10A NCAC 15 .0303 EXEMPT CONCENTRATIONS: OTHER THAN SOURCE MATERIAL

(a) No person shall introduce radioactive material into a product or material knowing or having reason to believe that it will be transferred to persons exempt under Paragraph (d) of this Rule or equivalent regulations of the U.S. Nuclear Regulatory Commission or any agreement state, except in accordance with a specific license issued by the Nuclear Regulatory Commission pursuant to 10 CFR 32.11.

(b) A manufacturer, processor, or producer of a product or material is exempt from the requirements for a license set forth in the rules of this Section to the extent that this person transfers radioactive material contained in a product or material in concentrations not in excess of those specified in Paragraph (d) of this Rule, and introduced into the product or material by a licensee holding a specific license issued by the U.S. Nuclear Regulatory Commission expressly authorizing such introduction. This exemption does not apply to the transfer of byproduct material contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being.

(c) This Rule shall not be deemed to authorize the import of radioactive material or products containing radioactive material.

(d) Except as provided in Paragraph (a) and (b) of this Rule, any person is exempt from these Rules to the extent that such person receives, possesses, uses, transfers, owns, or acquires products or materials containing radioactive material in concentrations not in excess of those listed in the following table:

EXEMPT CONCENTRATIONS

Element (atomic number)	Isotope	Column I Gas concentration microcurie/ml	Column II Liquid and solid concentration microcurie/ml
Antimony (51)	Sb 122		$3X10^{-4}$
	Sb 124		$2X10^{-4}$
	Sb 125		$1X10^{-3}$
Argon (18)	Ar 37	$1X10^{-3}$	
	Ar 41	$4X10^{-7}$	
Arsenic (33)	As 73		$5X10^{-3}$
	As 74		$5X10^{-4}$
	As 76		$2X10^{-4}$
	As 77		$8X10^{-4}$
Barium (56)	Ba 131		$2X10^{-3}$
	Ba 140		$3X10^{-4}$
Beryllium (4)	Be 7		$2X10^{-2}$
Bismuth (83)	Bi 206		$4X10^{-4}$
Bromine (35)	Br 82	$4X10^{-7}$	$3X10^{-3}$
Cadmium (48)	Cd 109		$2X10^{-3}$
	Cd 115m		$3X10^{-4}$
	Cd 115		$3X10^{-4}$
Calcium (20)	Ca 45		$9X10^{-5}$
	Ca 47		$5X10^{-4}$
Carbon (6)	C 14	$1X10^{-6}$	$8X10^{-3}$
Cerium (58)	Ce 141		$9X10^{-4}$
	Ce 143		$4X10^{-4}$
	Ce 144		$1X10^{-4}$
Cesium (55)	Cs 131		$2X10^{-2}$
	Cs 134m		$6X10^{-2}$
	Cs 134		$9X10^{-5}$
Chlorine (17)	Cl 38	$9X10^{-7}$	$4X10^{-3}$
Chromium (24)	Cr 51		$2X10^{-2}$
Cobalt (27)	Co 57		$5X10^{-3}$
	Co 58		$1X10^{-3}$

	Co 60		$5X10^{-4}$
Copper (29)	Cu 64		$3X10^{-3}$
Dysprosium (66)	Dy 165		$4X10^{-3}$
	Dy 166		$4X10^{-4}$
Erbium (68)	Er 169		$9X10^{-4}$
	Er 171		$1X10^{-3}$
Europium (63)	Eu 152		$6X10^{-4}$
	(Half-life =9.2 Hrs.)		
	Eu 155		$2X10^{-3}$
Fluorine (9)	F 18	$2X10^{-6}$	$8X10^{-3}$
Gadolinium (64)	Gd 153		$2X10^{-3}$
	Gd 159		$8X10^{-4}$
Gallium (31)	Ga 72		$4X10^{-4}$
Germanium (32)	Ge 71		$2X10^{-2}$
Gold (79)	Au 196		$2X10^{-3}$
	Au 198		$5X10^{-4}$
	Au 199		$2X10^{-3}$
Hafnium (72)	Hf 181		$7X10^{-4}$
Hydrogen (1)	H 3	$5X10^{-6}$	$3X10^{-2}$
Indium (49)	In 113m		$1X10^{-2}$
	In 114m		$2X10^{-4}$
Iodine (53)	I 126	$3X10^{-9}$	$2X10^{-5}$
	I 131	$3X10^{-9}$	$2X10^{-5}$
	I 132	$8X10^{-8}$	$6X10^{-4}$
	I 133	$1X10^{-8}$	$7X10^{-5}$
	I 134	$2X10^{-7}$	$1X10^{-3}$
Iridium (77)	Ir 190		$2X10^{-3}$
	Ir 192		$4X10^{-4}$
	Ir 194		$3X10^{-4}$
Iron (26)	Fe 55		$8X10^{-3}$
	Fe 59		$6X10^{-4}$
Krypton (36)	Kr 85m	$1X10^{-6}$	
	Kr 85	$3X10^{-6}$	
Lanthanum (57)	La 140		$2X10^{-4}$
Lead (82)	Pb 203		$4X10^{-3}$
Lutetium (71)	Lu 177		$1X10^{-3}$
Manganese (25)	Mn 52		$3X10^{-4}$
	Mn 54		$1X10^{-3}$
	Mn 56		$1X10^{-3}$
Mercury (80)	Hg 197m		$2X10^{-3}$
	Hg 197		$3X10^{-3}$
	Hg 203		$2X10^{-4}$
Molybdenum (42)	Mo 99		$2X10^{-3}$
Neodymium (60)	Nd 147		$6X10^{-4}$
	Nd 149		$3X10^{-3}$
Nickel (28)	Ni 65		$1X10^{-3}$
Niobium (Columbium)(41)	Nb 95		$1X10^{-3}$
	Nb 97		$9X10^{-3}$
Osmium (76)	Os 185		$7X10^{-4}$
	Os 191m		$3X10^{-2}$
	Os 191		$2X10^{-3}$
	Os 193		$6X10^{-4}$
Palladium (46)	Pd 103		$3X10^{-3}$
	Pd 109		$9X10^{-4}$
Phosphorus (15)	P 32		$2X10^{-4}$
Platinum (78)	Pt 191		$1X10^{-3}$

