

SIRTeX

SIR-Spheres®  
Y-90 resin microspheres

# SIR-Spheres® Y-90 resin microspheres Radioactive Decay Chart



Singapore - SGT (UST+8)

## The Activity You Want. The Coverage You Need.

5 Days Pre-Calibration				
SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
12:00 PM	115	3.468	10.40	4.3
	114.5	3.449	10.35	4.3
1:00 PM	114	3.431	10.29	4.3
	113.5	3.412	10.24	4.3
2:00 PM	113	3.394	10.18	4.4
	112.5	3.375	10.13	4.4
3:00 PM	112	3.357	10.07	4.4
	111.5	3.339	10.02	4.4
4:00 PM	111	3.321	9.96	4.5
	110.5	3.303	9.91	4.5
5:00 PM	110	3.285	9.86	4.5
	109.5	3.268	9.80	4.5
6:00 PM	109	3.250	9.75	4.6
	108.5	3.233	9.70	4.6
7:00 PM	108	3.215	9.65	4.6
	107.5	3.198	9.59	4.6
8:00 PM	107	3.181	9.54	4.7
	106.5	3.163	9.49	4.7
9:00 PM	106	3.146	9.44	4.7
	105.5	3.129	9.39	4.7
10:00 PM	105	3.112	9.34	4.8
	104.5	3.096	9.29	4.8
11:00 PM	104	3.079	9.24	4.8
	103.5	3.062	9.19	4.8
MIDNIGHT	103	3.046	9.14	4.9

\* Approximate average

4 Days Pre-Calibration				
SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
MIDNIGHT	103	3.046	9.14	4.9
	102.5	3.029	9.09	4.9
1:00 AM	102	3.013	9.04	4.9
	101.5	2.997	8.99	4.9
2:00 AM	101	2.981	8.94	5.0
	100.5	2.965	8.89	5.0
3:00 AM	100	2.949	8.85	5.0
	99.5	2.933	8.80	5.1
4:00 AM	99	2.917	8.75	5.1
	98.5	2.901	8.70	5.1
5:00 AM	98	2.886	8.66	5.1
	97.5	2.870	8.61	5.2
6:00 AM	97	2.855	8.56	5.2
	96.5	2.839	8.52	5.2
7:00 AM	96	2.824	8.47	5.3
	95.5	2.809	8.43	5.3
8:00 AM	95	2.793	8.38	5.3
	94.5	2.778	8.34	5.3
9:00 AM	94	2.763	8.29	5.4
	93.5	2.749	8.25	5.4
10:00 AM	93	2.734	8.20	5.4
	92.5	2.719	8.16	5.5
11:00 AM	92	2.704	8.11	5.5
	91.5	2.690	8.07	5.5
NOON	91	2.675	8.03	5.5
	90.5	2.661	7.98	5.6
1:00 PM	90	2.646	7.94	5.6
	89.5	2.632	7.90	5.6
2:00 PM	89	2.618	7.85	5.7
	88.5	2.604	7.81	5.7
3:00 PM	88	2.590	7.77	5.7
	87.5	2.576	7.73	5.8
4:00 PM	87	2.562	7.69	5.8
	86.5	2.548	7.64	5.8
5:00 PM	86	2.534	7.60	5.9
	85.5	2.521	7.56	5.9
6:00 PM	85	2.507	7.52	5.9
	84.5	2.494	7.48	5.9
7:00 PM	84	2.480	7.44	6.0
	83.5	2.467	7.40	6.0
8:00 PM	83	2.454	7.36	6.0
	82.5	2.440	7.32	6.1
9:00 PM	82	2.427	7.28	6.1
	81.5	2.414	7.24	6.1
10:00 PM	81	2.401	7.20	6.2
	80.5	2.388	7.16	6.2
11:00 PM	80	2.375	7.13	6.2

