

SIRTeX

SIR-Spheres®  
Y-90 resin microspheres

# SIR-Spheres® Y-90 resin microspheres Activity Chart



*Advancing to the next level.*



# The Activity You Want, The Coverage You Need

## DAY THREE PRE-CALIBRATION

Calculation from Calibration (18:00 Eastern Standard Time) to Assay Time

	Hours Before Cal	Decay Factor	Total Activity	Million Spheres per GBq
8:00 AM	82	2.427	7.28	6.1
	81.5	2.414	7.24	6.1
9:00 AM	81	2.401	7.20	6.2
	80.5	2.388	7.16	6.2
10:00 AM	80	2.375	7.13	6.2
	79.5	2.362	7.09	6.3
11:00 AM	79	2.350	7.05	6.3
	78.5	2.337	7.01	6.3
NOON	78	2.324	6.97	6.4
	77.5	2.312	6.94	6.4
1:00 PM	77	2.299	6.90	6.4
	76.5	2.287	6.86	6.5
2:00 PM	76	2.275	6.82	6.5
	75.5	2.262	6.79	6.6
3:00 PM	75	2.250	6.75	6.6
	74.5	2.238	6.71	6.6
4:00 PM	74	2.226	6.68	6.7
	73.5	2.214	6.64	6.7
5:00 PM	73	2.202	6.61	6.7
	72.5	2.190	6.57	6.8
6:00 PM	72	2.178	6.54	6.8
	71.5	2.167	6.50	6.8
7:00 PM	71	2.155	6.46	6.9
	70.5	2.143	6.43	6.9
8:00 PM	70	2.132	6.40	7.0
	69.5	2.120	6.36	7.0
9:00 PM	69	2.109	6.33	7.0
	68.5	2.097	6.29	7.1
10:00 PM	68	2.086	6.26	7.1
	67.5	2.075	6.22	7.1
11:00 PM	67	2.064	6.19	7.2
	66.5	2.053	6.16	7.2
MIDNIGHT	66	2.042	6.12	7.3
	65.5	2.031	6.09	7.3

## DAY TWO PRE-CALIBRATION

Calculation from Calibration (18:00 Eastern Standard Time) to Assay Time

	Hours Before Cal	Decay Factor	Total Activity	Million Spheres per GBq
1:00 AM	65	2.020	6.06	7.3
	64.5	2.009	6.03	7.4
2:00 AM	64	1.998	5.99	7.4
	63.5	1.987	5.96	7.5
3:00 AM	63	1.976	5.93	7.5
	62.5	1.966	5.90	7.5
4:00 AM	62	1.955	5.87	7.6
	61.5	1.945	5.83	7.6
5:00 AM	61	1.934	5.80	7.7
	60.5	1.924	5.77	7.7
6:00 AM	60	1.913	5.74	7.7
	59.5	1.903	5.71	7.8
7:00 AM	59	1.893	5.68	7.8
	58.5	1.882	5.65	7.9
8:00 AM	58	1.872	5.62	7.9
	57.5	1.862	5.59	8.0
9:00 AM	57	1.852	5.56	8.0
	56.5	1.842	5.53	8.0
10:00 AM	56	1.832	5.50	8.1
	55.5	1.822	5.47	8.1
11:00 AM	55	1.813	5.44	8.2
	54.5	1.803	5.41	8.2
NOON	54	1.793	5.38	8.3
	53.5	1.783	5.35	8.3
1:00 PM	53	1.774	5.32	8.4
	52.5	1.764	5.29	8.4
2:00 PM	52	1.755	5.26	8.4
	51.5	1.745	5.24	8.5
3:00 PM	51	1.736	5.21	8.5
	50.5	1.726	5.18	8.6
4:00 PM	50	1.717	5.15	8.6
	49.5	1.708	5.12	8.7
5:00 PM	49	1.699	5.10	8.7
	48.5	1.690	5.07	8.8
6:00 PM	48	1.680	5.04	8.8
	47.5	1.671	5.01	8.9
7:00 PM	47	1.662	4.99	8.9
	46.5	1.653	4.96	9.0
8:00 PM	46	1.644	4.93	9.0
	45.5	1.636	4.91	9.1
9:00 PM	45	1.627	4.88	9.1
	44.5	1.618	4.85	9.2
10:00 PM	44	1.609	4.83	9.2
	43.5	1.601	4.80	9.3
11:00 PM	43	1.592	4.78	9.3
	42.5	1.583	4.75	9.4
MIDNIGHT	42	1.575	4.72	9.4
	41.5	1.566	4.70	9.5

