

Spectrum of fission product gamma rays from the thermonuclear neutron fission of U-238 as a function of the degree of fractionation for two different times after detonation (Glenn R. Crocker, *Radiation Properties of Fractionated Fallout; Predictions of Activities, Exposure Rates and Gamma Spectra for Selected Situations*, U.S. Naval Radiological Defense Laboratory, USNRDL-TR-68-134, 27 June 1968, 287 pp.)

Gamma ray energy, MeV	Gamma ray spectrum at 1 hour after burst				Gamma ray spectrum at 1 week after burst			
	Sr-89 abundance (relative to unfractionated fallout)				Sr-89 abundance (relative to unfractionated fallout)			
	10% $R_{89,95} = 0.1$	50% $R_{89,95} = 0.5$	100% $R_{89,95} = 1^*$	200% $R_{89,95} = 2$	10% $R_{89,95} = 0.1$	50% $R_{89,95} = 0.5$	100% $R_{89,95} = 1^*$	200% $R_{89,95} = 2$
0-0.5	0.396	0.354	0.350	0.304	0.695	0.662	0.678	0.637
0.5-1	0.385	0.379	0.363	0.357	0.262	0.270	0.245	0.265
1-1.5	0.1605	0.1863	0.1914	0.232	0.01339	0.01358	0.01218	0.01273
1.5-2	0.0327	0.0466	0.0558	0.0596	0.0287	0.0519	0.0591	0.079
2-2.5	0.01628	0.0203	0.0279	0.0290	0.001114	0.001313	0.001268	0.001445
2.5-3	0.00429	0.00717	0.01192	0.01305	0.001372	0.00253	0.00291	0.00388
3-3.5	0.00340	0.00301	0.00267	0.00273	0.0000260	0.0000490	0.0000564	0.0000760
3.5-4	0.001425	0.001187	0.001705	0.00214	0	0	0	0
Total:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Relative gamma activity	0.547	0.756	1*	1.25	0.563	0.768	1*	1.12
Mean energy, MeV	0.710	0.767	0.807	0.856	0.444	0.486	0.483	0.526

*Unfractionated ($R_{89,95} = 1$) fission product composition relative gamma activity is normalized to 1 unit/second. The presence of neutron induced activities in U-238 like Np-239, U-240, and U-237 due to non-fission capture is not included, and would further soften the fractionated fallout spectra, since they emit low energy gamma rays.