\* Approximate average

### 3 Days Pre-Calibration

SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
MIDNIGHT	79	2.350	7.05	6.3
	78.5	2.337	7.01	6.3
1:00 AM	78	2.324	6.97	6.4
	77.5	2.312	6.94	6.4
2:00 AM	77	2.299	6.90	6.4
	76.5	2.287	6.86	6.5
3:00 AM	76	2.275	6.82	6.5
	75.5	2.262	6.79	6.6
4:00 AM	75	2.250	6.75	6.6
	74.5	2.238	6.71	6.6
5:00 AM	74	2.226	6.68	6.7
	73.5	2.214	6.64	6.7
6:00 AM	73	2.202	6.61	6.7
	72.5	2.190	6.57	6.8
7:00 AM	72	2.178	6.54	6.8
	71.5	2.167	6.50	6.8
8:00 AM	71	2.155	6.46	6.9
	70.5	2.143	6.43	6.9
9:00 AM	70	2.132	6.40	7.0
	69.5	2.120	6.36	7.0
10:00 AM	69	2.109	6.33	7.0
	68.5	2.097	6.29	7.1
11:00 AM	68	2.086	6.26	7.1
	67.5	2.075	6.22	7.1
NOON	67	2.064	6.19	7.2
	66.5	2.053	6.16	7.2
1:00 PM	66	2.042	6.12	7.3
	65.5	2.031	6.09	7.3
2:00 PM	65	2.020	6.06	7.3
	64.5	2.009	6.03	7.4
3:00 PM	64	1.998	5.99	7.4
	63.5	1.987	5.96	7.5
4:00 PM	63	1.976	5.93	7.5
	62.5	1.966	5.90	7.5
5:00 PM	62	1.955	5.87	7.6
	61.5	1.945	5.83	7.6
6:00 PM	61	1.934	5.80	7.7
	60.5	1.924	5.77	7.7
7:00 PM	60	1.913	5.74	7.7
	59.5	1.903	5.71	7.8
8:00 PM	59	1.893	5.68	7.8
	58.5	1.882	5.65	7.9
9:00 PM	58	1.872	5.62	7.9
	57.5	1.862	5.59	8.0
10:00 PM	57	1.852	5.56	8.0
	56.5	1.842	5.53	8.0
11:00 PM	56	1.832	5.50	8.1

\* Approximate average

### 2 Days Pre-Calibration

SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
MIDNIGHT	55	1.813	5.44	8.2
	54.5	1.803	5.41	8.2
1:00 AM	54	1.793	5.38	8.3
	53.5	1.783	5.35	8.3
2:00 AM	53	1.774	5.32	8.4
	52.5	1.764	5.29	8.4
3:00 AM	52	1.755	5.26	8.4
	51.5	1.745	5.24	8.5
4:00 AM	51	1.736	5.21	8.5
	50.5	1.726	5.18	8.6
5:00 AM	50	1.717	5.15	8.6
	49.5	1.708	5.12	8.7
6:00 AM	49	1.699	5.10	8.7
	48.5	1.690	5.07	8.8
7:00 AM	48	1.680	5.04	8.8
	47.5	1.671	5.01	8.9
8:00 AM	47	1.662	4.99	8.9
	46.5	1.653	4.96	9.0
9:00 AM	46	1.644	4.93	9.0
	45.5	1.636	4.91	9.1
10:00 AM	45	1.627	4.88	9.1
	44.5	1.618	4.85	9.2
11:00 AM	44	1.609	4.83	9.2
	43.5	1.601	4.80	9.3
NOON	43	1.592	4.78	9.3
	42.5	1.583	4.75	9.4
1:00 PM	42	1.575	4.72	9.4
	41.5	1.566	4.70	9.5
2:00 PM	41	1.558	4.67	9.5
	40.5	1.550	4.65	9.6
3:00 PM	40	1.541	4.62	9.6
	39.5	1.533	4.60	9.7
4:00 PM	39	1.525	4.57	9.7
	38.5	1.516	4.55	9.8
5:00 PM	38	1.508	4.52	9.8
	37.5	1.500	4.50	9.9
6:00 PM	37	1.492	4.48	9.9
	36.5	1.484	4.45	10.0
7:00 PM	36	1.476	4.43	10.0
	35.5	1.468	4.40	10.1
8:00 PM	35	1.460	4.38	10.2
	34.5	1.452	4.36	10.2
9:00 PM	34	1.444	4.33	10.3
	33.5	1.437	4.31	10.3
10:00 PM	33	1.429	4.29	10.4
	32.5	1.421	4.26	10.4
11:00 PM	32	1.413	4.24	10.5

\* Approximate average

1 Day Pre-Calibration				
SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
MIDNIGHT	31	1.398	4.19	10.6
	30.5	1.391	4.17	10.7
1:00 AM	30	1.383	4.15	10.7
	29.5	1.376	4.13	10.8
2:00 AM	29	1.368	4.10	10.8
	28.5	1.361	4.08	10.9
3:00 AM	28	1.354	4.06	11.0
	27.5	1.346	4.04	11.0
4:00 AM	27	1.339	4.02	11.1
	26.5	1.332	4.00	11.1
5:00 AM	26	1.325	3.97	11.2
	25.5	1.318	3.95	11.3
6:00 AM	25	1.310	3.93	11.3
	24.5	1.303	3.91	11.4
7:00 AM	24	1.296	3.89	11.4
	23.5	1.289	3.87	11.5
8:00 AM	23	1.282	3.85	11.6
	22.5	1.275	3.83	11.6
9:00 AM	22	1.269	3.81	11.7
	21.5	1.262	3.79	11.8
10:00 AM	21	1.255	3.76	11.8
	20.5	1.248	3.74	11.9
11:00 AM	20	1.241	3.72	11.9
	19.5	1.235	3.70	12.0
NOON	19	1.228	3.68	12.1
	18.5	1.221	3.66	12.1
1:00 PM	18	1.215	3.64	12.2
	17.5	1.208	3.62	12.3
2:00 PM	17	1.202	3.61	12.3
	16.5	1.195	3.59	12.4
3:00 PM	16	1.189	3.57	12.5
	15.5	1.182	3.55	12.5
4:00 PM	15	1.176	3.53	12.6
	14.5	1.170	3.51	12.7
5:00 PM	14	1.163	3.49	12.7
	13.5	1.157	3.47	12.8
6:00 PM	13	1.151	3.45	12.9
	12.5	1.145	3.43	13.0
7:00 PM	12	1.139	3.42	13.0
	11.5	1.132	3.40	13.1
8:00 PM	11	1.126	3.38	13.2
	10.5	1.120	3.36	13.2
9:00 PM	10	1.114	3.34	13.3
	9.5	1.108	3.32	13.4
10:00 PM	9	1.102	3.31	13.5
	8.5	1.096	3.29	13.5
11:00 PM	8	1.090	3.27	13.6

