Egypt)	0.016	0.24	0.009	0.75	0.019	0.03
Phosphogypsum (Finland)	n/a		0.18		0.012	
Phosphogypsum (France)	n/a		0.015		0.003	
Phosphogypsum (Germany)	n/a		0.6		0.005	
Phosphogypsum (Greece)	n/a		0.015	0.82	n/a	
Phosphogypsum (Hungary)	n/a		1.1		0.007	
Phosphogypsum (India)	0.007	0.049	0.009	0.94	0.005	0.014
Phosphogypsum (Iran)	n/a		0.12	0.44	n/a	
Phosphogypsum (Italy)	n/a		0.41	0.42	n/a	
Phosphogypsum (Jordan)	0.023	0.088	0.014	0.44	0.004	0.007
Phosphogypsum (Netherlands)	n/a		0.05	1.25	n/a	
Phosphogypsum (Nigeria)	0.2		0.34		0.004	
Phosphogypsum (Norway)	n/a		0.15	0.6	0.06	
Phosphogypsum (Pakistan)	0.081	0.3	0.006	0.012	0.006	0.025
Phosphogypsum (Russia)	n/a		0.02		0.06	
Phosphogypsum (Senegal)	0.019		0.6		0.003	
Phosphogypsum (South Africa)	n/a		0.01	0.33	0.01	0.59
Phosphogypsum (Spain)	0.01	0.36	0.013	1.22	0.008	0.14
Phosphogypsum (Sweden)	n/a		0.02		0.06	

Building materials & intermediate products – part 5	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Phosphogypsum (Tanzania)	n/a		0.085	3.2	0.1	0.14
Phosphogypsum (Thailand)	n/a		0.75		0.001	
Phosphogypsum (Tunisia)	0.013		0.03	0.22	0.01	0.02
Phosphogypsum (UK)	n/a		0.13	0.78	0.01	0.02
Phosphogypsum (USA)	0.005	0.019	0.01	2.1	0.003	0.01
Phosphogypsum board (general)	n/a		0	0.452	0	0.02
Phosphogypsum board (Japan)	0.024	0.059	0.41	1.2	0.016	0.14
Phosphoric acid (general)	n/a		1.2	1.5	n/a	
Phosphoric acid (Brazil)	0.003	0.045	0.003	0.38	0.003	0.39
Phosphoric acid (India)	n/a		0.004	2.6	n/a	
Phosphoric acid (Morocco)	0.015	0.029	0.002	1.9	n/a	
Phosphoric acid (Spain)	0.012	0.022	0.004	2.9	0.005	0.011
Slag wool (old insulation doors & bakery ovens)	n/a		3	5	10	15
Wall board (from natural gypsum)	0	0.19	0.02		0.01	

Other materials – part 1	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
RE compounds						
Abrasives from bastnasite	n/a		1	1.4	4.9	7.1
Cerium compounds (India)	n/a		n/a		0.15	6.4
Didymium carbonate (India)	n/a		n/a		2.3	
Feedstock for polishing powder and special glass	n/a		0.1	1	5	10
Gadolinium oxide	n/a		n/a		0.48	
Lanthanum oxide (India)	n/a		n/a		7.8	
Neodymium compounds (India)	n/a		n/a		0.15	2.3
Polishing powder product	n/a		0.025	1	1.25	7.1
Praseodymium oxide (India)	n/a		n/a		0.54	
Rare earth compounds, general (India)	n/a		n/a		1.2	7.8
Samarium-gadolinium concentrate	n/a		n/a		0.18	
Samarium oxide (India)	n/a		n/a		0.83	
Terbium oxide (India)	n/a		n/a		0.63	
Yttrium oxide (India)	n/a		n/a		0.33	0.53
Fertilisers						
Bony superphosphate	0.045		0.057		0.004	
Di-ammonium phosphate (DAP), general	0.048		0.02	2.3	0.015	0.018
DAP (Brazil)	n/a		0.01	1.4	0.03	0.12
DAP (Germany)	n/a		0.02	2.2	0.02	
DAP (Spain)	n/a		0.1	2.49	0.02	
DAP (USA)	n/a		0.02	2.6	n/a	
Di-calcium phosphate	0.005	0.028	0.002	1.138	0.037	0.157

