

Nuclear Regulatory Commission

§ 30.71

[See footnotes at end of this table]

Element (atomic number)	Isotope	Col. I	Col. II
		Gas concentration μCi/ml ¹	Liquid and solid concentration μCi/ ml ²
Terbium (65)	Te 132 .....	.....	3×10 ⁻⁴
Terbium (65)	Tb 160 .....	.....	4×10 ⁻⁴
Thallium (81)	Tl 200 .....	.....	4×10 ⁻³
Thallium (81)	Tl 201 .....	.....	3×10 ⁻³
Thallium (81)	Tl 202 .....	.....	1×10 ⁻³
Thallium (81)	Tl 204 .....	.....	1×10 ⁻³
Thulium (69)	Tm 170 .....	.....	5×10 ⁻⁴
Thulium (69)	Tm 171 .....	.....	5×10 ⁻³
Tin (50)	Sn 113 .....	.....	9×10 ⁻⁴
Tin (50)	Sn 125 .....	.....	2×10 ⁻⁴
Tungsten (Wolfram) (74)	W 181 .....	.....	4×10 ⁻³
Tungsten (Wolfram) (74)	W 187 .....	.....	7×10 ⁻⁴
Vanadium (23)	V 48 .....	.....	3×10 ⁻⁴
Xenon (54)	Xe 131m	4×10 ⁻⁶.	.....
Xenon (54)	Xe 133	3×10 ⁻⁶.	.....
Xenon (54)	Xe 135	1×10 ⁻⁶.	.....
Ytterbium (70)	Yb 175 .....	.....	1×10 ⁻³
Yttrium (39)	Y 90 .....	.....	2×10 ⁻⁴
Yttrium (39)	Y 91m .....	.....	3×10 ⁻²
Yttrium (39)	Y 91 .....	.....	3×10 ⁻⁴
Yttrium (39)	Y 92 .....	.....	6×10 ⁻⁴
Yttrium (39)	Y 93 .....	.....	3×10 ⁻⁴
Zinc (30)	Zn 65 .....	.....	1×10 ⁻³
Zinc (30)	Zn 69m .....	.....	7×10 ⁻⁴
Zinc (30)	Zn 69 .....	.....	2×10 ⁻²
Zirconium (40)	Zr 95 .....	.....	6×10 ⁻⁴
Zirconium (40)	Zr 97 .....	.....	2×10 ⁻⁴
Beta and/or gamma emitting byproduct material not listed above with half-life less than 3 years.	.....	1×10 ⁻¹⁰	1×10 ⁻⁶

Footnotes to Schedule A:

¹Values are given only for those materials normally used as gases.

²μCi/gm for solids.

NOTE 1: Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in Schedule A, the activity stated is that of the parent isotope and takes into account the daughters.

NOTE 2: For purposes of § 30.14 where there is involved a combination of isotopes, the limit for the combination should be derived as follows:

Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration established in Schedule A for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

Example:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} \leq 1$$

[30 FR 8185, June 26, 1965, as amended at 35 FR 3982, Mar. 3, 1970; 38 FR 29314, Oct. 24, 1973; 59 FR 5520, Feb. 7, 1994]

§ 30.71 Schedule B.

Byproduct material	Microcuries	Byproduct material	Microcuries
Antimony 122 (Sb 122)	100	Cadmium 115 (Cd 115)	100
Antimony 124 (Sb 124)	10	Calcium 45 (Ca 45)	10
Antimony 125 (Sb 125)	10	Calcium 47 (Ca 47)	10
Arsenic 73 (As 73)	100	Carbon 14 (C 14)	100
Arsenic 74 (As 74)	10	Cerium 141 (Ce 141)	100
Arsenic 76 (As 76)	10	Cerium 143 (Ce 143)	100
Arsenic 77 (As 77)	100	Cerium 144 (Ce 144)	1
Barium 131 (Ba 131)	10	Cesium 131 (Cs 131)	1,000
Barium 133 (Ba 133)	10	Cesium 134m (Cs 134m)	100
Barium 140 (Ba 140)	10	Cesium 134 (Cs 134)	1
Bismuth 210 (Bi 210)	10	Cesium 135 (Cs 135)	10
Bromine 82 (Br 82)	10	Cesium 136 (Cs 136)	10
Cadmium 109 (Cd 109)	10	Cesium 137 (Cs 137)	10
Cadmium 115m (Cd 115m)	10	Chlorine 36 (Cl 36)	10
		Chlorine 38 (Cl 38)	10
		Chromium 51 (Cr 51)	1,000
		Cobalt 58m (Co 58m)	10