Day of Calibration				
SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
MIDNIGHT	7	1.079	3.24	13.7
	6.5	1.073	3.22	13.8
1:00 AM	6	1.067	3.20	13.9
	5.5	1.061	3.18	14.0
2:00 AM	5	1.056	3.17	14.0
	4.5	1.050	3.15	14.1
3:00 AM	4	1.044	3.13	14.2
	3.5	1.039	3.12	14.3
4:00 AM	3	1.033	3.10	14.4
	2.5	1.027	3.08	14.4
5:00 AM	2	1.022	3.07	14.5
	1.5	1.016	3.05	14.6
6:00 AM	1	1.011	3.03	14.7
	0.5	1.005	3.02	14.7
7:00 AM	0	1.000	3.00	14.8
	-0.5	0.995	2.98	14.9
8:00 AM	-1	0.989	2.97	15.0
	-1.5	0.984	2.95	15.1
9:00 AM	-2	0.979	2.94	15.2
	-2.5	0.973	2.92	15.2
10:00 AM	-3	0.968	2.90	15.3
	-3.5	0.963	2.89	15.4
11:00 AM	-4	0.958	2.87	15.5
	-4.5	0.953	2.86	15.6
NOON	-5	0.947	2.84	15.7
	-5.5	0.942	2.83	15.7
1:00 PM	-6	0.937	2.81	15.8
	-6.5	0.932	2.80	15.9
2:00 PM	-7	0.927	2.78	16.0
	-7.5	0.922	2.77	16.1
3:00 PM	-8	0.917	2.75	16.2
	-8.5	0.912	2.74	16.3
4:00 PM	-9	0.907	2.72	16.3
	-9.5	0.902	2.71	16.4
5:00 PM	-10	0.898	2.69	16.5
	-10.5	0.893	2.68	16.6
6:00 PM	-11	0.888	2.66	16.7
	-11.5	0.883	2.65	16.8
7:00 PM	-12	0.878	2.63	16.9
	-12.5	0.874	2.62	17.0
8:00 PM	-13	0.869	2.61	17.1
	-13.5	0.864	2.59	17.2
9:00 PM	-14	0.860	2.58	17.3
	-14.5	0.855	2.56	17.3
10:00 PM	-15	0.850	2.55	17.4
	-15.5	0.846	2.54	17.5
11:00 PM	-16	0.841	2.52	17.6

\* Approximate average

## POST-CALIBRATION

SGT (UTC +8)	Hours Before Cal	Decay Factor	Activity (GBq)	Million Spheres per GBq*
MIDNIGHT	-17	0.832	2.50	17.8
	-17.5	0.828	2.48	17.9
1:00 AM	-18	0.823	2.47	18.0
	-18.5	0.819	2.46	18.1
2:00 AM	-19	0.814	2.44	18.2
	-19.5	0.810	2.43	18.3
3:00 AM	-20	0.806	2.42	18.4
	-20.5	0.801	2.40	18.5
4:00 AM	-21	0.797	2.39	18.6
	-21.5	0.793	2.38	18.7
5:00 AM	-22	0.788	2.36	18.8
	-22.5	0.784	2.35	18.9
6:00 AM	-23	0.780	2.34	19.0
	-23.5	0.776	2.33	19.1
7:00 AM**	-24	0.771	2.31	19.2

\* Approximate average

\*\* Dose Expires

### To calculate the number of spheres drawn from a vial:

Divide the activity drawn by the total activity in the vial, then multiply that number by 44.48 million.

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. FR-006

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#### Manufacturer

Sirtex Medical Pty Ltd  
Shop 6, 207 Pacific Highway  
St Leonards NSW 2065  
Australia

Tel: +61 2 9964 8400  
Fax: +61 2 9964 8410  
Email: info-au@sirtex.com

**Sirtex Medical Singapore Pte Ltd**  
50 Science Park Road,  
#01-01, The Kendall,  
Singapore Science Park II,  
Singapore 117406  
Tel: +65 6800 6500  
Fax: +65 6778 9424  
Email: info-ap@sirtex.com



@SirtexMedical



company/sirtex-medical-limited

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