Other materials – part 2	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Fertilisers						
Mono-ammonium phosphate (MAP) (Brazil)	n/a		0.01	1.85	0.04	0.25
MAP (Germany)	n/a		0.1	2	n/a	
MAP (Morocco)	0.028		2.741		0.009	
MAP (Russia)	0.037		0.041		0.014	
MAP (Spain)	n/a		0.03	2.96	0.026	
MAP, (USA)	n/a		0.03	2.6	0.06	0.07
Nitro phosphate fertiliser (Belgium)	n/a		0.1		n/a	
Nitro phosphate fertiliser (Germany)	n/a		0.3	0.4	n/a	
Nitro phosphate fertiliser (Italy)	n/a		0.12	0.37	n/a	
Nitro phosphate fertiliser (Pakistan)	n/a		0.39		n/a	
Nitro phosphate fertiliser (Romania)	n/a		0.26	0.36	n/a	
NPK (nitrogen/phosphate/potassium), general	3.413	9.969	0.001	0.47	0.001	0.015
NPK (Algeria)	n/a		0.13	1.28	0.12	0.13
NPK (Belgium)	n/a		0.21	0.47	0.015	
NPK (Brazil)	n/a		0.27	0.45	0.08	0.3
NPK (Germany)	n/a		0.27	0.44	0.015	
NPK (Saudi Arabia)	n/a		0.003	0.28	0.002	0.074
NPK (Spain)	n/a		0.01	1.24	0.004	0.03
NPK (Romania)	n/a		0.26		0.025	
Phosphate fertiliser (Brazil)	0.05	0.38	0.003	1.2	0.003	0.55
Phosphate fertiliser (Egypt)	0.003		0.3	0.47	0.024	
Phosphate fertiliser (Finland)	3.2		0.054	0.21	0.004	

Other materials – part 3	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Fertilisers						
Phosphate fertiliser (India)	0.004	0.067	0.049	0.36	n/a	
Phosphate fertiliser (Iran)	0.023	0.41	0.016	0.66	0.004	
Phosphate fertiliser (Italy)	2.2	5.2	0.19	2.6	0.005	0.24
Phosphate fertiliser (Japan)	n/a		0.48	1.3	0.004	0.063
Phosphate fertiliser (Jordan)	0.023	0.063	0.031	1.1	0.006	0.011
Phosphate fertiliser (Nigeria)	0.22	5.3	0.002	0.81	0.002	0.02
Phosphate fertiliser (Pakistan)	0.02	1	0.44	0.87	0.016	0.56
Phosphate fertiliser (Romania)	n/a		0.061	0.26	0.004	0.16
Phosphate fertiliser (Spain)	0.044	0.048	0.025	3	0.004	0.026
Phosphate fertiliser (Tanzania)	n/a		3.6	7	0.041	0.7
Phosphate fertiliser (Turkey)	n/a		0.87	1.8	0.016	0.046
Phosphate for animal feed (DCP)	n/a		0.03	2.3	n/a	
Phosphate for animal feed (MCP)	n/a		0.04	1.57	0.07	0.426
PK (phosphate/potassium)	n/a		0.37	0.41	0.015	0.02
Superphosphate (general)	n/a		0.52	1.1	0.015	0.044
Superphosphate (Belgium)	n/a		0.91	1.1	n/a	
Superphosphate (Brazil)	n/a		0.41	0.87	n/a	
Superphosphate (Germany)	n/a		0.52		n/a	
Superphosphate (Poland)	n/a		0.78	0.91	n/a	
Superphosphate (Russia)	n/a		0.11		n/a	
Superphosphate (USA)	n/a		0.74	0.79	n/a	
Triple superphosphate (TSP), general	0.053	0.092	0.08	2.16	0.007	0.048

