



Bijlage 9 Berekeningen waterlozingen volgens de rekenregels AGIS

Waterlozingen volgens de rekenregels AGIS

$$A_{WJ} = \sum_{handeling} A_{i,koopj} \cdot Z_i \cdot V_i \cdot W_i \cdot 10^{-10} \cdot R_{WJ} \quad [Bq]$$

	Maximaal in MBq op enig tijdstip	e_{ing} for workers (Annex A/B ICRP 119)	e_{ing} for public (Annex F ICRP 119)	e_{inh} for public (Annex G ICRP 119)	A_{yearly} procured	Zi	V _i	W _i	Si	Rwi	A _w or emission	W _{max}	REMARKS
H-3	3,70E+01	4,200E-11	4,200E-11	2,600E-10	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	7,40E+07	3,11E-03	0,01%
C-11	3,70E+01	2,400E-11	2,400E-11	1,800E-11	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	7,40E+04	1,78E-06	0,00%
F-18	2,00E+05	4,900E-11	4,900E-11	5,900E-11	1,00E+12	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	1,00E+08	4,90E-03	0,01%
P-32	2,00E+02	2,400E-09	2,400E-09	3,400E-09	2,00E+09	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-01	2,00E+07	4,80E-02	0,10%
S-35	2,00E+02	7,700E-10	7,700E-10	1,900E-09	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	7,40E+07	5,70E-02	0,12%
Cr-51	8,14E+01	3,800E-11	3,800E-11	3,700E-11	1,63E+09	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	1,63E+08	6,19E-03	0,01%
Fe-59	3,70E+01	1,800E-09	1,800E-09	4,000E-09	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	7,40E+07	1,33E-01	0,28%
Cu-64	2,00E+03	1,200E-10	1,200E-10	1,200E-10	4,00E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	4,00E+06	4,80E-04	0,00%
Ga-67	5,00E+02	1,900E-10	1,900E-10	2,400E-10	1,00E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	1,00E+06	1,90E-04	0,00%
Ga-68	2,00E+04	1,000E-10	1,000E-10	4,900E-11	6,00E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	6,00E+06	6,00E-04	0,00%
Se-75	3,70E+01	2,600E-09	2,600E-09	1,300E-09	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	7,40E+07	1,92E-01	0,41%
Sr-89	6,00E+02	2,600E-09	2,600E-09	7,900E-09	1,20E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	1,20E+09	3,12E+00	6,66%
Zr-89	2,00E+03	7,900E-10	7,900E-10	5,500E-10	4,00E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	4,00E+06	3,16E-03	0,01%
In-111	6,00E+04	2,900E-10	2,900E-10	2,300E-10	1,20E+12	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	1,20E+08	3,48E-02	0,07%
In-111	6,00E+03	2,900E-10	2,900E-10	2,300E-10	0,00E+00	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	0,00E+00	0,00E+00	0,00%
I-123	5,00E+03	2,100E-10	2,100E-10	7,400E-11	7,50E+11	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	7,50E+07	1,58E-02	0,03%
I-124	4,00E+02	1,300E-08	1,300E-08	4,400E-09	4,00E+09	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	4,00E+05	5,20E-03	0,01%
I-125	3,70E+01	1,500E-08	1,500E-08	5,100E-09	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	7,40E+07	1,11E+00	2,37%
I-131	4,00E+03	2,200E-08	2,200E-08	7,400E-09	8,00E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-01	8,00E+08	1,76E+01	37,59%
Xe-133	1,11E+03	0,000E+00	0,000E+00	1,200E-10	2,22E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-02	2,22E+07	0,00E+00	0,00%
Sm-153	1,80E+04	7,400E-10	7,400E-10	6,300E-10	4,00E+11	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	4,00E+07	2,96E-02	0,06%
Ho-166	8,00E+03	1,400E-09	1,400E-09	6,500E-10	1,60E+11	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	1,60E+07	2,24E-02	0,05%
Er-169	3,70E+01	3,700E-10	3,700E-10	1,000E-09	7,40E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-01	7,40E+06	2,74E-03	0,01%
Lu-177	8,50E+04	5,300E-10	5,300E-10	1,200E-09	1,70E+12	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-02	1,70E+09	9,01E-01	1,92%
Re-186	8,14E+02	1,500E-09	1,500E-09	1,100E-09	1,00E+11	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	1,00E+07	1,50E-02	0,03%
Re-188	4,07E+04	1,400E-09	1,400E-09	5,400E-10	8,14E+11	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	8,14E+07	1,14E-01	0,24%
Tc-99m	1,20E+06	2,200E-11	2,200E-11	2,000E-11	3,00E+14	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	3,00E+10	6,60E-01	1,41%
Tl-201	1,20E+03	9,500E-11	9,500E-11	4,400E-11	2,40E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	2,40E+06	2,28E-04	0,00%
TOTAAL ISOTOPEN													
Ra-223	1,50E+02	1,000E-07	1,000E-07	8,700E-06	2,25E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-01	2,25E+08	2,25E+01	48,06%
Ac-225	2,00E+01	2,400E-08	2,400E-08	8,500E-06	1,00E+09	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-01	1,00E+07	2,40E-01	0,51%
TOTAAL ALPHA'S													
Ge-68	2,00E+04	1,300E-09	1,300E-09	1,400E-08	6,00E+10	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	6,00E+09		0,00% Dit zit gesloten in generatoren
Mo-99	1,20E+06	1,200E-09	6,000E-10	9,900E-10	2,00E+13	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	2,00E+09		0,00% Dit zit gesloten in generatoren
TOTAAL GENERATOREN													
Co-57	1,48E+03	2,100E-10	2,100E-10	1,000E-09	2,96E+09	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	2,96E+08		0,00% Ingekapselde bron
Sr-90	7,40E+01	2,800E-08	2,800E-08	1,600E-07	1,48E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+01	1,48E+08		0,00% Ingekapselde bron
Y-90	7,40E+01	2,700E-09	2,700E-09	1,500E-09	1,48E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E-03	1,48E+04		0,00% Ingekapselde bron
Ba-133	7,40E+01	1,000E-09	1,500E-09	1,000E-08	1,48E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	1,48E+07		0,00% Ingekapselde bron
Cs-137	7,40E+01	1,300E-08	1,300E-08	3,900E-08	1,48E+08	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+01	1,48E+08		0,00% Ingekapselde bron
Eu-152	3,70E-02	1,400E-09	1,400E-09	4,200E-08	7,40E+04	1,00E+00	1,00E-01	1,00E+00	0,00E+00	1,00E+00	7,40E+03		0,00% Ingekapselde bron
TOTAAL CALIBRATIE BRONNEN													
											4,68E+01		
Wsn	100	Geen Nadere Analyse nodig											