

## b) (Groupe 2) Forte radiotoxicité :

$^{22}_{11}\text{Na}$	$^{36}_{17}\text{Cl}$	$^{45}_{20}\text{Ca}$	$^{46}_{21}\text{Sc}$	$^{60}_{27}\text{Co}$	$^{90}_{38}\text{Sr}$	$^{91}_{39}\text{Y}$	$^{93}_{40}\text{Zr}$
$^{94}_{41}\text{Nb}$	$^{106}_{44}\text{Ru}$	$^{110\text{m}}_{47}\text{Ag}$	$^{115\text{m}}_{48}\text{Cd}$	$^{114\text{m}}_{49}\text{In}$	$^{124}_{51}\text{Sb}$	$^{125}_{51}\text{Sb}$	$^{124}_{53}\text{I}$
$^{125}_{53}\text{I}$	$^{126}_{53}\text{I}$	$^{131}_{53}\text{I}$	$^{134}_{55}\text{Cs}$	$^{140}_{56}\text{Ba}$	$^{144}_{58}\text{Ce}$	$^{152}_{63}\text{Eu}(13\text{a})$	
$^{154}_{63}\text{Eu}$	$^{160}_{65}\text{Tb}$	$^{170}_{69}\text{Tm}$	$^{181}_{72}\text{Hf}$	$^{182}_{73}\text{Ta}$	$^{192}_{77}\text{Ir}$	$^{204}_{81}\text{Tl}$	$^{212}_{82}\text{Pb}$
$^{207}_{83}\text{Bi}$	$^{210}_{83}\text{Bi}$	$^{211}_{85}\text{At}$	$^{224}_{88}\text{Ra}$	$^{228}_{89}\text{Ac}$	$^{232}_{90}\text{Th}$	$^{90}\text{Th nat}(\ast)$	
$^{230}_{91}\text{Pa}$	$^{236}_{92}\text{U}$	$^{244}_{94}\text{Pu}$	$^{242}_{95}\text{Am}$	$^{241}_{96}\text{Cm}$	$^{249}_{97}\text{Bk}$	$^{246}_{98}\text{Cf}$	$^{253}_{98}\text{Cf}$
$^{253}_{99}\text{Es}$	$^{254\text{m}}_{99}\text{Es}$	$^{255}_{100}\text{Fm}$	$^{256}_{100}\text{Fm}$				

## c) (Groupe 3) Radiotoxicité modérée :

$^7_4\text{Be}$	$^{14}_6\text{C}$	$^{18}_9\text{F}$	$^{24}_{11}\text{Na}$	$^{31}_{14}\text{Si}$	$^{32}_{15}\text{P}$	$^{33}_{15}\text{P}$	$^{35}_{16}\text{S}$
$^{38}_{17}\text{Cl}$	$^{41}_{18}\text{Ar}$	$^{42}_{19}\text{K}$	$^{43}_{19}\text{K}$	$^{47}_{20}\text{Ca}$	$^{47}_{21}\text{Sc}$	$^{48}_{21}\text{Sc}$	$^{48}_{23}\text{V}$
$^{51}_{24}\text{Cr}$	$^{52}_{25}\text{Mn}$	$^{54}_{25}\text{Mn}$	$^{52}_{26}\text{Fe}$	$^{55}_{26}\text{Fe}$	$^{59}_{26}\text{Fe}$	$^{55}_{27}\text{Co}$	$^{56}_{27}\text{Co}$
$^{57}_{27}\text{Co}$	$^{58}_{27}\text{Co}$	$^{63}_{28}\text{Ni}$	$^{65}_{28}\text{Ni}$	$^{64}_{29}\text{Cu}$	$^{65}_{30}\text{Zn}$	$^{69\text{m}}_{30}\text{Zn}$	$^{72}_{31}\text{Ga}$
$^{73}_{33}\text{As}$	$^{74}_{33}\text{As}$	$^{76}_{33}\text{As}$	$^{77}_{33}\text{As}$	$^{75}_{34}\text{Se}$	$^{82}_{35}\text{Br}$	$^{74}_{36}\text{Kr}$	$^{77}_{36}\text{Kr}$
$^{87}_{36}\text{Kr}$	$^{88}_{36}\text{Kr}$	$^{86}_{37}\text{Rb}$	$^{83}_{38}\text{Sr}$	$^{85}_{38}\text{Sr}$	$^{89}_{38}\text{Sr}$	$^{91}_{38}\text{Sr}$	$^{92}_{38}\text{Sr}$
$^{90}_{39}\text{Y}$	$^{92}_{39}\text{Y}$	$^{93}_{39}\text{Y}$	$^{86}_{40}\text{Zr}$	$^{88}_{40}\text{Zr}$	$^{89}_{40}\text{Zr}$	$^{95}_{40}\text{Zr}$	$^{97}_{40}\text{Zr}$