Other materials – part 4	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Fertilisers						
Triple superphosphate (Brazil)	n/a		0.12	0.22	n/a	
Triple superphosphate (Germany)	n/a		0.23	0.8	n/a	
Triple superphosphate (Poland)	n/a		0.86	1.79	n/a	
Triple superphosphate (USA)	n/a		0.43	2.1	n/a	
Other materials						
Alumina	n/a		0.3	0.6	0.5	1.2
Barium sulphate (from niobium production)	n/a		0.042	26.25	0.001	0.043
Bentonite	0.145		0.304		0.159	
Copper bar/rod (South Africa)	0.5		1.51	1.68	0.5	
Iron oxide (from synthetic rutile production)	n/a		0.1	0.5	0.4	2.9
Non-magnetic fines (from synthetic rutile production)	n/a		1.3		4	
Refractory brick (general)	0.11		1.48	10	0.2	10
Refractory (Italy)	0.001	0.16	0.007	0.49	0.001	0.42
Refractory (Japan)	0.008	0.065	1.5	5.8	0.34	1.5
Ship bottom paint (Japan)	0		12		81	
Silica fume (from zirconia production)	n/a		1.5		0.6	
Titanium dioxide pigment	0.005	0.013	0.024	0.22	0.02	0.35
Thorium-magnesium alloy (aircraft engines)	n/a		n/a		150	
Thoriated tungsten electrodes	n/a		n/a		7.03	170.31
Zirconia (general)	0.2	0.4	0.95	10	0.31	6
Zirconia (CaO stabilised)	n/a		4.8	4.9	0.81	0.83

Other materials – part 5	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Other materials						
Zirconia (unstabilised)	n/a		5.2		0.89	
Slags / scales / scrap metal						
Filter cloth - Ti pigment production	n/a		23	430	40	780
Furnace slag - copper smelting	n/a		0.4	2	n/a	
Furnace slag - iron production	0.005	0.035	0.009	0.15	0.004	0.23
Furnace slag - niobium production	n/a		5.16	34.819	16.7	120
Furnace slag - tantalum production	n/a		2.4	79.5	0.12	27.5
Furnace slag - thermal phosphorus production	n/a		0.5	1.9	n/a	
Funace slag - tin smelting	n/a		1		0.07	15
Scrap - aluminium industry	0.047	0.21	0.004	1.7	0.005	1.1
Scrap - geothermal energy	n/a		3.55	4.88	0.93	3.44
Scrap - niobium production	n/a		200	500		
Scrap - oil & gas production (scale & sludge)	0.032	140	0.09	4000	0.008	1600
Scrap - phosphate fertiliser production	0.56		0.002	76	0.021	3.2
Scrap - phosphoric acid production (scale)	n/a		0.03	4000	n/a	
Scrap - rare earths production	n/a		n/a		0.6	10000
Scrap - tantalum smelting	n/a		200	7000	89	340
Scrap - titanium pigment production (scale & sludge)	n/a		1	1600	18	1500
Scrap - water treatment	n/a		0.1	14	n/a	
Scrap - zircon chemical processing	n/a		5000		n/a	
Tailings - copper processing	n/a		0.92	0.97	0.91	1.14

Consumer goods with added radionuclides	^{40}K		^{226}Ra (^{238}U)		^{232}Th (^{228}Ra)	
	MIN	MAX	MIN	MAX	MIN	MAX
Bedding linen (Japan)	0		0.043	0.26	0.01	2.3
Belly band (Japan)	0		0.94	5.4	8.5	34
Car exhaust smell elimination agent (Japan)	0		2.2	3.3	15.5	210
Cosmetic cream (Japan)	0		0.5		2	
Cosmetic gel (Japan)	0		0.5	1	0.05	4.3
Cosmetics powder (Japan)	0		0.85		6.1	
Cosmetic soap (Japan)	0		0.22		2.3	
Domestic hot spring machine element (Japan)	0		10	34	81	270
Fuel efficiency improvement agent (Japan)	0.001	0.19	0.67	19.1	0.001	0.13
Insole insert (Japan)	0		0.046	0.42	0.23	2.8
"Minus ion" sticker (Japan, for cigarette packets)	0		0.67		5.4	
Radon bath additive (Korea)	0		0.01		0.034	
Shoe deodoriser (japan)	0		0.003	6.8	0.017	45.9
Socks (Japan)	0		0.7		6.2	
Sunglasses (pink tinted) with cerium oxide	n/a		n/a		1.8	
Undershirt (Japan)	0		1		8.8	
Wallpaper (Japan)	0		0.01	0.57	0.022	0.16
Wallpaper glue (Japan)	0		0.58		3.1	
Water purification agent for car wash (Japan)	0.25	0.29	1.9	2.1	0.053	0.059
Wristband/bracelet (Japan)	0		0.088	11	0.093	71