## DAY ONE PRE-CALIBRATION

Calculation from Calibration (18:00 Eastern Standard Time) to Assay Time

	Hours Before Cal	Decay Factor	Total Activity	Million Spheres per GBq
1:00 AM	41	1.558	4.67	9.5
	40.5	1.550	4.65	9.6
2:00 AM	40	1.541	4.62	9.6
	39.5	1.533	4.60	9.7
3:00 AM	39	1.525	4.57	9.7
	38.5	1.516	4.55	9.8
4:00 AM	38	1.508	4.52	9.8
	37.5	1.500	4.50	9.9
5:00 AM	37	1.492	4.48	9.9
	36.5	1.484	4.45	10.0
6:00 AM	36	1.476	4.43	10.0
	35.5	1.468	4.40	10.1
7:00 AM	35	1.460	4.38	10.2
	34.5	1.452	4.36	10.2
8:00 AM	34	1.444	4.33	10.3
	33.5	1.437	4.31	10.3
9:00 AM	33	1.429	4.29	10.4
	32.5	1.421	4.26	10.4
10:00 AM	32	1.413	4.24	10.5
	31.5	1.406	4.22	10.5
11:00 AM	31	1.398	4.19	10.6
	30.5	1.391	4.17	10.7
NOON	30	1.383	4.15	10.7
	29.5	1.376	4.13	10.8
1:00 PM	29	1.368	4.10	10.8
	28.5	1.361	4.08	10.9
2:00 PM	28	1.354	4.06	11.0
	27.5	1.346	4.04	11.0
3:00 PM	27	1.339	4.02	11.1
	26.5	1.332	4.00	11.1
4:00 PM	26	1.325	3.97	11.2
	25.5	1.318	3.95	11.3
5:00 PM	25	1.310	3.93	11.3
	24.5	1.303	3.91	11.4
6:00 PM	24	1.296	3.89	11.4
	23.5	1.289	3.87	11.5
7:00 PM	23	1.282	3.85	11.6
	22.5	1.275	3.83	11.6
8:00 PM	22	1.269	3.81	11.7
	21.5	1.262	3.79	11.8
9:00 PM	21	1.255	3.76	11.8
	20.5	1.248	3.74	11.9
10:00 PM	20	1.241	3.72	11.9
	19.5	1.235	3.70	12.0
11:00 PM	19	1.228	3.68	12.1
	18.5	1.221	3.66	12.1
MIDNIGHT	18	1.215	3.64	12.2
	17.5	1.208	3.62	12.3

To calculate the number of spheres drawn from the vial: divide the activity drawn by the total activity in the vial, then multiply that number by 44.48 million.

