

LABORATORY CLASSIFICATION TABLE

RADIONUCLIDES CLASSIFIED ACCORDING TO RELATIVE RADIOTOXICITY PER UNIT ACTIVITY*

Group I: Very high radiotoxicity

210Pb	226Ra	227Th	231Pa	233U	238Pu	241Pu	243Am	244Cm	249Cf
210Po	228Ra	228Th	230U	234U	239Pu	242Pu	242Cm	245Cm	250Cf
223Ra	227Ac	230Th	232U	237Np	240Pu	241Am	243Cm	246Cm	252Cf

Group II: High radiotoxicity

22Na	56Co	95Zr	124Sb	126I	140Ba	170Tm	207Bi	228Ac
36Cl	60Co	106Ru	125Sb	131I	144Ce	181Hf	210Bi	230Pa
45Ca	89Sr	110Ag _m	127Te _m	133I	152Eu	182Ta	211At	234Th
46Sc	90Sr	115Cd _m	129Te _m	134Cs	154Eu	192Ir	212Pb	236U
54Mn	91Y	114In _m	124I	137Cs	160Tb	204Tl	224Ra	249Bk

Group III: Moderate radiotoxicity

7Be	48Sc	65Zn	91Sr	103Ru	125Te _m	140La	153Gd	183Re	199Au	233Pa
14C	48V	69Zn _m	90Y	105Ru	127Te	141Ce	159Gd	186Re	197Hg	239Np
18F	51Cr	72Ga	92Y	106Rh	129Te	143Ce	165Dy	188Re	197Hg _m	
24Na	52Mn	73As	93Y	103Pd	131Te _m	142Pr	166Dy	185Os	203Hg	
38Cl	56Mn	74As	97Zr	109Pd	132Te	143Pr	166Ho	191Os	200Tl	
31Si	52Fe	76As	93Nb _m	105Ag	130I	147Nd	169Er	193Os	201Tl	
32P	55Fe	77As	95Nb	111Ag	132I	149Nd	171Er	190Ir	202Tl	
35S	59Fe	75Se	99Mo	109Cd	134I	147Pm	171Tm	194Ir	203Pb	
41A	57Co	82Br	96Tc	115Cd	135I	149Pm	175Yb	191Pt	206Bi	
42K	58Co	85Kr _m	97Tc _m	115In _m	135Xe	151Sm	177Lu	193Pt	212Bi	
43K	63Ni	87Kr	97Tc	113Sn	131Cs	153Sm	181W	197Pt	220Rn	
47Ca	65Ni	86Rb	99Tc	125Sn	136Cs	152Eu	185W	196Au	222Rn	
47Sc	64Cu	85Sr	97Ru	122Sb	131Ba	155Eu	187W	198Au	231Th	

Group IV: Low radiotoxicity

³ H	⁵⁸ Co _m	⁷¹ Ge	⁸⁷ Rb	⁹⁷ Nb	¹⁰³ Rh _m	¹²⁹ I	¹³⁴ Cs _m	¹⁸⁷ Re	¹⁹⁷ Pt _m	²³⁵ U
¹⁵ O	⁵⁹ Ni	⁸⁵ Kr	⁹¹ Y _m	⁹⁶ Tc _m	¹¹³ In _m	¹³¹ Xe _m	¹³⁵ Cs	¹⁹¹ Os _m	²³² Th	²³⁸ U
³⁷ A	⁶⁹ Zn	⁸⁵ Sr _m	⁹³ Zr	⁹⁹ Tc _m	¹²⁵ I	¹³⁵ Xe	¹⁴⁷ S _m	¹⁹³ Pt _m	NatTh	NatU

* From Safe Handling of Radionuclides, IAEA Safety Standards, 1973

TABLE II: LIMITATION ON ACTIVITIES IN VARIOUS TYPES OF WORKING PLACE OR LABORATORY*

Radiotoxicity of radionuclides	Minimum significant quantity (uCi)	Type C	Type B	Type A
1. Very high	0.1	10 uCi or less	10 uCi - 10 mCi	10 mCi or more
2. High	1.0	100 uCi or less	100 uCi - 100 mCi	100 mCi or more
3. Moderate	10.0	1 mCi or less	1 mCi - 1 Ci	1 Ci or more
4. Low	100.0	10 mCi or less	10 mCi - 10 Ci	10 Ci or more

Type C, Type B and Type A have the meanings normally used in the classification of laboratories for handling radioactive materials. Type C is a good quality chemical laboratory. Type B is a specially designed radioisotope laboratory. Type A is a specially designed laboratory for handling large activities of radioactive materials. In the case of a conventional modern chemical laboratory with adequate ventilation and fume hoods, as well as polished, easily cleaned, non-absorbing surfaces, etc., it would be possible to increase the upper limits of activity for Type C laboratories towards the limits for Type B laboratories for toxicity groups 3 and 4.

*From Safe Handling of Radionuclides, IAEA Safety Standards, 1973