	Pt 193m		$1X10^{-2}$
	Pt 197m		$1X10^{-2}$
	Pt 197		$1X10^{-3}$
Potassium (19)	K 42		$3X10^{-3}$
Praseodymium (59)	Pr 142		$3X10^{-4}$
	Pr 143		$5X10^{-4}$
Promethium (61)	Pm 147		$2X10^{-3}$
	Pm 149		$4X10^{-4}$
Rhenium (75)	Re 183		$6X10^{-3}$
	Re 186		$9X10^{-4}$
	Re 188		$6X10^{-4}$
Rhodium (45)	Rh 103m		$1X10^{-1}$
	Rh 105		$1X10^{-3}$
Rubidium (37)	Rb 86		$7X10^{-4}$
Ruthenium (44)	Ru 97		$4X10^{-4}$
	Ru 103		$8X10^{-4}$
	Ru 105		$1X10^{-3}$
	Ru 106		$1X10^{-4}$
Samarium (62)	Sm 153		$8X10^{-4}$
Scandium (21)	Sc 46		$4X10^{-4}$
	Sc 47		$9X10^{-4}$
	Sc 48		$3X10^{-4}$
Selenium (34)	Se 75		$3X10^{-3}$
Silicon (14)	Si 31		$9X10^{-3}$
Silver (47)	Ag 105		$1X10^{-3}$
	Ag 110m		$3X10^{-4}$
	Ag 111		$4X10^{-4}$
Sodium (11)	Na 24		$2X10^{-3}$
Strontium (38)	Sr 85		$1X10^{-4}$
	Sr 89		$1X10^{-4}$
	Sr 91		$7X10^{-4}$
	Sr 92		$7X10^{-4}$
Sulfur (16)	S 35	$9X10^{-8}$	$6X10^{-4}$
Tantalum (73)	Ta 182		$4X10^{-4}$
Technetium (43)	Tc 96m		$1X10^{-1}$
	Tc 96		$1X10^{-3}$
Tellurium (52)	Te 125m		$2X10^{-3}$
	Te 127m		$6X10^{-4}$
	Te 127		$3X10^{-3}$
	Te 129m		$3X10^{-4}$
	Te 131m		$6X10^{-4}$
	Te 132		$3X10^{-4}$
Terbium (65)	Tb 160		$4X10^{-4}$
Thallium (81)	Tl 200		$4X10^{-3}$
	Tl 201		$3X10^{-3}$
	Tl 202		$1X10^{-3}$
	Tl 204		$1X10^{-3}$
Thulium (69)	Tm 170		$5X10^{-4}$
	Tm 171		$5X10^{-3}$
Tin (50)	Sn 113		$9X10^{-4}$
	Sn 125		$2X10^{-4}$
Tungsten (Wolfram) (74)	W 181		$4X10^{-3}$
	W 187		$7X10^{-4}$
Vanadium (23)	V 48		$3X10^{-4}$
Xenon (54)	Xe 131m	$4X10^{-6}$	
	Xe 133	$3X10^{-6}$	

	Xe 135	$1X10^{-6}$	
Ytterbium (70)	Yb 175		$1X10^{-3}$
Yttrium (39)	Y 90		$2X10^{-4}$
	Y 91m		$3X10^{-2}$
	Y 91		$3X10^{-4}$
	Y 92		$6X10^{-4}$
	Y 93		$3X10^{-4}$
Zinc (30)	Zn 65		$1X10^{-3}$
	Zn 69m		$7X10^{-4}$
	Zn 69		$2X10^{-2}$
Zirconium (40)	Zr 95		$6X10^{-4}$
	Zr 97		$2X10^{-4}$
Beta or gamma emitting radioactive material not listed above with half-life less than 3 years		$1X10^{-10}$	$1X10^{-6}$

(e) In Column I of the table, in Paragraph (d) of this Rule, values are given only for those materials normally used as gases.
(f) In Column II of the table, in Paragraph (d) of this Rule, the units, microcuries per gram, are used for solids.
(g) Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in Paragraph (d) of this Rule, the activity stated is that of the parent isotope and takes into account the daughters.
(h) For purposes of this Rule, where a combination of isotopes is involved, the limit for the combination shall 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 Paragraph (d) of this Rule for the specific isotope when not in combination. The sum of the ratios shall not exceed unity. An example of this is:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} \text{ less than or equal to 1}$$

History Note: *Authority G.S. 104E-7; 104E-10; 104E-20; 10 CFR 30.70;*
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