

Appendix A

New Polymorph of Beta-Cyclodextrin with a Higher Bioavailability

Askar K. Gatiatulin^{1*}, Ilya S. Balakhontsev¹, Sofia M. Talashmanova¹, Marat A. Ziganshin¹ and Valery V. Gorbachuk¹

¹ A.M. Butlerov Institute of Chemistry, Kazan Federal University, 18 Kremlevskaya, 420008 Kazan, Russia
* Correspondence: agatiatu@kpfu.ru

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Thermokinetic analysis of β CD polymorphic transition

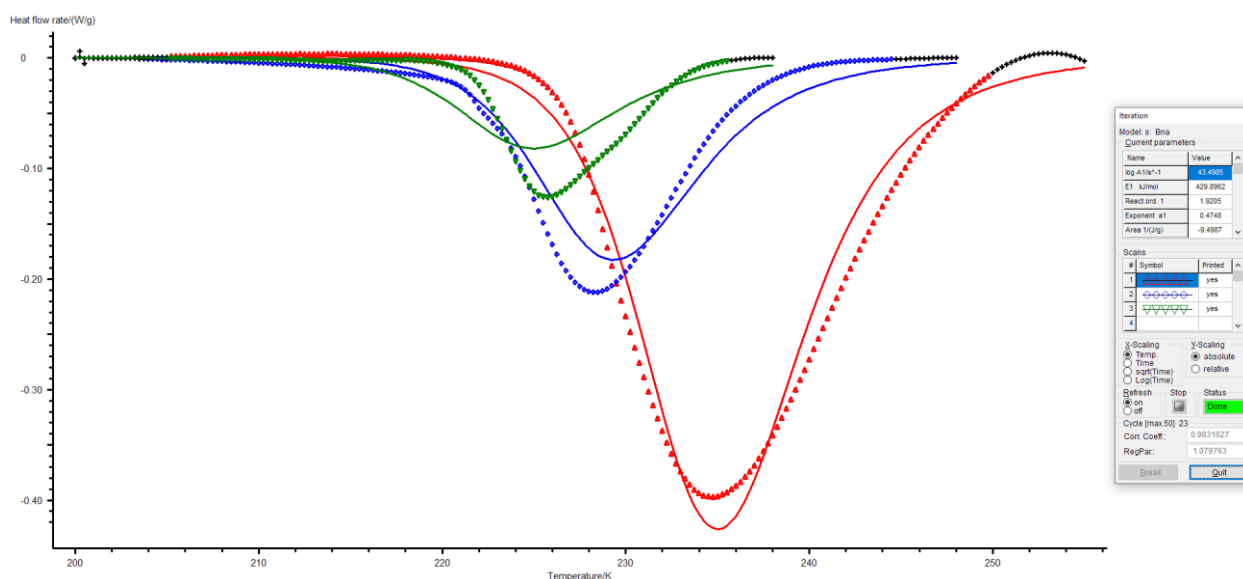


Figure A1. Correlation of experimental DSC traces (dots) of β CD I \rightarrow III transition with the lines calculated by Bna equation (Prout-Tompkins equation for n th order autocatalytic processes). Heating rates are 4, 10, and 30 K min⁻¹. Optimal activation energy is $E_a = 430$ kJ/mol, reaction order $n = 1.92$. Correlation coefficient 0.983.

Equation Bna: $d(1 - \alpha)/dt = A \cdot (1 - \alpha)^n \cdot (\alpha^{\text{AutocatOrder}}) \cdot e^{-E_a/(RT)}$

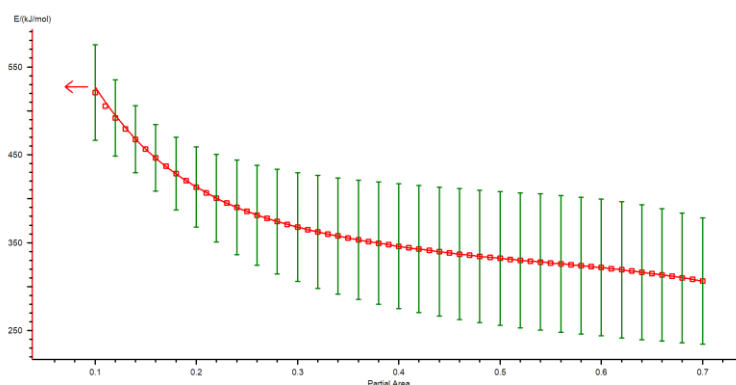


Figure A2. Friedman analysis of β CD polymorphic transition I \rightarrow III: activation energies E_a vs. conversion degree α . Heating rates are 4, 10, and 30 K min⁻¹. Average $E_a = 351 \pm 61$ kJ/mol.

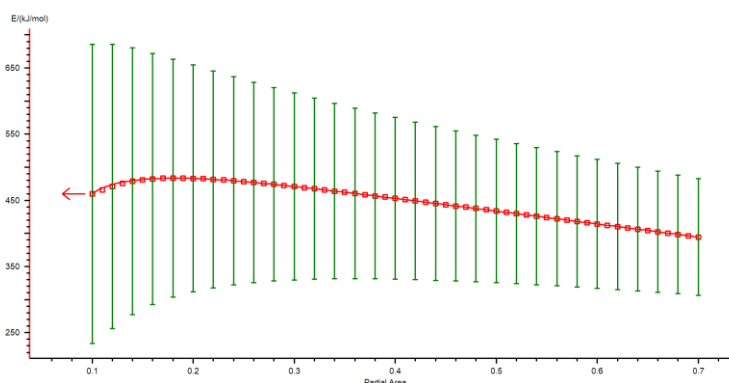


Figure A3. Ozawa-Flynn-Wall analysis of β CD polymorphic transition I \rightarrow III: activation energies E_a vs. conversion degree α . Heating rates are 4, 10, and 30 K min⁻¹. Average $E_a = 425 \pm 124$ kJ/mol.

PXRD analysis of amorphous β CD and HP β CD

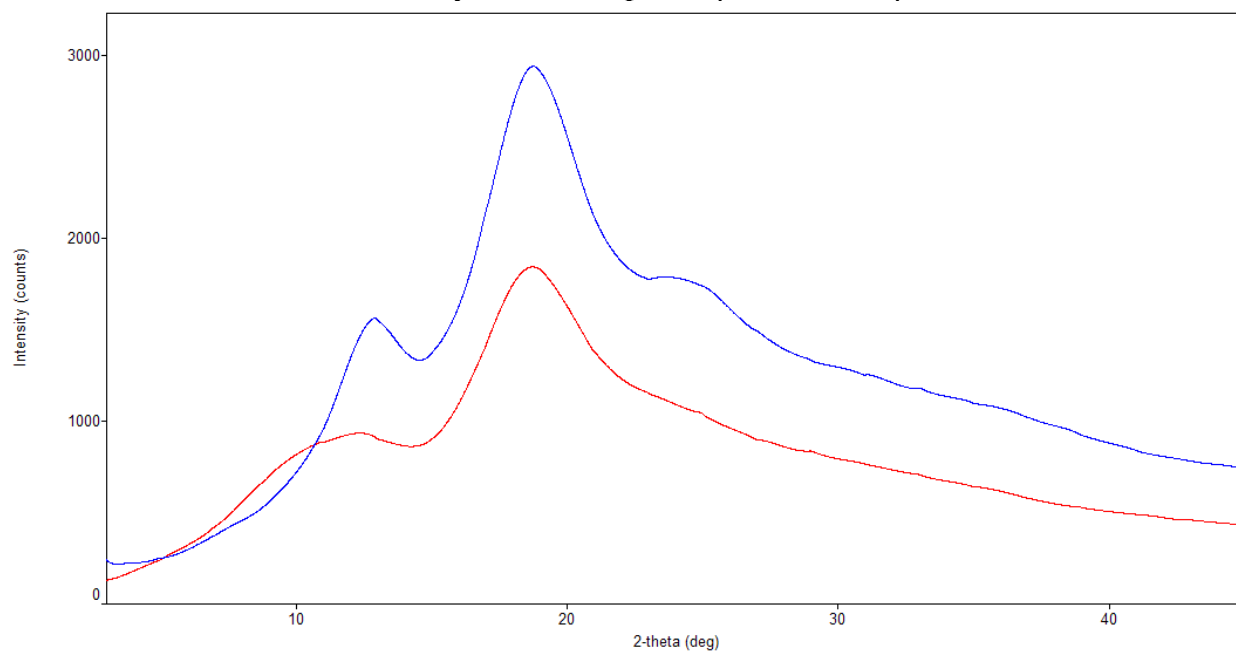


Figure A4. PXRD patterns of the amorphous β CD (blue) and HP β CD (red).

PXRD data and indexing graph for β CD polymorph III

Table A1. PXRD data table for the polymorph III.

$2\theta, ^\circ$	$d, \text{\AA}$	FWHM	$100 \cdot I/I_{\max}$
5.46	16.172	0.246	1.57
6.39	13.821	0.272	21.03
7.84	11.267	0.182	8.45
9.46	9.341	0.347	55.99
9.69	9.120	0.345	7.62
10.96	8.066	0.295	6.88
12.3	7.190	0.424	8.32
12.84	6.889	0.352	39.83
13.39	6.607	0.647	21.09
13.86	6.384	0.804	9.31
14.35	6.167	0.321	86.49
15.43	5.738	0.512	15.09
15.73	5.629	0.357	58.34
16.54	5.355	0.415	96.26
16.81	5.270	0.435	16.03
18.03	4.916	0.482	40.47
19.23	4.612	0.399	100
20.26	4.380	0.422	12.52
21.43	4.143	0.762	2.01
21.83	4.068	0.462	9.67
22.58	3.935	0.390	33.95
23.7	3.751	0.602	15.07
24.02	3.702	0.735	16.88
24.5	3.630	0.774	15.12
24.8	3.587	0.907	11.95
25.88	3.440	0.701	5.93
26.43	3.369	0.824	8.28
26.94	3.307	0.853	8.19
27.22	3.273	0.694	3.14
28.72	3.106	0.893	4.01
29.63	3.012	0.496	9.57
30.26	2.951	0.417	28.6
31.26	2.859	0.619	2.67
31.79	2.813	0.577	17.91
34.01	2.634	0.707	6.13
35.62	2.518	0.425	9.88
36.55	2.456	0.535	7.09
38.33	2.346	0.446	7.89
39.28	2.292	0.390	3.34