## DAY OF CALIBRATION

Calculation from Calibration (18:00 Eastern Standard Time) to Assay Time

	Hours Before Cal	Decay Factor	Total Activity	Million Spheres per GBq
1:00 AM	17	1.202	3.61	12.3
	16.5	1.195	3.59	12.4
2:00 AM	16	1.189	3.57	12.5
	15.5	1.182	3.55	12.5
3:00 AM	15	1.176	3.53	12.6
	14.5	1.170	3.51	12.7
4:00 AM	14	1.163	3.49	12.7
	13.5	1.157	3.47	12.8
5:00 AM	13	1.151	3.45	12.9
	12.5	1.145	3.43	13.0
6:00 AM	12	1.139	3.42	13.0
	11.5	1.132	3.40	13.1
7:00 AM	11	1.126	3.38	13.2
	10.5	1.120	3.36	13.2
8:00 AM	10	1.114	3.34	13.3
	9.5	1.108	3.32	13.4
9:00 AM	9	1.102	3.31	13.5
	8.5	1.096	3.29	13.5
10:00 AM	8	1.090	3.27	13.6
	7.5	1.084	3.25	13.7
11:00 AM	7	1.079	3.24	13.7
	6.5	1.073	3.22	13.8
<b>NOON</b>	6	1.067	3.20	13.9
	5.5	1.061	3.18	14.0
1:00 PM	5	1.056	3.17	14.0
	4.5	1.050	3.15	14.1
2:00 PM	4	1.044	3.13	14.2
	3.5	1.039	3.12	14.3
3:00 PM	3	1.033	3.10	14.4
	2.5	1.027	3.08	14.4
4:00 PM	2	1.022	3.07	14.5
	1.5	1.016	3.05	14.6
5:00 PM	1	1.011	3.03	14.7
	0.5	1.005	3.02	14.7
6:00 PM	0	1.000	3.00	14.8
	-0.5	0.995	2.98	14.9
7:00 PM	-1	0.989	2.97	15.0
	-1.5	0.984	2.95	15.1
8:00 PM	-2	0.979	2.94	15.2
	-2.5	0.973	2.92	15.2
9:00 PM	-3	0.968	2.90	15.3
	-3.5	0.963	2.89	15.4
10:00 PM	-4	0.958	2.87	15.5
	-4.5	0.953	2.86	15.6
11:00 PM	-5	0.947	2.84	15.7
	-5.5	0.942	2.83	15.7
<b>MIDNIGHT</b>	-6	0.937	2.81	15.8
	-6.5	0.932	2.80	15.9

## POST-CALIBRATION

Calculation from Calibration (18:00 Eastern Standard Time) to Assay Time

	Hours Before Cal	Decay Factor	Total Activity	Million Spheres per GBq
1:00 AM	-7	0.927	2.78	16.0
	-7.5	0.922	2.77	16.1
2:00 AM	-8	0.917	2.75	16.2
	-8.5	0.912	2.74	16.3
3:00 AM	-9	0.907	2.72	16.3
	-9.5	0.902	2.71	16.4
4:00 AM	-10	0.898	2.69	16.5
	-10.5	0.893	2.68	16.6
5:00 AM	-11	0.888	2.66	16.7
	-11.5	0.883	2.65	16.8
6:00 AM	-12	0.878	2.63	16.9
	-12.5	0.874	2.62	17.0
7:00 AM	-13	0.869	2.61	17.1
	-13.5	0.864	2.59	17.2
8:00 AM	-14	0.860	2.58	17.3
	-14.5	0.855	2.56	17.3
9:00 AM	-15	0.850	2.55	17.4
	-15.5	0.846	2.54	17.5
10:00 AM	-16	0.841	2.52	17.6
	-16.5	0.837	2.51	17.7
11:00 AM	-17	0.832	2.50	17.8
	-17.5	0.828	2.48	17.9
<b>NOON</b>	-18	0.823	2.47	18.0
	-18.5	0.819	2.46	18.1
1:00 PM	-19	0.814	2.44	18.2
	-19.5	0.810	2.43	18.3
2:00 PM	-20	0.806	2.42	18.4
	-20.5	0.801	2.40	18.5
3:00 PM	-21	0.797	2.39	18.6
	-21.5	0.793	2.38	18.7
4:00 PM	-22	0.788	2.36	18.8
	-22.5	0.784	2.35	18.9
5:00 PM	-23	0.780	2.34	19.0
	-23.5	0.776	2.33	19.1
6:00 PM	-24	0.771	2.31	19.2

On average there are 44 million spheres in each SIR-Spheres Y-90 resin microspheres delivery vial with a standard deviation of 2.6 million. Engineering test results on file.



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