

RADIOISOTOPES COMMON AT MSU

Isotope	Half-Life	Counting Method	Typical Efficiency*	Energy, MeV (b)	Energy, MeV (g)
³ H	12.35 years	L.S.C.	50%	0.0186	None
¹⁴ C	5730 years	L.S.C., Pancake	75%, 5%	0.157	None
²² Na	2.6 years	2:2 Gamma, 1:1 Gamma	30%, 15%	0.546	0.511, 1.27
³² P	14.3 days	Pancake	50%	1.71	None
³³ P	25.3 days	Pancake	15%	0.248	None
³⁵ S	87.5 days	L.S.C., Pancake	75%, 5%	0.167	None
³⁶ Cl	3.0 E ⁵ years	Pancake	30%	0.709	None
⁴⁰ K	1.28 E ⁹ years	Pancake	50%	1.33	1.46
⁴⁵ Ca	163 days	Pancake	15%	0.258	0.012 (x-ray)
⁴⁶ Sc	84 days	Pancake, 1:1 Gamma	20%, 15%	0.357	1.12, 0.889
⁵¹ Cr	27.7 days	L.E.G.	20%	None	0.320
⁵⁵ Fe	2.7 years	Pancake	15%	0.232	None
⁶³ Ni	100 years	L.S.C.	50%	0.0669	None
⁶⁵ Zn	243.8 days	1:1 Gamma, Pancake	15%, 15%	0.325	1.116
⁸⁵ Sr	64.8 days	L.E.G.	15%	None	0.514
⁸⁶ Rb	18.6 days	Pancake, 1:1 Gamma	50%, 20%	1.775	1.0771 (9% abundance)
¹¹¹ In	2.8 days	L.E.G.	20%	None	0.245, 0.171
¹²⁵ I	60 days	L.E.G.	50%	None	0.036
²⁰³ Hg	46.6 days	L.E.G., Pancake	25%, 10%	0.213	0.279

KEY

L.S.C.: Liquid Scintillation Counter

1:1 Gamma: 1" by 1" NaI - scintillator

L.E.G.: Low Energy Gamma Scintillator

2:2 Gamma: 2" by 2" NaI - scintillator

Pancake: Beta Pancake Detector

***These are not the efficiencies to use for your own laboratory surveys. Obtain the correct efficiencies for your survey meter from the most recent calibration report supplied by the ORCBS.**