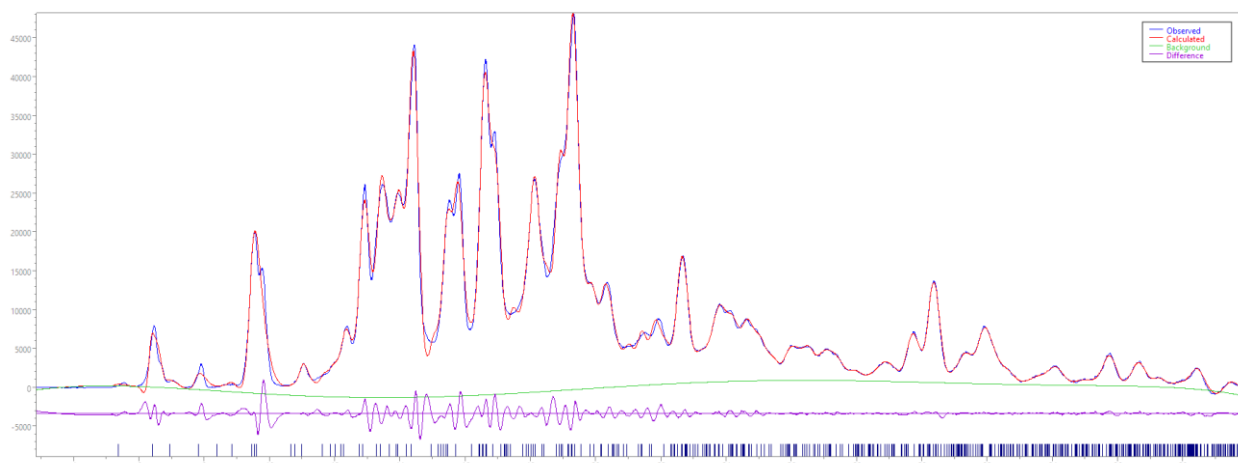


Figure A5. Experimental XRPD pattern (blue), best fit (red) and differential curve (purple) for β CD polymorph III ($R_{wp} = 5.466$). Blue vertical bars represent Bragg positions for the calculated unit cell having P 1 space group.

FTIR spectra for β CD polymorphs I and III

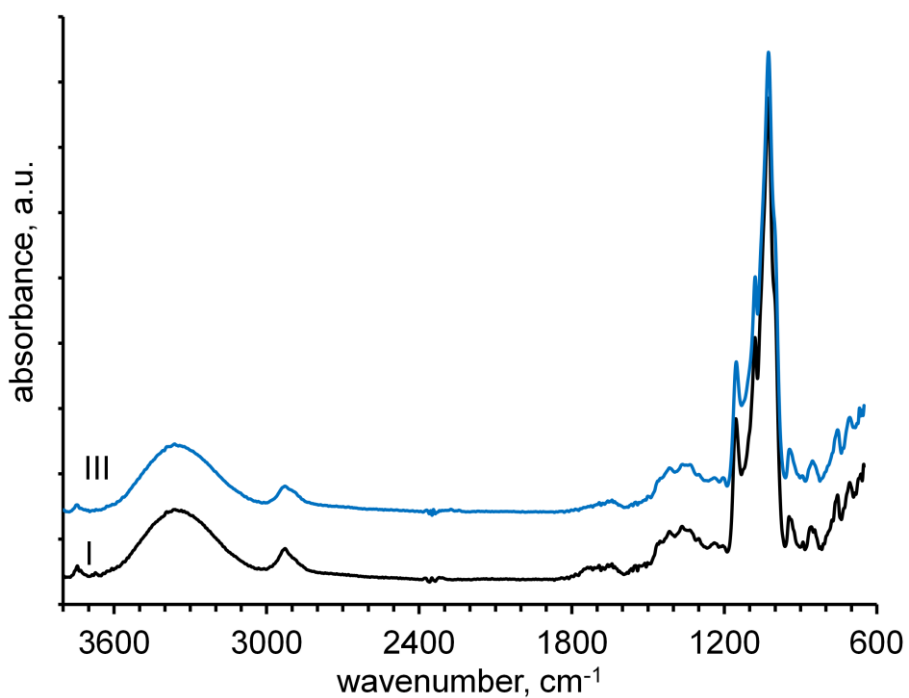


Figure A6. FTIR spectra of β CD polymorphs I and III.

Full-cycle TG/DSC analysis of β CD

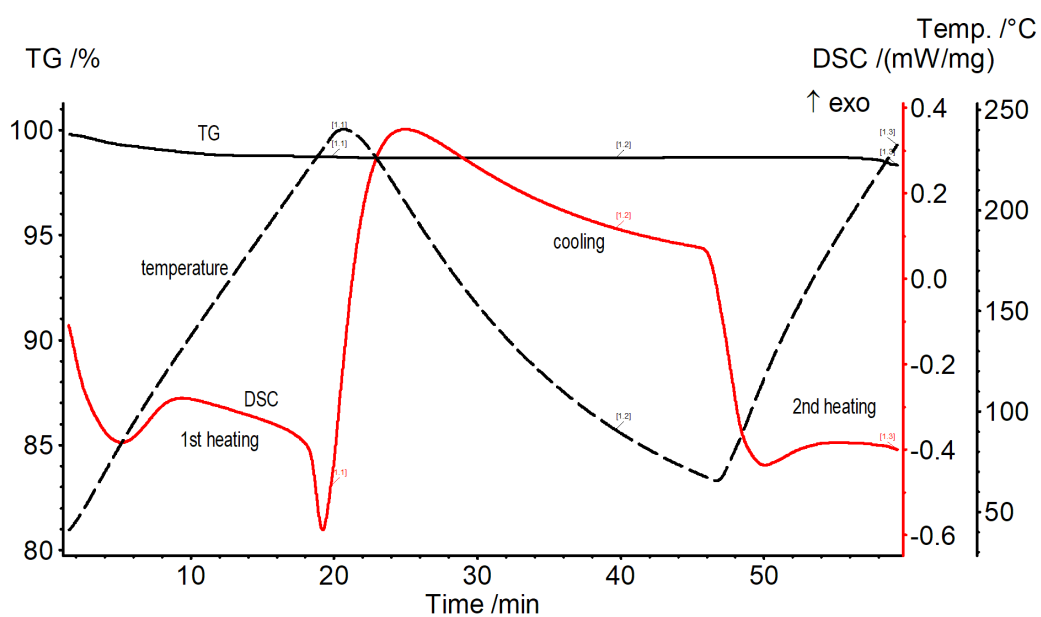


Figure A7. Curves of TG/DSC heating-cooling-heating runs for initial β CD Polymorph I with time for X-axis.

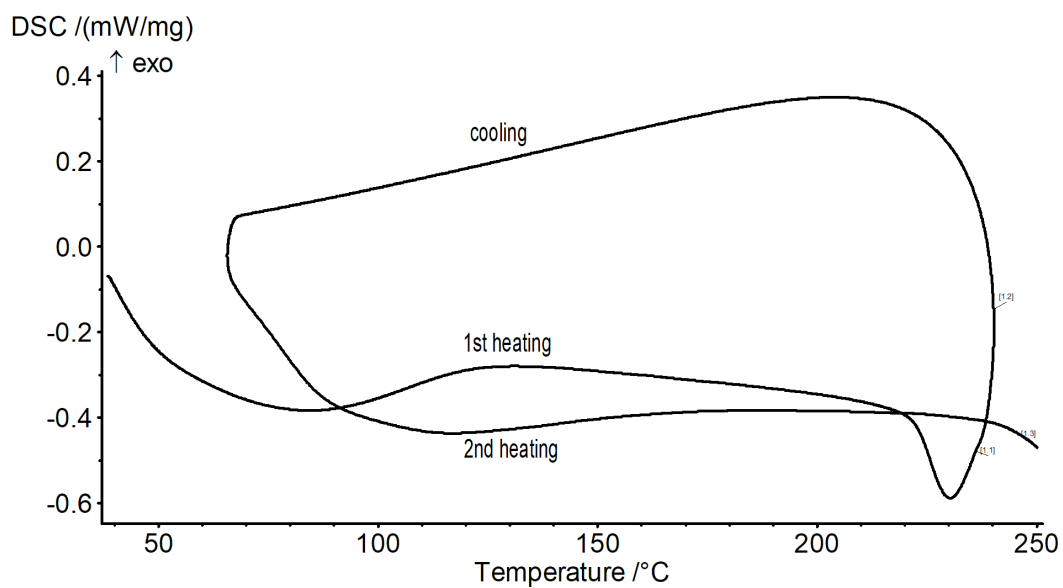


Figure A8. DSC curves of TG/DSC heating-cooling-heating runs for initial β CD Polymorph I with temperature for X-axis.

PXRD patterns of β CD polymorph III prepared by different methods

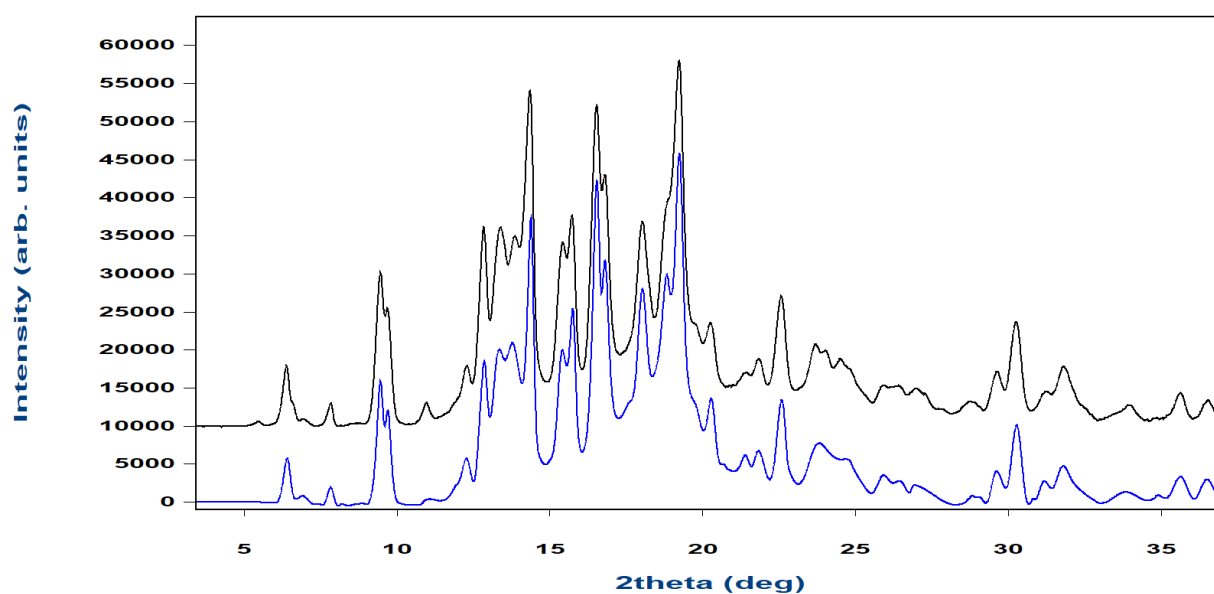


Figure A9. PXRD patterns at room temperature (RT) of β CD polymorph III prepared by heating to 508 K in argon flow and cooling at the rate of 10 K/min in thermal analyzer (blue line), and by heating to 505 K in oven with subsequent cooling to RT on the air (black line).

