

Nuclear Development

**Accelerator-driven Systems (ADS)
and Fast Reactors (FR) in
Advanced Nuclear Fuel Cycles**

A Comparative Study

NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Annex D

DOSE CONVERSION FACTORS BASED ON ICRP-1990 RECOMMENDATIONS

Nuclide	Sv/Bq	Nuclide	Sv/Bq	Nuclide	Sv/Bq	Nuclide	Sv/Bq
Rb ⁸⁶	2.8 E-09	I ¹²⁹	1.1 E-07	Pb ²⁰⁹	5.7 E-11	U ²³²	3.3 E-07
Rb ⁸⁷	1.5 E-09	I ¹³¹	2.2 E-08	Pb ²¹⁰	6.8 E-07	U ²³³	5.0 E-08
Sr ⁸⁹	2.6 E-09	I ¹³⁵	9.3 E-10	Pb ²¹¹	1.8 E-10	U ²³⁴	4.9 E-08
Sr ⁹⁰	2.8 E-08	Cs ¹³⁴	1.9 E-08	Pb ²¹²	5.9 E-09	U ²³⁵	4.6 E-08
Y ⁹⁰	2.7 E-09	Cs ¹³⁵	2.0 E-09	Pb ²¹⁴	1.4 E-10	U ²³⁶	4.6 E-08
Y ⁹¹	2.4 E-09	Cs ¹³⁶	3.0 E-09	Bi ²¹⁰	1.3 E-09	U ²³⁸	4.4 E-08
Zr ⁹³	2.8 E-10	Cs ¹³⁷	1.3 E-08	Bi ²¹²	2.6 E-10	Np ²³⁷	1.1 E-07
Zr ⁹⁵	8.8 E-10	Ba ^{135m}	4.5 E-10	Bi ²¹³	2.0 E-10	Np ²³⁸	9.1 E-10
Nb ^{93m}	1.2 E-10	Ba ¹⁴⁰	2.5 E-09	Bi ²¹⁴	1.1 E-10	Np ²³⁹	8.0 E-10
Nb ⁹⁵	5.8 E-10	La ¹⁴⁰	2.0 E-09	Po ²¹⁰	2.4 E-07	Np ²⁴⁰	8.2 E-11
Mo ⁹⁹	7.4 E-10	Ce ¹⁴¹	7.1 E-10	Fr ²²³	2.3 E-09	Pu ²³⁸	2.3 E-07
Tc ⁹⁹	7.8 E-10	Ce ¹⁴³	1.1 E-09	Ra ²²³	1.0 E-07	Pu ²³⁹	2.5 E-07
Ru ¹⁰³	7.3 E-10	Ce ¹⁴⁴	5.2 E-09	Ra ²²⁴	6.5 E-08	Pu ²⁴⁰	2.5 E-07
Ru ¹⁰⁵	2.6 E-10	Pr ¹⁴³	1.2 E-09	Ra ²²⁵	9.5 E-08	Pu ²⁴¹	4.7 E-09
Ru ¹⁰⁶	7.0 E-09	Pr ¹⁴⁴	5.0 E-11	Ra ²²⁶	2.8 E-07	Pu ²⁴²	2.4 E-07
Rh ¹⁰⁵	3.7 E-10	Nd ¹⁴⁷	1.1 E-09	Ra ²²⁷	8.4 E-11	Pu ²⁴³	8.5 E-11
Rh ¹⁰⁶	1.6 E-10	Pm ¹⁴⁷	2.6 E-10	Ra ²²⁸	6.7 E-07	Pu ²⁴⁴	2.4 E-07
Pd ¹⁰⁷	3.7 E-11	Pm ¹⁴⁸	2.7 E-09	Ac ²²⁵	2.4 E-08	Am ²⁴¹	2.0 E-07
Ag ¹¹¹	1.3 E-09	Pm ^{148m}	1.8 E-09	Ac ²²⁷	1.1 E-06	Am ²⁴²	3.0 E-10
Cd ¹¹³	2.5 E-08	Pm ¹⁴⁹	9.9 E-10	Ac ²²⁸	4.3 E-10	Am ^{242m}	1.9 E-07
Cd ^{115m}	3.3 E-09	Pm ¹⁵¹	7.3 E-10	Th ²²⁷	8.9 E-09	Am ²⁴³	2.0 E-07
In ¹¹⁵	3.2 E-08	Sm ¹⁴⁷	4.9 E-08	Th ²²⁸	7.0 E-08	Cm ²⁴²	1.2 E-08
Sn ¹²³	2.1 E-09	Sm ¹⁵¹	9.8 E-11	Th ²²⁹	4.8 E-07	Cm ²⁴³	1.5 E-07
Sn ¹²⁵	3.1 E-09	Sm ¹⁵³	7.4 E-10	Th ²³⁰	2.1 E-07	Cm ²⁴⁴	1.2 E-07
Sn ¹²⁶	4.7 E-09	Eu ¹⁵⁴	2.0 E-09	Th ²³¹	3.4 E-10	Cm ²⁴⁵	2.1 E-07
Sb ¹²⁴	2.5 E-09	Eu ¹⁵⁵	3.2 E-10	Th ²³²	2.2 E-07	Cm ²⁴⁶	2.1 E-07
Sb ¹²⁵	1.1 E-09	Eu ¹⁵⁶	2.2 E-09	Th ²³⁴	3.4 E-09	Cm ²⁴⁷	1.9 E-07
Sb ¹²⁶	2.4 E-09	Eu ¹⁵⁷	6.0 E-10	Pa ²³¹	7.1 E-07	Cm ²⁴⁸	7.7 E-07
Sb ^{126m}	3.6 E-11	Tb ¹⁶⁰	1.6 E-09	Pa ²³³	8.7 E-10		
Te ¹²³	4.4 E-09			Pa ²³⁴	5.1 E-10		
Te ^{125m}	8.7 E-10						
Te ¹²⁷	1.7 E-10						
Te ^{127m}	2.3 E-09						
Te ^{129m}	3.0 E-09						
Te ¹³²	3.7 E-09						