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Byproduct material	Microcuries	Byproduct material	Microcuries
Cobalt 58 (Co 58)	10	Rhenium 186 (Re 186)	100
Cobalt 60 (Co 60)	1	Rhenium 188 (Re 188)	100
Copper 64 (Cu 64)	100	Rhodium 103m (Rh 103m)	100
Dysprosium 165 (Dy 165)	10	Rhodium 105 (Rh 105)	100
Dysprosium 166 (Dy 166)	100	Rubidium 86 (Rb 86)	10
Erbium 169 (Er 169)	100	Rubidium 87 (Rb 87)	10
Erbium 171 (Er 171)	100	Ruthenium 97 (Ru 97)	100
Europium 152 9.2 h (Eu 152 9.2 h)	100	Ruthenium 103 (Ru 103)	10
Europium 152 13 yr (Eu 152 13 yr)	1	Ruthenium 105 (Ru 105)	10
Europium 154 (Eu 154)	1	Ruthenium 106 (Ru 106)	1
Europium 155 (Eu 155)	10	Samarium 151 (Sm 151)	10
Fluorine 18 (F 18)	1,000	Samarium 153 (Sm 153)	100
Gadolinium 153 (Gd 153)	10	Scandium 46 (Sc 46)	10
Gadolinium 159 (Gd 159)	100	Scandium 47 (Sc 47)	100
Gallium 72 (Ga 72)	10	Scandium 48 (Sc 48)	10
Germanium 71 (Ge 71)	100	Selenium 75 (Se 75)	10
Gold 198 (Au 198)	100	Silicon 31 (Si 31)	100
Gold 199 (Au 199)	100	Silver 105 (Ag 105)	10
Hafnium 181 (Hf 181)	10	Silver 110m (Ag 110m)	1
Holmium 166 (Ho 166)	100	Silver 111 (Ag 111)	100
Hydrogen 3 (H 3)	1,000	Sodium 24 (Na 24)	10
Indium 113m (In 113m)	100	Strontium 85 (Sr 85)	10
Indium 114m (In 114m)	10	Strontium 89 (Sr 89)	1
Indium 115m (In 115m)	100	Strontium 90 (Sr 90)	0.1
Indium 115 (In 115)	10	Strontium 91 (Sr 91)	10
Iodine 125 (I 125)	1	Strontium 92 (Sr 92)	10
Iodine 126 (I 126)	1	Sulphur 35 (S 35)	100
Iodine 129 (I 129)	0.1	Tantalum 182 (Ta 182)	10
Iodine 131 (I 131)	1	Technetium 96 (Tc 96)	10
Iodine 132 (I 132)	10	Technetium 97m (Tc 97m)	100
Iodine 133 (I 133)	100	Technetium 97 (Tc 97)	100
Iodine 134 (I 134)	10	Technetium 99m (Tc 99m)	100
Iodine 135 (I 135)	10	Technetium 99 (Tc 99)	10
Iridium 192 (Ir 192)	10	Tellurium 125m (Te 125m)	10
Iridium 194 (Ir 194)	100	Tellurium 127m (Te 127m)	10
Iron 55 (Fe 55)	100	Tellurium 127 (Te 127)	100
Iron 59 (Fe 59)	10	Tellurium 129m (Te 129m)	10
Krypton 85 (Kr 85)	100	Tellurium 129 (Te 129)	100
Krypton 87 (Kr 87)	10	Tellurium 131m (Te 131m)	10
Lanthanum 140 (La 140)	10	Tellurium 132 (Te 132)	10
Lutetium 177 (Lu 177)	100	Terbium 160 (Tb 160)	10
Manganese 52 (Mn 52)	10	Thallium 200 (Tl 200)	100
Manganese 54 (Mn 54)	10	Thallium 201 (Tl 201)	100
Manganese 56 (Mn 56)	10	Thallium 202 (Tl 202)	100
Mercury 197m (Hg 197m)	100	Thallium 204 (Tl 204)	10
Mercury 197 (Hg 197)	100	Thulium 170 (Tm 170)	10
Mercury 203 (Hg 203)	10	Thulium 171 (Tm 171)	10
Molybdenum 99 (Mo 99)	100	Tin 113 (Sn 113)	10
Neodymium 147 (Nd 147)	100	Tin 125 (Sn 125)	10
Neodymium 149 (Nd 149)	100	Tungsten 181 (W 181)	10
Nickel 59 (Ni 59)	100	Tungsten 185 (W 185)	10
Nickel 63 (Ni 63)	100	Tungsten 187 (W 187)	100
Nickel 65 (Ni 65)	100	Vanadium 48 (V 48)	10
Niobium 93m (Nb 93m)	10	Xenon 131m (Xe 131m)	1,000
Niobium 95 (Nb 95)	10	Xenon 133 (Xe 133)	100
Niobium 97 (Nb 97)	10	Xenon 135 (Xe 135)	100
Osmium 185 (Os 185)	10	Ytterbium 175 (Yb 175)	100
Osmium 191m (Os 191m)	100	Yttrium 90 (Y 90)	10
Osmium 191 (Os 191)	100	Yttrium 91 (Y 91)	10
Osmium 193 (Os 193)	100	Yttrium 92 (Y 92)	100
Palladium 103 (Pd 103)	100	Yttrium 93 (Y 93)	100
Palladium 109 (Pd 109)	100	Zinc 65 (Zn 65)	10
Phosphorus 32 (P 32)	100	Zinc 69m (Zn 69m)	100
Platinum 191 (Pt 191)	100	Zinc 69 (Zn 69)	1,000
Platinum 193m (Pt 193m)	100	Zirconium 93 (Zr 93)	10
Platinum 193 (Pt 193)	100	Zirconium 95 (Zr 95)	10
Platinum 197m (Pt 197m)	100	Zirconium 97 (Zr 97)	10
Platinum 197 (Pt 197)	100	Any byproduct material not listed above other than alpha emitting byproduct material	0.1
Polonium 210 (Po 210)	0.1		
Potassium 42 (K 42)	10		
Praseodymium 142 (Pr 142)	100		
Praseodymium 143 (Pr 143)	100		
Promethium 147 (Pm 147)	10		
Promethium 149 (Pm 149)	10		