Molar heat capacity of β CD polymorphs I and III

Table A2. Molar heat capacity dependence on temperature for polymorphs I and III.

$T, ^\circ\text{C}$	$C_{\text{pm}}(\text{I})$	$C_{\text{pm}}(\text{III})$	$T, ^\circ\text{C}$	$C_{\text{pm}}(\text{I})$	$C_{\text{pm}}(\text{III})$	$T, ^\circ\text{C}$	$C_{\text{pm}}(\text{I})$	$C_{\text{pm}}(\text{III})$
72.23	1613.71	1670.07	111.55	1849.89	1893.16	150.87	2052.82	2093.65
72.30	1614.06	1670.17	111.62	1850.23	1893.44	150.93	2053.12	2094.06
72.36	1614.41	1670.59	111.68	1850.56	1893.72	151.00	2053.37	2094.23
72.43	1614.69	1670.69	111.75	1850.83	1893.87	151.07	2053.73	2094.39
72.50	1615.12	1670.80	111.82	1851.24	1894.28	151.13	2054.10	2095.04
72.57	1615.63	1671.54	111.88	1851.70	1894.70	151.20	2054.41	2095.21
72.63	1615.99	1671.97	111.95	1852.04	1895.11	151.27	2054.71	2095.61
72.70	1616.27	1672.08	112.02	1852.30	1895.25	151.33	2054.96	2095.78
72.77	1616.70	1672.19	112.08	1852.71	1895.38	151.40	2055.33	2095.95
72.83	1617.14	1672.94	112.15	1853.11	1896.07	151.47	2055.69	2096.59
72.90	1617.50	1673.05	112.22	1853.44	1896.34	151.53	2055.94	2096.76
72.97	1617.86	1673.49	112.28	1853.77	1896.60	151.60	2056.32	2096.92
73.03	1618.15	1673.60	112.35	1854.04	1896.74	151.66	2056.74	2097.57
73.10	1618.59	1673.72	112.42	1854.43	1897.15	151.73	2057.05	2097.97
73.17	1619.10	1674.47	112.48	1854.90	1897.55	151.80	2057.31	2098.14
73.23	1619.47	1674.91	112.55	1855.23	1897.96	151.86	2057.68	2098.31
73.30	1619.75	1675.03	112.62	1855.49	1898.09	151.93	2058.06	2098.95
73.37	1620.20	1675.15	112.68	1855.88	1898.21	152.00	2058.36	2099.12
73.43	1620.64	1675.92	112.75	1856.28	1898.90	152.06	2058.69	2099.53
73.50	1621.01	1676.04	112.82	1856.60	1899.16	152.13	2058.94	2099.70
73.57	1621.38	1676.49	112.88	1856.93	1899.43	152.20	2059.32	2099.87
73.63	1621.66	1676.61	112.95	1857.18	1899.56	152.26	2059.76	2100.52
73.70	1622.11	1676.74	113.02	1857.58	1899.97	152.33	2060.08	2100.93
73.77	1622.64	1677.51	113.08	1858.04	1900.37	152.40	2060.35	2101.11
73.83	1623.00	1677.96	113.15	1858.36	1900.77	152.46	2060.73	2101.28
73.90	1623.30	1678.09	113.22	1858.61	1900.91	152.53	2061.10	2101.94
73.97	1623.75	1678.23	113.28	1859.01	1901.04	152.60	2061.43	2102.12
74.03	1624.20	1679.00	113.35	1859.40	1901.72	152.66	2061.76	2102.53
74.10	1624.57	1679.14	113.41	1859.72	1901.99	152.73	2062.03	2102.72
74.17	1624.94	1679.60	113.48	1860.04	1902.27	152.80	2062.42	2102.90
74.23	1625.24	1679.74	113.55	1860.30	1902.40	152.86	2062.87	2103.57
74.30	1625.69	1679.88	113.61	1860.68	1902.81	152.93	2063.20	2103.99
74.37	1626.21	1680.66	113.68	1861.14	1903.22	153.00	2063.48	2104.18
74.43	1626.59	1681.12	113.75	1861.46	1903.63	153.06	2063.87	2104.37
74.50	1626.88	1681.26	113.81	1861.71	1903.77	153.13	2064.27	2105.04
74.57	1627.34	1681.41	113.88	1862.10	1903.91	153.20	2064.61	2105.23
74.63	1627.78	1682.19	113.95	1862.48	1904.60	153.26	2064.94	2105.67
74.70	1628.16	1682.34	114.01	1862.74	1904.74	153.33	2065.23	2105.87
74.77	1628.54	1682.81	114.08	1863.13	1904.89	153.40	2065.63	2106.07
74.83	1628.83	1682.97	114.15	1863.51	1905.59	153.46	2066.08	2106.74
74.90	1629.29	1683.12	114.21	1863.84	1905.87	153.53	2066.42	2107.19
74.97	1629.81	1683.91	114.28	1864.16	1906.15	153.60	2066.71	2107.39
75.03	1630.19	1684.39	114.35	1864.41	1906.30	153.66	2067.11	2107.60
75.10	1630.48	1684.54	114.41	1864.81	1906.73	153.73	2067.51	2108.28
75.17	1630.93	1684.70	114.48	1865.27	1907.16	153.80	2067.86	2108.49
75.23	1631.38	1685.50	114.55	1865.59	1907.59	153.86	2068.20	2108.93
75.30	1631.75	1685.66	114.61	1865.84	1907.74	153.93	2068.49	2109.14
75.37	1632.13	1686.14	114.68	1866.24	1907.90	154.00	2068.89	2109.36
75.43	1632.43	1686.31	114.75	1866.63	1908.61	154.06	2069.35	2110.04
75.50	1632.87	1686.47	114.81	1866.96	1908.91	154.13	2069.70	2110.49
75.57	1633.40	1687.27	114.88	1867.29	1909.21	154.20	2069.98	2110.70
75.63	1633.77	1687.75	114.95	1867.55	1909.37	154.26	2070.39	2110.92
75.70	1634.06	1687.93	115.01	1867.94	1909.82	154.33	2070.79	2111.60
75.77	1634.51	1688.10	115.08	1868.41	1910.26	154.40	2071.13	2111.81
75.83	1634.95	1688.90	115.15	1868.73	1910.70	154.46	2071.47	2112.26
75.90	1635.32	1689.08	115.21	1869.00	1910.87	154.53	2071.75	2112.47
75.97	1635.69	1689.56	115.28	1869.40	1911.04	154.60	2072.15	2112.68
76.03	1635.98	1689.74	115.35	1869.80	1911.76	154.66	2072.60	2113.36
76.10	1636.43	1689.92	115.41	1870.14	1912.07	154.73	2072.94	2113.81
76.17	1636.95	1690.72	115.48	1870.47	1912.39	154.80	2073.22	2114.01
76.23	1637.31	1691.22	115.55	1870.74	1912.57	154.86	2073.62	2114.22
76.30	1637.60	1691.39	115.61	1871.14	1913.01	154.93	2074.01	2114.89
76.37	1638.04	1691.57	115.68	1871.60	1913.47	155.00	2074.34	2115.09
76.43	1638.48	1692.37	115.75	1871.94	1913.92	155.06	2074.67	2115.52
76.50	1638.77	1692.56	115.81	1872.21	1914.11	155.13	2074.95	2115.72
76.57	1639.22	1692.74	115.88	1872.62	1914.29	155.20	2075.34	2115.92
76.63	1639.65	1693.54	115.95	1873.01	1915.02	155.26	2075.78	2116.58
76.70	1640.02	1693.73	116.01	1873.35	1915.33	155.33	2076.11	2117.01
76.77	1640.38	1694.22	116.08	1873.68	1915.66	155.40	2076.38	2117.20
76.83	1640.66	1694.40	116.15	1873.95	1915.84	155.46	2076.76	2117.39
76.90	1641.10	1694.59	116.21	1874.35	1916.30	155.53	2077.13	2118.04
76.97	1641.62	1695.40	116.28	1874.82	1916.76	155.60	2077.45	2118.22
77.03	1641.98	1695.89	116.35	1875.15	1917.21	155.66	2077.77	2118.64
77.10	1642.26	1696.07	116.41	1875.42	1917.40	155.73	2078.04	2118.81

77.17	1642.70	1696.26	116.48	1875.83	1917.59	155.80	2078.41	2118.99
77.23	1643.14	1697.06	116.55	1876.22	1918.32	155.86	2078.84	2119.63
77.30	1643.50	1697.25	116.61	1876.56	1918.64	155.93	2079.16	2120.03
77.37	1643.86	1697.75	116.68	1876.88	1918.96	156.00	2079.42	2120.20
77.43	1644.15	1697.93	116.75	1877.15	1919.15	156.06	2079.79	2120.36
77.50	1644.59	1698.12	116.81	1877.54	1919.60	156.13	2080.16	2120.99
77.57	1645.11	1698.93	116.88	1878.01	1920.05	156.20	2080.41	2121.15
77.63	1645.47	1699.43	116.95	1878.33	1920.51	156.26	2080.78	2121.31
77.70	1645.76	1699.61	117.01	1878.59	1920.70	156.33	2081.15	2121.93
77.76	1646.20	1699.80	117.08	1878.98	1920.88	156.40	2081.46	2122.08
77.83	1646.64	1700.61	117.15	1879.38	1921.60	156.46	2081.76	2122.47
77.90	1647.01	1700.79	117.21	1879.70	1921.91	156.53	2082.02	2122.61
77.96	1647.37	1701.29	117.28	1880.02	1922.23	156.60	2082.38	2122.76
78.03	1647.67	1701.48	117.35	1880.28	1922.41	156.66	2082.80	2123.37
78.10	1648.12	1701.67	117.41	1880.67	1922.86	156.73	2083.11	2123.75
78.16	1648.64	1702.48	117.48	1881.12	1923.30	156.80	2083.36	2123.89
78.23	1649.01	1702.98	117.55	1881.44	1923.75	156.86	2083.73	2124.03
78.30	1649.31	1703.17	117.61	1881.70	1923.92	156.93	2084.09	2124.64
78.36	1649.76	1703.36	117.68	1882.08	1924.09	157.00	2084.40	2124.77
78.43	1650.22	1704.17	117.75	1882.47	1924.81	157.06	2084.70	2125.14
78.50	1650.59	1704.36	117.81	1882.78	1925.11	157.13	2084.95	2125.28
78.56	1650.97	1704.87	117.88	1883.10	1925.41	157.20	2085.32	2125.41
78.63	1651.28	1705.06	117.95	1883.35	1925.59	157.26	2085.73	2126.01
78.70	1651.74	1705.26	118.01	1883.74	1926.02	157.33	2086.04	2126.38
78.76	1652.28	1706.07	118.08	1884.18	1926.45	157.40	2086.29	2126.51
78.83	1652.66	1706.58	118.15	1884.50	1926.89	157.46	2086.66	2126.65
78.90	1652.97	1706.78	118.21	1884.75	1927.05	157.53	2087.02	2127.25
78.96	1653.44	1706.97	118.28	1885.13	1927.22	157.60	2087.33	2127.38
79.03	1653.90	1707.79	118.35	1885.52	1927.91	157.66	2087.64	2127.74
79.10	1654.30	1707.99	118.41	1885.84	1928.21	157.73	2087.89	2127.88
79.16	1654.70	1708.50	118.48	1886.15	1928.50	157.80	2088.25	2128.01
79.23	1655.02	1708.70	118.55	1886.41	1928.66	157.86	2088.67	2128.61
79.30	1655.49	1708.91	118.61	1886.79	1929.08	157.93	2088.98	2128.97
79.36	1656.04	1709.74	118.68	1887.18	1929.51	158.00	2089.23	2129.11
79.43	1656.44	1710.25	118.75	1887.43	1929.67	158.06	2089.60	2129.24
79.50	1656.77	1710.46	118.81	1887.82	1930.09	158.13	2089.97	2129.84
79.56	1657.25	1710.67	118.88	1888.27	1930.51	158.20	2090.27	2129.98
79.63	1657.72	1711.50	118.95	1888.60	1930.94	158.26	2090.58	2130.34
79.70	1658.13	1711.70	119.01	1888.86	1931.09	158.33	2090.83	2130.48
79.76	1658.54	1712.23	119.08	1889.25	1931.24	158.40	2091.20	2130.61
79.83	1658.88	1712.43	119.15	1889.64	1931.93	158.46	2091.62	2131.22
79.89	1659.37	1712.65	119.21	1889.96	1932.21	158.53	2091.93	2131.59
79.96	1659.92	1713.48	119.28	1890.29	1932.49	158.60	2092.18	2131.73
80.03	1660.34	1714.00	119.35	1890.55	1932.64	158.66	2092.55	2131.87
80.09	1660.68	1714.22	119.41	1890.95	1933.07	158.73	2092.91	2132.47
80.16	1661.16	1714.43	119.48	1891.41	1933.48	158.80	2093.22	2132.62
80.23	1661.66	1715.26	119.55	1891.74	1933.89	158.86	2093.52	2132.99
80.29	1662.07	1715.48	119.61	1892.01	1934.04	158.93	2093.77	2133.13
80.36	1662.49	1716.00	119.68	1892.41	1934.19	159.00	2094.13	2133.28
80.43	1662.83	1716.22	119.75	1892.80	1934.87	159.06	2094.55	2133.89
80.49	1663.32	1716.44	119.81	1893.14	1935.15	159.13	2094.86	2134.27
80.56	1663.88	1717.28	119.88	1893.48	1935.43	159.20	2095.11	2134.42
80.63	1664.30	1717.80	119.95	1893.75	1935.58	159.26	2095.47	2134.56
80.69	1664.64	1718.02	120.01	1894.15	1935.99	159.33	2095.83	2135.18
80.76	1665.13	1718.24	120.08	1894.62	1936.40	159.40	2096.13	2135.33
80.83	1665.62	1719.07	120.15	1894.95	1936.82	159.46	2096.43	2135.72
80.89	1666.04	1719.29	120.21	1895.23	1936.96	159.53	2096.68	2135.87
80.96	1666.45	1719.82	120.28	1895.63	1937.11	159.60	2097.04	2136.02
81.03	1666.79	1720.04	120.35	1896.03	1937.79	159.66	2097.46	2136.65
81.09	1667.28	1720.25	120.41	1896.38	1938.07	159.73	2097.75	2137.03
81.16	1667.77	1721.09	120.48	1896.72	1938.34	159.80	2098.00	2137.19
81.23	1668.11	1721.30	120.55	1896.99	1938.49	159.86	2098.35	2137.36
81.29	1668.59	1721.52	120.61	1897.40	1938.90	159.93	2098.71	2137.98
81.36	1669.15	1722.35	120.68	1897.87	1939.31	160.00	2099.00	2138.14
81.43	1669.56	1722.87	120.75	1898.20	1939.72	160.06	2099.30	2138.54
81.49	1669.90	1723.09	120.81	1898.48	1939.86	160.13	2099.54	2138.71
81.56	1670.38	1723.30	120.88	1898.88	1940.00	160.20	2099.89	2138.87
81.63	1670.86	1724.13	120.95	1899.29	1940.68	160.26	2100.30	2139.50
81.69	1671.26	1724.34	121.01	1899.63	1940.96	160.33	2100.59	2139.91
81.76	1671.66	1724.86	121.08	1899.97	1941.23	160.40	2100.83	2140.08
81.83	1672.00	1725.07	121.15	1900.24	1941.38	160.46	2101.18	2140.25
81.89	1672.47	1725.28	121.21	1900.64	1941.78	160.53	2101.53	2140.89
81.96	1673.02	1726.10	121.28	1901.10	1942.19	160.60	2101.82	2141.07
82.03	1673.42	1726.61	121.35	1901.44	1942.60	160.66	2102.11	2141.48
82.09	1673.73	1726.81	121.41	1901.71	1942.74	160.73	2102.35	2141.66
82.16	1674.20	1727.02	121.48	1902.12	1942.88	160.80	2102.70	2141.84
82.23	1674.66	1727.84	121.55	1902.51	1943.56	160.86	2103.04	2142.48
82.29	1675.06	1728.03	121.61	1902.84	1943.83	160.93	2103.28	2142.66
82.36	1675.44	1728.54	121.68	1903.18	1944.11	161.00	2103.62	2142.85

82.43	1675.75	1728.74	121.74	1903.44	1944.25	161.06	2104.03	2143.49
82.49	1676.22	1728.94	121.81	1903.84	1944.66	161.13	2104.32	2143.91
82.56	1676.75	1729.74	121.88	1904.30	1945.07	161.20	2104.55	2144.10
82.63	1677.12	1730.24	121.94	1904.63	1945.48	161.26	2104.89	2144.29
82.69	1677.43	1730.43	122.01	1904.89	1945.62	161.33	2105.24	2144.94
82.76	1677.89	1730.62	122.08	1905.29	1945.77	161.40	2105.53	2145.14
82.83	1678.34	1731.42	122.14	1905.68	1946.44	161.46	2105.82	2145.56
82.89	1678.71	1731.61	122.21	1906.00	1946.72	161.53	2106.05	2145.75
82.96	1679.09	1732.10	122.28	1906.33	1946.99	161.60	2106.40	2145.94
83.02	1679.38	1732.28	122.34	1906.59	1947.14	161.66	2106.80	2146.59
83.09	1679.84	1732.46	122.41	1906.98	1947.55	161.73	2107.09	2147.02
83.16	1680.35	1733.25	122.48	1907.43	1947.96	161.80	2107.32	2147.21
83.22	1680.72	1733.74	122.54	1907.76	1948.37	161.86	2107.67	2147.41
83.29	1681.01	1733.91	122.61	1908.02	1948.52	161.93	2108.01	2148.07
83.36	1681.46	1734.08	122.68	1908.41	1948.67	162.00	2108.31	2148.27
83.42	1681.90	1734.87	122.74	1908.79	1949.35	162.06	2108.60	2148.69
83.49	1682.27	1735.03	122.81	1909.12	1949.63	162.13	2108.83	2148.88
83.56	1682.63	1735.51	122.88	1909.44	1949.91	162.20	2109.18	2149.08
83.62	1682.92	1735.67	122.94	1909.69	1950.06	162.26	2109.58	2149.73
83.69	1683.37	1735.84	123.01	1910.08	1950.48	162.33	2109.87	2150.16
83.76	1683.88	1736.61	123.08	1910.53	1950.89	162.40	2110.11	2150.35
83.82	1684.24	1737.08	123.14	1910.85	1951.31	162.46	2110.46	2150.55
83.89	1684.54	1737.24	123.21	1911.11	1951.46	162.53	2110.81	2151.20
83.96	1684.98	1737.40	123.28	1911.49	1951.61	162.60	2111.11	2151.39
84.02	1685.41	1738.17	123.34	1911.88	1952.30	162.66	2111.40	2151.81
84.09	1685.78	1738.33	123.41	1912.14	1952.45	162.73	2111.65	2152.01
84.16	1686.15	1738.79	123.48	1912.53	1952.61	162.80	2112.01	2152.20
84.22	1686.44	1738.94	123.54	1912.92	1953.29	162.86	2112.41	2152.84
84.29	1686.88	1739.10	123.61	1913.24	1953.58	162.93	2112.71	2153.27
84.36	1687.39	1739.86	123.68	1913.56	1953.87	163.00	2112.96	2153.45
84.42	1687.76	1740.32	123.74	1913.82	1954.03	163.06	2113.32	2153.64
84.49	1688.06	1740.47	123.81	1914.21	1954.45	163.13	2113.68	2154.28
84.56	1688.50	1740.63	123.88	1914.66	1954.88	163.20	2113.99	2154.48
84.62	1688.95	1741.39	123.94	1914.99	1955.30	163.26	2114.30	2154.88
84.69	1689.33	1741.55	124.01	1915.25	1955.46	163.33	2114.56	2155.07
84.76	1689.70	1742.00	124.08	1915.64	1955.62	163.40	2114.92	2155.25
84.82	1690.00	1742.16	124.14	1916.03	1956.31	163.46	2115.34	2155.89
84.89	1690.45	1742.31	124.21	1916.35	1956.60	163.53	2115.65	2156.31
84.96	1690.98	1743.09	124.28	1916.68	1956.90	163.60	2115.91	2156.49
85.02	1691.35	1743.54	124.34	1916.94	1957.07	163.66	2116.28	2156.67
85.09	1691.66	1743.70	124.41	1917.33	1957.50	163.73	2116.65	2157.30
85.16	1692.12	1743.86	124.48	1917.79	1957.93	163.79	2116.97	2157.48
85.22	1692.58	1744.63	124.54	1918.11	1958.36	163.86	2117.29	2157.89
85.29	1692.96	1744.80	124.61	1918.38	1958.53	163.93	2117.56	2158.07
85.36	1693.35	1745.27	124.68	1918.77	1958.70	163.99	2117.94	2158.24
85.42	1693.67	1745.44	124.74	1919.16	1959.40	164.06	2118.37	2158.88
85.49	1694.14	1745.61	124.81	1919.49	1959.70	164.13	2118.69	2159.28
85.56	1694.68	1746.39	124.88	1919.82	1960.00	164.19	2118.96	2159.46
85.62	1695.07	1746.87	124.94	1920.08	1960.18	164.26	2119.34	2159.63
85.69	1695.40	1747.04	125.01	1920.48	1960.62	164.33	2119.72	2160.26
85.76	1695.87	1747.22	125.08	1920.94	1961.06	164.39	2120.05	2160.43
85.82	1696.35	1748.02	125.14	1921.27	1961.49	164.46	2120.37	2160.83
85.89	1696.68	1748.20	125.21	1921.53	1961.67	164.53	2120.64	2161.00
85.96	1697.16	1748.39	125.28	1921.92	1961.85	164.59	2121.03	2161.17
86.02	1697.64	1749.19	125.34	1922.32	1962.55	164.66	2121.47	2161.80
86.09	1698.05	1749.38	125.41	1922.65	1962.87	164.73	2121.79	2162.19
86.16	1698.46	1749.89	125.48	1922.97	1963.18	164.79	2122.06	2162.37
86.22	1698.80	1750.09	125.54	1923.24	1963.36	164.86	2122.44	2162.53
86.29	1699.29	1750.29	125.61	1923.64	1963.81	164.93	2122.83	2163.16
86.36	1699.85	1751.10	125.68	1924.10	1964.26	164.99	2123.15	2163.33
86.42	1700.27	1751.61	125.74	1924.42	1964.71	165.06	2123.48	2163.72
86.49	1700.62	1751.83	125.81	1924.69	1964.90	165.13	2123.75	2163.89
86.56	1701.12	1752.04	125.88	1925.09	1965.08	165.19	2124.13	2164.06
86.62	1701.61	1752.86	125.94	1925.48	1965.80	165.26	2124.56	2164.68
86.69	1702.04	1753.08	126.01	1925.81	1966.12	165.33	2124.89	2165.08
86.76	1702.46	1753.61	126.08	1926.14	1966.44	165.39	2125.15	2165.24
86.82	1702.81	1753.83	126.14	1926.41	1966.63	165.46	2125.52	2165.41
86.89	1703.31	1754.06	126.21	1926.81	1967.08	165.53	2125.90	2166.02
86.96	1703.89	1754.90	126.28	1927.26	1967.54	165.59	2126.16	2166.19
87.02	1704.32	1755.44	126.34	1927.59	1967.99	165.66	2126.53	2166.36
87.09	1704.68	1755.66	126.41	1927.85	1968.19	165.73	2126.91	2166.97
87.16	1705.18	1755.90	126.48	1928.26	1968.38	165.79	2127.22	2167.14
87.22	1705.68	1756.74	126.54	1928.65	1969.10	165.86	2127.52	2167.54
87.29	1706.12	1756.98	126.61	1928.98	1969.43	165.93	2127.78	2167.71
87.36	1706.55	1757.52	126.68	1929.31	1969.75	165.99	2128.15	2167.87
87.42	1706.91	1757.76	126.74	1929.58	1969.95	166.06	2128.57	2168.49
87.49	1707.41	1758.00	126.81	1929.98	1970.41	166.13	2128.87	2168.88
87.56	1707.99	1758.85	126.88	1930.43	1970.87	166.19	2129.13	2169.06
87.62	1708.42	1759.40	126.94	1930.77	1971.32	166.26	2129.49	2169.22

87.69	1708.78	1759.64	127.01	1931.03	1971.51	166.33	2129.85	2169.84
87.76	1709.28	1759.89	127.08	1931.44	1971.71	166.39	2130.15	2170.01
87.82	1709.78	1760.73	127.14	1931.83	1972.42	166.46	2130.45	2170.41
87.89	1710.21	1760.97	127.21	1932.16	1972.74	166.53	2130.70	2170.58
87.96	1710.64	1761.52	127.28	1932.50	1973.06	166.59	2131.06	2170.76
88.02	1710.99	1761.76	127.34	1932.77	1973.25	166.66	2131.47	2171.38
88.09	1711.49	1762.00	127.41	1933.17	1973.71	166.73	2131.77	2171.78
88.16	1712.07	1762.85	127.48	1933.62	1974.15	166.79	2132.01	2171.96
88.22	1712.49	1763.39	127.54	1933.96	1974.60	166.86	2132.37	2172.13
88.29	1712.83	1763.62	127.61	1934.23	1974.79	166.93	2132.72	2172.76
88.36	1713.33	1763.86	127.68	1934.63	1974.97	166.99	2133.02	2172.94
88.42	1713.82	1764.70	127.74	1935.03	1975.67	167.06	2133.32	2173.35
88.49	1714.24	1764.93	127.81	1935.36	1975.98	167.13	2133.57	2173.53
88.56	1714.65	1765.47	127.88	1935.70	1976.30	167.19	2133.93	2173.72
88.62	1714.99	1765.70	127.94	1935.98	1976.47	167.26	2134.34	2174.35
88.69	1715.48	1765.93	128.01	1936.38	1976.91	167.33	2134.65	2174.76
88.76	1716.04	1766.76	128.08	1936.78	1977.35	167.39	2134.89	2174.95
88.82	1716.45	1767.28	128.14	1937.05	1977.52	167.46	2135.26	2175.15
88.89	1716.79	1767.50	128.21	1937.45	1977.94	167.53	2135.62	2175.79
88.96	1717.27	1767.73	128.28	1937.92	1978.37	167.59	2135.92	2175.98
89.02	1717.74	1768.54	128.34	1938.25	1978.79	167.66	2136.24	2176.40
89.09	1718.15	1768.77	128.41	1938.53	1978.96	167.73	2136.49	2176.60
89.16	1718.55	1769.28	128.48	1938.93	1979.11	167.79	2136.86	2176.80
89.22	1718.88	1769.49	128.54	1939.32	1979.80	167.86	2137.28	2177.45
89.29	1719.35	1769.70	128.61	1939.66	1980.08	167.93	2137.59	2177.88
89.36	1719.90	1770.52	128.68	1939.99	1980.37	167.99	2137.86	2178.08
89.42	1720.29	1771.02	128.74	1940.26	1980.52	168.06	2138.23	2178.29
89.49	1720.62	1771.23	128.81	1940.66	1980.93	168.13	2138.60	2178.94
89.56	1721.09	1771.43	128.88	1941.12	1981.34	168.19	2138.92	2179.15
89.62	1721.56	1772.23	128.94	1941.45	1981.75	168.26	2139.25	2179.58
89.69	1721.95	1772.43	129.01	1941.72	1981.89	168.33	2139.52	2179.79
89.75	1722.34	1772.93	129.08	1942.11	1982.04	168.39	2139.90	2180.01
89.82	1722.66	1773.13	129.14	1942.50	1982.70	168.46	2140.34	2180.67
89.89	1723.13	1773.32	129.21	1942.83	1982.97	168.53	2140.67	2181.10
89.95	1723.66	1774.11	129.28	1943.15	1983.24	168.59	2140.95	2181.32
90.02	1724.05	1774.60	129.34	1943.41	1983.38	168.66	2141.33	2181.53
90.09	1724.37	1774.79	129.41	1943.80	1983.77	168.73	2141.72	2182.19
90.15	1724.84	1774.98	129.48	1944.24	1984.17	168.79	2142.06	2182.40
90.22	1725.29	1775.76	129.54	1944.56	1984.56	168.86	2142.40	2182.84
90.29	1725.69	1775.95	129.61	1944.81	1984.70	168.93	2142.68	2183.05
90.35	1726.08	1776.43	129.68	1945.19	1984.83	168.99	2143.07	2183.26
90.42	1726.39	1776.61	129.74	1945.56	1985.49	169.06	2143.51	2183.92
90.49	1726.86	1776.79	129.81	1945.88	1985.75	169.13	2143.85	2184.36
90.55	1727.33	1777.57	129.88	1946.19	1986.01	169.19	2144.14	2184.57
90.62	1727.64	1777.75	129.94	1946.43	1986.15	169.26	2144.53	2184.78
90.69	1728.11	1777.92	130.01	1946.80	1986.54	169.33	2144.93	2185.43
90.75	1728.65	1778.70	130.08	1947.23	1986.93	169.39	2145.27	2185.64
90.82	1729.04	1779.16	130.14	1947.53	1987.33	169.46	2145.61	2186.07
90.89	1729.36	1779.34	130.21	1947.76	1987.46	169.53	2145.90	2186.27
90.95	1729.83	1779.51	130.28	1948.13	1987.60	169.59	2146.29	2186.48
91.02	1730.30	1780.28	130.34	1948.49	1988.26	169.66	2146.74	2187.12
91.09	1730.70	1780.45	130.41	1948.78	1988.52	169.73	2147.08	2187.54
91.15	1731.10	1780.91	130.48	1949.07	1988.79	169.79	2147.36	2187.74
91.22	1731.42	1781.08	130.54	1949.30	1988.93	169.86	2147.76	2187.94
91.29	1731.90	1781.25	130.61	1949.65	1989.33	169.93	2148.15	2188.57
91.35	1732.44	1782.01	130.68	1950.06	1989.73	169.99	2148.48	2188.76
91.42	1732.84	1782.47	130.74	1950.35	1990.13	170.06	2148.82	2189.17
91.49	1733.17	1782.64	130.81	1950.57	1990.28	170.13	2149.10	2189.36
91.55	1733.65	1782.80	130.88	1950.92	1990.42	170.19	2149.49	2189.55
91.62	1734.12	1783.56	130.94	1951.26	1991.09	170.26	2149.87	2190.17
91.69	1734.53	1783.72	131.01	1951.55	1991.36	170.33	2150.15	2190.35
91.76	1734.93	1784.18	131.08	1951.82	1991.64	170.39	2150.54	2190.53
91.82	1735.26	1784.34	131.14	1952.04	1991.79	170.46	2150.98	2191.15
91.89	1735.73	1784.50	131.21	1952.39	1992.20	170.53	2151.31	2191.55
91.96	1736.28	1785.26	131.27	1952.80	1992.61	170.59	2151.59	2191.72
92.02	1736.69	1785.71	131.34	1953.08	1993.03	170.66	2151.97	2191.89
92.09	1737.02	1785.87	131.41	1953.30	1993.18	170.73	2152.35	2192.50
92.16	1737.50	1786.03	131.47	1953.64	1993.34	170.79	2152.68	2192.67
92.22	1737.97	1786.78	131.54	1953.98	1994.01	170.86	2153.00	2193.05
92.29	1738.38	1786.94	131.61	1954.27	1994.29	170.93	2153.27	2193.22
92.36	1738.78	1787.39	131.67	1954.55	1994.58	170.99	2153.65	2193.38
92.42	1739.12	1787.55	131.74	1954.77	1994.74	171.06	2154.08	2193.99
92.49	1739.60	1787.70	131.81	1955.12	1995.16	171.13	2154.40	2194.37
92.56	1740.15	1788.45	131.87	1955.53	1995.58	171.19	2154.66	2194.53
92.62	1740.55	1788.91	131.94	1955.81	1995.99	171.26	2155.04	2194.69
92.69	1740.88	1789.06	132.01	1956.03	1996.16	171.33	2155.41	2195.29
92.76	1741.36	1789.22	132.07	1956.39	1996.32	171.39	2155.73	2195.45
92.82	1741.83	1789.97	132.14	1956.74	1997.00	171.46	2156.06	2195.83
92.89	1742.23	1790.12	132.21	1957.03	1997.29	171.53	2156.32	2195.99

92.95	1742.64	1790.58	132.27	1957.33	1997.58	171.59	2156.69	2196.15
93.02	1742.96	1790.73	132.34	1957.56	1997.74	171.66	2157.12	2196.75
93.09	1743.44	1790.89	132.41	1957.92	1998.16	171.73	2157.43	2197.13
93.15	1743.98	1791.64	132.47	1958.35	1998.58	171.79	2157.70	2197.29
93.22	1744.38	1792.10	132.54	1958.65	1999.00	171.86	2158.07	2197.45
93.29	1744.70	1792.25	132.61	1958.89	1999.16	171.93	2158.45	2198.05
93.35	1745.17	1792.42	132.67	1959.26	1999.33	171.99	2158.77	2198.21
93.42	1745.63	1793.17	132.74	1959.63	2000.00	172.06	2159.09	2198.59
93.49	1746.03	1793.33	132.81	1959.88	2000.16	172.13	2159.35	2198.76
93.55	1746.42	1793.79	132.87	1960.25	2000.33	172.19	2159.73	2198.92
93.62	1746.74	1793.95	132.94	1960.63	2001.00	172.26	2160.16	2199.53
93.69	1747.20	1794.12	133.01	1960.94	2001.29	172.33	2160.47	2199.92
93.75	1747.73	1794.87	133.07	1961.26	2001.58	172.39	2160.75	2200.08
93.82	1748.12	1795.33	133.14	1961.52	2001.74	172.46	2161.12	2200.25
93.89	1748.43	1795.50	133.21	1961.91	2002.16	172.53	2161.50	2200.86
93.95	1748.89	1795.67	133.27	1962.36	2002.58	172.59	2161.83	2201.03
94.02	1749.34	1796.43	133.34	1962.68	2003.00	172.66	2162.15	2201.43
94.09	1749.73	1796.60	133.41	1962.95	2003.16	172.73	2162.42	2201.60
94.15	1750.11	1797.06	133.47	1963.34	2003.32	172.79	2162.80	2201.77
94.22	1750.42	1797.24	133.54	1963.73	2003.99	172.86	2163.24	2202.39
94.29	1750.87	1797.41	133.61	1964.07	2004.28	172.93	2163.57	2202.79
94.35	1751.39	1798.18	133.67	1964.41	2004.58	172.99	2163.84	2202.97
94.42	1751.76	1798.65	133.74	1964.68	2004.74	173.06	2164.23	2203.15
94.49	1752.06	1798.83	133.81	1965.09	2005.16	173.13	2164.61	2203.77
94.55	1752.51	1799.00	133.87	1965.55	2005.57	173.19	2164.94	2203.95
94.62	1752.96	1799.77	133.94	1965.90	2005.99	173.26	2165.28	2204.35
94.69	1753.33	1799.95	134.01	1966.18	2006.16	173.33	2165.55	2204.54
94.75	1753.70	1800.43	134.07	1966.59	2006.32	173.39	2165.93	2204.72
94.82	1754.00	1800.61	134.14	1966.99	2006.99	173.46	2166.38	2205.34
94.89	1754.44	1800.80	134.21	1967.34	2007.29	173.53	2166.71	2205.75
94.95	1754.96	1801.57	134.27	1967.69	2007.58	173.59	2166.99	2205.94
95.02	1755.32	1802.05	134.34	1967.97	2007.75	173.66	2167.37	2206.12
95.09	1755.62	1802.23	134.41	1968.39	2008.17	173.73	2167.76	2206.75
95.15	1756.06	1802.42	134.47	1968.86	2008.59	173.79	2168.09	2206.94
95.22	1756.50	1803.19	134.54	1969.21	2009.01	173.86	2168.42	2207.35
95.29	1756.79	1803.38	134.61	1969.51	2009.18	173.93	2168.70	2207.53
95.35	1757.23	1803.57	134.67	1969.92	2009.35	173.99	2169.08	2207.72
95.42	1757.67	1804.35	134.74	1970.34	2010.03	174.06	2169.52	2208.34
95.49	1758.03	1804.54	134.81	1970.69	2010.33	174.13	2169.84	2208.75
95.55	1758.40	1805.02	134.87	1971.05	2010.63	174.19	2170.11	2208.93
95.62	1758.69	1805.21	134.94	1971.34	2010.79	174.26	2170.50	2209.12
95.69	1759.13	1805.40	135.01	1971.76	2011.22	174.33	2170.87	2209.74
95.75	1759.64	1806.18	135.07	1972.24	2011.64	174.39	2171.19	2209.92
95.82	1760.01	1806.65	135.14	1972.59	2012.06	174.46	2171.52	2210.32
95.89	1760.30	1806.85	135.21	1972.89	2012.24	174.53	2171.78	2210.50
95.95	1760.74	1807.03	135.27	1973.31	2012.41	174.59	2172.15	2210.69
96.02	1761.18	1807.81	135.34	1973.73	2013.09	174.66	2172.57	2211.30
96.09	1761.54	1808.00	135.41	1974.08	2013.38	174.73	2172.89	2211.69
96.15	1761.91	1808.48	135.47	1974.44	2013.69	174.79	2173.15	2211.87
96.22	1762.21	1808.67	135.54	1974.73	2013.86	174.86	2173.51	2212.05
96.29	1762.65	1808.86	135.61	1975.15	2014.29	174.93	2173.87	2212.66
96.35	1763.16	1809.64	135.67	1975.63	2014.71	174.99	2174.13	2212.83
96.42	1763.53	1810.12	135.74	1975.99	2015.14	175.06	2174.49	2213.00
96.49	1763.83	1810.30	135.81	1976.28	2015.32	175.13	2174.84	2213.60
96.55	1764.27	1810.49	135.87	1976.70	2015.49	175.19	2175.14	2213.77
96.62	1764.71	1811.26	135.94	1977.11	2016.17	175.26	2175.44	2214.16
96.69	1765.08	1811.45	136.01	1977.47	2016.46	175.33	2175.68	2214.32
96.75	1765.45	1811.93	136.07	1977.82	2016.76	175.39	2176.03	2214.48
96.82	1765.76	1812.11	136.14	1978.11	2016.94	175.46	2176.42	2215.08
96.89	1766.20	1812.30	136.21	1978.52	2017.37	175.53	2176.71	2215.46
96.95	1766.72	1813.06	136.27	1979.00	2017.79	175.59	2176.94	2215.62
97.02	1767.09	1813.54	136.34	1979.35	2018.22	175.66	2177.28	2215.78
97.09	1767.40	1813.73	136.41	1979.64	2018.39	175.72	2177.62	2216.37
97.15	1767.84	1813.91	136.47	1980.05	2018.57	175.79	2177.90	2216.53
97.22	1768.29	1814.67	136.54	1980.45	2019.24	175.86	2178.18	2216.90
97.29	1768.66	1814.86	136.61	1980.80	2019.55	175.92	2178.41	2217.05
97.35	1769.04	1815.33	136.67	1981.14	2019.85	175.99	2178.74	2217.21
97.42	1769.35	1815.52	136.74	1981.43	2020.02	176.06	2179.13	2217.80
97.49	1769.80	1815.70	136.81	1981.83	2020.45	176.12	2179.40	2218.17
97.55	1770.32	1816.46	136.87	1982.29	2020.87	176.19	2179.62	2218.32
97.62	1770.70	1816.93	136.94	1982.64	2021.30	176.26	2179.95	2218.47
97.69	1771.01	1817.12	137.01	1982.91	2021.47	176.32	2180.27	2219.06
97.75	1771.46	1817.30	137.07	1983.31	2021.65	176.39	2180.55	2219.21
97.82	1771.91	1818.06	137.14	1983.70	2022.32	176.46	2180.83	2219.58
97.89	1772.29	1818.24	137.21	1984.03	2022.63	176.52	2181.04	2219.74
97.95	1772.66	1818.71	137.27	1984.36	2022.93	176.59	2181.37	2219.88
98.02	1772.97	1818.89	137.34	1984.63	2023.10	176.66	2181.76	2220.47
98.09	1773.43	1819.07	137.41	1985.02	2023.54	176.72	2182.03	2220.84
98.15	1773.95	1819.83	137.47	1985.41	2023.96	176.79	2182.25	2220.99

98.22	1774.32	1820.31	137.54	1985.66	2024.14	176.86	2182.58	2221.15
98.29	1774.63	1820.49	137.61	1986.05	2024.57	176.92	2182.92	2221.74
98.35	1775.09	1820.67	137.67	1986.49	2025.00	176.99	2183.19	2221.90
98.42	1775.53	1821.43	137.74	1986.81	2025.43	177.06	2183.47	2222.27
98.49	1775.91	1821.61	137.81	1987.06	2025.61	177.12	2183.71	2222.43
98.55	1776.29	1822.09	137.87	1987.44	2025.79	177.19	2184.05	2222.59
98.62	1776.60	1822.27	137.94	1987.81	2026.47	177.26	2184.39	2223.19
98.69	1777.05	1822.45	138.01	1988.11	2026.78	177.32	2184.62	2223.34
98.75	1777.56	1823.21	138.07	1988.42	2027.09	177.39	2184.97	2223.51
98.82	1777.94	1823.68	138.14	1988.66	2027.27	177.46	2185.37	2224.11
98.89	1778.25	1823.87	138.20	1989.03	2027.70	177.52	2185.67	2224.49
98.95	1778.69	1824.05	138.27	1989.45	2028.14	177.59	2185.92	2224.65
99.02	1779.13	1824.81	138.34	1989.75	2028.57	177.66	2186.27	2224.82
99.09	1779.51	1825.00	138.40	1989.98	2028.76	177.72	2186.64	2225.42
99.15	1779.88	1825.47	138.47	1990.34	2028.94	177.79	2186.94	2225.59
99.22	1780.18	1825.66	138.54	1990.69	2029.62	177.86	2187.25	2225.98
99.29	1780.63	1825.85	138.60	1990.98	2029.94	177.92	2187.52	2226.14
99.35	1781.14	1826.61	138.67	1991.27	2030.25	177.99	2187.89	2226.31
99.42	1781.51	1827.09	138.74	1991.50	2030.43	178.06	2188.32	2226.92
99.49	1781.81	1827.28	138.80	1991.85	2030.87	178.12	2188.64	2227.30
99.55	1782.26	1827.46	138.87	1992.26	2031.30	178.19	2188.91	2227.48
99.62	1782.69	1828.23	138.94	1992.54	2031.74	178.26	2189.29	2227.65
99.69	1783.07	1828.41	139.00	1992.77	2031.92	178.32	2189.68	2228.26
99.75	1783.43	1828.88	139.07	1993.11	2032.11	178.39	2190.01	2228.43
99.82	1783.73	1829.08	139.14	1993.46	2032.79	178.46	2190.35	2228.82
99.89	1784.17	1829.26	139.20	1993.74	2033.09	178.52	2190.65	2229.00
99.95	1784.61	1830.03	139.27	1994.02	2033.40	178.59	2191.04	2229.18
100.02	1784.91	1830.21	139.34	1994.24	2033.58	178.66	2191.49	2229.78
100.09	1785.34	1830.40	139.40	1994.58	2034.02	178.72	2191.84	2230.18
100.15	1785.85	1831.17	139.47	1994.99	2034.45	178.79	2192.14	2230.35
100.22	1786.21	1831.65	139.54	1995.27	2034.87	178.86	2192.55	2230.52
100.29	1786.51	1831.83	139.60	1995.49	2035.05	178.92	2192.96	2231.13
100.35	1786.95	1832.02	139.67	1995.84	2035.23	178.99	2193.31	2231.31
100.42	1787.38	1832.78	139.74	1996.18	2035.91	179.06	2193.67	2231.70
100.49	1787.75	1832.97	139.80	1996.40	2036.08	179.12	2193.97	2231.87
100.55	1788.11	1833.44	139.87	1996.75	2036.26	179.19	2194.39	2232.05
100.62	1788.41	1833.62	139.94	1997.10	2036.93	179.26	2194.86	2232.65
100.69	1788.84	1833.81	140.00	1997.38	2037.23	179.32	2195.22	2233.04
100.75	1789.35	1834.57	140.07	1997.67	2037.52	179.39	2195.53	2233.22
100.82	1789.71	1835.04	140.14	1997.90	2037.69	179.46	2195.95	2233.40
100.89	1790.00	1835.22	140.20	1998.26	2038.10	179.52	2196.37	2234.00
100.95	1790.43	1835.40	140.27	1998.67	2038.52	179.59	2196.68	2234.17
101.02	1790.87	1836.16	140.34	1998.97	2038.94	179.66	2197.10	2234.35
101.09	1791.23	1836.34	140.40	1999.20	2039.11	179.72	2197.51	2234.96
101.15	1791.59	1836.80	140.47	1999.56	2039.27	179.79	2197.88	2235.13
101.22	1791.89	1836.98	140.54	1999.92	2039.93	179.86	2198.24	2235.52
101.29	1792.32	1837.16	140.60	2000.22	2040.22	179.92	2198.55	2235.69
101.35	1792.82	1837.90	140.67	2000.52	2040.51	179.99	2198.96	2235.86
101.42	1793.18	1838.36	140.74	2000.77	2040.67	180.06	2199.43	2236.46
101.49	1793.47	1838.54	140.80	2001.14	2041.08	180.12	2199.79	2236.85
101.55	1793.90	1838.71	140.87	2001.56	2041.49	180.19	2200.10	2237.02
101.62	1794.32	1839.45	140.94	2001.87	2041.89	180.26	2200.51	2237.19
101.69	1794.69	1839.62	141.00	2002.12	2042.06	180.32	2200.92	2237.79
101.75	1795.04	1840.08	141.07	2002.50	2042.22	180.39	2201.27	2237.97
101.82	1795.33	1840.23	141.14	2002.87	2042.87	180.46	2201.63	2238.36
101.89	1795.76	1840.40	141.20	2003.19	2043.16	180.52	2201.93	2238.53
101.95	1796.25	1841.14	141.27	2003.51	2043.45	180.59	2202.33	2238.70
102.02	1796.60	1841.59	141.34	2003.78	2043.60	180.66	2202.78	2239.30
102.09	1796.89	1841.74	141.40	2004.16	2044.02	180.72	2203.13	2239.69
102.15	1797.31	1841.90	141.47	2004.61	2044.43	180.79	2203.42	2239.86
102.22	1797.74	1842.63	141.54	2004.94	2044.84	180.86	2203.81	2240.03
102.29	1798.02	1842.79	141.60	2005.20	2045.00	180.92	2204.20	2240.63
102.35	1798.44	1842.94	141.67	2005.59	2045.17	180.99	2204.55	2240.80
102.42	1798.86	1843.67	141.74	2005.98	2045.83	181.06	2204.88	2241.20
102.49	1799.21	1843.82	141.80	2006.32	2046.13	181.12	2205.16	2241.36
102.55	1799.56	1844.26	141.87	2006.65	2046.42	181.19	2205.55	2241.54
102.62	1799.84	1844.41	141.94	2006.93	2046.59	181.26	2205.99	2242.13
102.69	1800.26	1844.55	142.00	2007.34	2047.01	181.32	2206.32	2242.52
102.75	1800.75	1845.27	142.07	2007.74	2047.43	181.39	2206.60	2242.70
102.82	1801.09	1845.70	142.14	2008.02	2047.61	181.45	2206.98	2242.87
102.89	1801.37	1845.84	142.20	2008.42	2048.04	181.52	2207.36	2243.47
102.95	1801.78	1845.99	142.27	2008.89	2048.46	181.59	2207.68	2243.64
103.02	1802.20	1846.71	142.34	2009.24	2048.89	181.65	2208.01	2244.03
103.09	1802.54	1846.85	142.40	2009.52	2049.07	181.72	2208.28	2244.20
103.15	1802.88	1847.28	142.47	2009.94	2049.26	181.79	2208.66	2244.37
103.22	1803.15	1847.42	142.54	2010.35	2049.94	181.85	2209.08	2244.97
103.29	1803.57	1847.55	142.60	2010.70	2050.25	181.92	2209.40	2245.35
103.35	1804.05	1848.27	142.67	2011.05	2050.56	181.99	2209.67	2245.53
103.42	1804.39	1848.69	142.74	2011.35	2050.75	182.05	2210.04	2245.70

103.49	1804.66	1848.83	142.80	2011.76	2051.19	182.12	2210.41	2246.30
103.55	1805.07	1848.97	142.87	2012.24	2051.63	182.19	2210.74	2246.47
103.62	1805.47	1849.68	142.94	2012.60	2052.07	182.25	2211.06	2246.86
103.69	1805.81	1849.82	143.00	2012.90	2052.27	182.32	2211.33	2247.03
103.75	1806.15	1850.24	143.07	2013.32	2052.47	182.39	2211.70	2247.20
103.82	1806.41	1850.38	143.14	2013.75	2053.16	182.45	2212.13	2247.80
103.89	1806.82	1850.52	143.20	2014.10	2053.48	182.52	2212.46	2248.18
103.95	1807.29	1851.22	143.27	2014.46	2053.81	182.59	2212.73	2248.35
104.02	1807.63	1851.64	143.34	2014.77	2054.01	182.65	2213.10	2248.52
104.09	1807.89	1851.79	143.40	2015.19	2054.45	182.72	2213.48	2249.12
104.15	1808.30	1851.92	143.47	2015.67	2054.90	182.79	2213.81	2249.29
104.22	1808.70	1852.63	143.54	2016.03	2055.35	182.85	2214.14	2249.68
104.29	1809.04	1852.77	143.60	2016.34	2055.55	182.92	2214.42	2249.85
104.35	1809.37	1853.20	143.67	2016.76	2055.76	182.99	2214.81	2250.02
104.42	1809.63	1853.34	143.74	2017.18	2056.45	183.05	2215.24	2250.62
104.49	1810.03	1853.48	143.80	2017.55	2056.78	183.12	2215.58	2251.01
104.55	1810.44	1854.19	143.87	2017.91	2057.10	183.19	2215.86	2251.18
104.62	1810.70	1854.34	143.94	2018.21	2057.31	183.25	2216.25	2251.36
104.69	1811.10	1854.48	144.00	2018.63	2057.76	183.32	2216.64	2251.96
104.75	1811.57	1855.19	144.07	2019.11	2058.20	183.39	2216.99	2252.13
104.82	1811.90	1855.61	144.14	2019.47	2058.65	183.45	2217.33	2252.52
104.89	1812.16	1855.76	144.20	2019.77	2058.85	183.52	2217.62	2252.69
104.95	1812.57	1855.91	144.27	2020.19	2059.05	183.59	2218.03	2252.88
105.02	1812.96	1856.61	144.34	2020.61	2059.74	183.65	2218.48	2253.47
105.09	1813.29	1856.77	144.40	2020.97	2060.06	183.72	2218.83	2253.86
105.15	1813.63	1857.20	144.47	2021.32	2060.38	183.79	2219.13	2254.04
105.22	1813.89	1857.34	144.54	2021.62	2060.58	183.85	2219.54	2254.22
105.29	1814.30	1857.50	144.60	2022.03	2061.02	183.92	2219.95	2254.83
105.35	1814.76	1858.21	144.67	2022.50	2061.46	183.99	2220.31	2255.01
105.42	1815.09	1858.65	144.74	2022.85	2061.90	184.05	2220.67	2255.40
105.48	1815.36	1858.80	144.80	2023.14	2062.09	184.12	2220.98	2255.59
105.55	1815.76	1858.96	144.87	2023.55	2062.29	184.19	2221.40	2255.78
105.62	1816.16	1859.67	144.94	2023.95	2062.97	184.25	2221.82	2256.39
105.68	1816.49	1859.83	145.00	2024.30	2063.28	184.32	2222.13	2256.58
105.75	1816.83	1860.27	145.07	2024.64	2063.60	184.39	2222.56	2256.77
105.82	1817.09	1860.43	145.14	2024.92	2063.79	184.45	2223.03	2257.38
105.88	1817.50	1860.59	145.20	2025.32	2064.22	184.52	2223.41	2257.78
105.95	1817.97	1861.32	145.27	2025.77	2064.66	184.59	2223.73	2257.97
106.02	1818.30	1861.76	145.34	2026.11	2065.09	184.65	2224.16	2258.17
106.08	1818.57	1861.92	145.40	2026.38	2065.28	184.72	2224.59	2258.78
106.15	1818.98	1862.08	145.47	2026.78	2065.47	184.79	2224.97	2258.97
106.22	1819.39	1862.81	145.54	2027.17	2066.14	184.85	2225.35	2259.38
106.28	1819.73	1862.98	145.60	2027.49	2066.33	184.92	2225.68	2259.57
106.35	1820.07	1863.43	145.67	2027.81	2066.75	184.99	2226.11	2259.77
106.42	1820.34	1863.60	145.74	2028.08	2066.94	185.05	2226.60	2260.39
106.48	1820.76	1863.78	145.80	2028.46	2067.13	185.12	2226.98	2260.80
106.55	1821.17	1864.51	145.87	2028.89	2067.80	185.19	2227.31	2261.00
106.62	1821.51	1864.97	145.94	2029.21	2068.23	185.25	2227.75	2261.20
106.68	1821.86	1865.15	146.00	2029.47	2068.42	185.32	2228.18	2261.82
106.75	1822.14	1865.33	146.07	2029.84	2068.60	185.39	2228.56	2262.02
106.82	1822.56	1866.07	146.14	2030.21	2069.28	185.45	2228.95	2262.43
106.88	1823.04	1866.25	146.20	2030.53	2069.47	185.52	2229.28	2262.63
106.95	1823.40	1866.72	146.27	2030.83	2069.90	185.59	2229.72	2262.83
107.02	1823.68	1866.91	146.34	2031.08	2070.08	185.65	2230.20	2263.45
107.08	1824.10	1867.10	146.40	2031.45	2070.27	185.72	2230.58	2263.86
107.15	1824.53	1867.84	146.47	2031.87	2070.94	185.79	2230.91	2264.06
107.22	1824.89	1868.31	146.54	2032.17	2071.37	185.85	2231.34	2264.26
107.28	1825.25	1868.51	146.60	2032.41	2071.56	185.92	2231.77	2264.87
107.35	1825.54	1868.71	146.67	2032.77	2071.75	185.99	2232.15	2265.07
107.42	1825.97	1869.46	146.73	2033.12	2072.42	186.05	2232.52	2265.47
107.48	1826.47	1869.66	146.80	2033.37	2072.61	186.12	2232.85	2265.67
107.55	1826.83	1870.14	146.87	2033.71	2072.80	186.19	2233.27	2265.87
107.62	1827.13	1870.35	146.93	2034.07	2073.47	186.25	2233.74	2266.48
107.68	1827.57	1870.55	147.00	2034.36	2073.66	186.32	2234.11	2266.88
107.75	1828.00	1871.32	147.07	2034.66	2074.09	186.39	2234.42	2267.08
107.82	1828.37	1871.81	147.13	2034.89	2074.29	186.45	2234.84	2267.27
107.88	1828.74	1872.02	147.20	2035.24	2074.47	186.52	2235.25	2267.87
107.95	1829.04	1872.23	147.27	2035.65	2075.15	186.59	2235.61	2268.06
108.02	1829.48	1873.00	147.33	2035.94	2075.58	186.65	2235.96	2268.46
108.08	1829.99	1873.21	147.40	2036.18	2075.77	186.72	2236.27	2268.64
108.15	1830.36	1873.71	147.47	2036.53	2075.96	186.79	2236.67	2268.82
108.22	1830.66	1873.93	147.53	2036.87	2076.63	186.85	2237.12	2269.42
108.28	1831.10	1874.15	147.60	2037.16	2076.82	186.92	2237.47	2269.81
108.35	1831.55	1874.93	147.67	2037.45	2077.25	186.99	2237.75	2269.98
108.42	1831.92	1875.43	147.73	2037.69	2077.44	187.05	2238.15	2270.16
108.48	1832.30	1875.65	147.80	2038.03	2077.63	187.12	2238.54	2270.75
108.55	1832.60	1875.87	147.87	2038.44	2078.30	187.19	2238.88	2270.93
108.62	1833.05	1876.65	147.93	2038.73	2078.73	187.25	2239.20	2271.30
108.68	1833.56	1876.87	148.00	2038.96	2078.92	187.32	2239.48	2271.47

108.75	1833.93	1877.37	148.07	2039.31	2079.11	187.39	2239.86	2271.64
108.82	1834.24	1877.59	148.13	2039.66	2079.78	187.45	2240.29	2272.23
108.88	1834.68	1877.81	148.20	2039.95	2079.97	187.52	2240.62	2272.60
108.95	1835.11	1878.59	148.27	2040.24	2080.40	187.59	2240.88	2272.76
109.02	1835.49	1879.09	148.33	2040.48	2080.59	187.65	2241.25	2272.93
109.08	1835.86	1879.32	148.40	2040.83	2080.78	187.72	2241.62	2273.51
109.15	1836.17	1879.53	148.47	2041.24	2081.45	187.79	2241.94	2273.67
109.22	1836.60	1880.31	148.53	2041.54	2081.87	187.85	2242.25	2274.04
109.28	1837.04	1880.53	148.60	2041.77	2082.06	187.92	2242.51	2274.19
109.35	1837.34	1880.75	148.67	2042.12	2082.25	187.99	2242.87	2274.35
109.42	1837.78	1881.52	148.73	2042.48	2082.91	188.05	2243.28	2274.93
109.48	1838.28	1881.74	148.80	2042.78	2083.09	188.12	2243.59	2275.30
109.55	1838.65	1882.23	148.87	2043.07	2083.52	188.19	2243.85	2275.45
109.62	1838.95	1882.44	148.93	2043.31	2083.71	188.25	2244.21	2275.61
109.68	1839.38	1882.65	149.00	2043.67	2083.89	188.32	2244.56	2276.18
109.75	1839.81	1883.42	149.07	2044.08	2084.56	188.39	2244.87	2276.34
109.82	1840.18	1883.90	149.13	2044.38	2084.98	188.45	2245.18	2276.70
109.88	1840.54	1884.11	149.20	2044.63	2085.16	188.52	2245.44	2276.86
109.95	1840.83	1884.30	149.27	2044.99	2085.35	188.59	2245.80	2277.02
110.02	1841.26	1885.06	149.33	2045.34	2086.01	188.65	2246.21	2277.59
110.08	1841.75	1885.26	149.40	2045.65	2086.19	188.72	2246.52	2277.96
110.15	1842.11	1885.73	149.47	2045.95	2086.61	188.79	2246.78	2278.13
110.22	1842.40	1885.93	149.53	2046.19	2086.80	188.85	2247.14	2278.29
110.28	1842.83	1886.12	149.60	2046.56	2086.98	188.92	2247.51	2278.86
110.35	1843.25	1886.86	149.67	2046.98	2087.63	188.99	2247.76	2279.03
110.42	1843.60	1887.33	149.73	2047.28	2088.05	189.05	2248.13	2279.20
110.48	1843.96	1887.51	149.80	2047.52	2088.24	189.12	2248.50	2279.78
110.55	1844.24	1887.69	149.87	2047.89	2088.41	189.19	2248.82	2279.95
110.62	1844.67	1888.43	149.93	2048.25	2089.06	189.25	2249.14	2280.32
110.68	1845.14	1888.60	150.00	2048.55	2089.25	189.32	2249.42	2280.50
110.75	1845.49	1889.05	150.07	2048.86	2089.66	189.39	2249.79	2280.67
110.82	1845.78	1889.22	150.13	2049.10	2089.84	189.45	2250.22	2281.25
110.88	1846.19	1889.39	150.20	2049.47	2090.01	189.52	2250.55	2281.64
110.95	1846.61	1890.11	150.27	2049.89	2090.67	189.59	2250.83	2281.82
111.02	1846.95	1890.55	150.33	2050.20	2091.08	189.65	2251.22	2281.99
111.08	1847.30	1890.71	150.40	2050.44	2091.26	189.72	2251.61	2282.59
111.15	1847.57	1890.87	150.47	2050.81	2091.43	189.79	2251.95	2282.77
111.22	1847.98	1891.58	150.53	2051.17	2092.08	189.85	2252.29	2283.16
111.28	1848.46	1891.73	150.60	2051.47	2092.25	189.92	2252.58	2283.35
111.35	1848.80	1892.16	150.67	2051.78	2092.66	189.99	2252.98	2283.53
111.42	1849.07	1892.31	150.73	2052.03	2092.83			
111.48	1849.48	1892.46	150.80	2052.40	2093.01			

Approximation of hydration isotherms

Hill equation used for approximation of each isotherm step:

$$A = S \cdot C \cdot a_w^N / (1 + C \cdot a_w^N)$$

, where A is hydration (mol water / mol CD) at water activity a_w , S is hydration at saturation, C – sorption constant, N – cooperativity parameter. Two-step isotherms were approximated as a sum of two single steps.

For isotherms fitted by Hill equation, $a_{0.5S}$ (water activity at 50% saturation of step) can be calculated using the equation:

$$a_{0.5S} = C^{-1/N}$$

Table A3. Parameters of hydration isotherms for β CD polymorphs and HP β CD.

	S , mol water per mol CD	$a_{0.5S}$	C	N	σ
polymorph I [1]	9.2	0.26	$8.4 \cdot 10^1$	3.3	0.01
	2.2	0.97	$4.3 \cdot 10^1$	126	
polymorph III	2.7	0.09	$1.1 \cdot 10^7$	6.8	0.006
	1.6	0.30	$3.7 \cdot 10^{10}$	20	
HP β CD	2.2	0.04	$6.4 \cdot 10^3$	3.8	0.02

[1] A.K. Gatiatulin, M.A. Ziganshin, G.F. Yumaeva, A.T. Gubaidullin, K. Suwińska, V. V. Gorbachuk, Using water-mimic organic compounds to activate guest inclusion by initially dry beta-cyclodextrin, RSC Adv. 6 (2016) 61984–61995. <https://doi.org/10.1039/C6RA11378H>