

COLLOID SURFACE AREA

(see bottom of table for explanations and assumptions)

1	2	3	4	5	6	7	8
ppm	mean diameter	g of Ag/ml	cc of Ag/ml	corrected vol.	# particles/ml	Surf. Area/part.	Surf.area./ml
0.10	0.5	1.00E-07	9.52E-09	7.05E-09	1.077E+14	7.854E-15	0.846
0.10	1	1.00E-07	9.52E-09	7.05E-09	1.346E+13	3.142E-14	0.423
0.10	2	1.00E-07	9.52E-09	7.05E-09	1.682E+12	1.257E-13	0.211
0.10	3	1.00E-07	9.52E-09	7.05E-09	4.985E+11	2.827E-13	0.141
0.10	5	1.00E-07	9.52E-09	7.05E-09	1.077E+11	7.854E-13	0.085
0.10	10	1.00E-07	9.52E-09	7.05E-09	1.346E+10	3.142E-12	0.042
0.10	15	1.00E-07	9.52E-09	7.05E-09	3.988E+09	7.069E-12	0.028
0.10	20	1.00E-07	9.52E-09	7.05E-09	1.682E+09	1.257E-11	0.021
0.10	30	1.00E-07	9.52E-09	7.05E-09	4.985E+08	2.827E-11	0.014
0.10	50	1.00E-07	9.52E-09	7.05E-09	1.077E+08	7.854E-11	0.008
0.10	100	1.00E-07	9.52E-09	7.05E-09	1.346E+07	3.142E-10	0.004
0.10	200	1.00E-07	9.52E-09	7.05E-09	1.682E+06	1.257E-09	0.002
0.10	500	1.00E-07	9.52E-09	7.05E-09	1.077E+05	7.854E-09	0.001
0.20	0.5	2.00E-07	1.90E-08	1.41E-08	2.154E+14	7.854E-15	1.691
0.20	1	2.00E-07	1.90E-08	1.41E-08	2.692E+13	3.142E-14	0.846
0.20	2	2.00E-07	1.90E-08	1.41E-08	3.365E+12	1.257E-13	0.423
0.20	3	2.00E-07	1.90E-08	1.41E-08	9.970E+11	2.827E-13	0.282
0.20	5	2.00E-07	1.90E-08	1.41E-08	2.154E+11	7.854E-13	0.169
0.20	10	2.00E-07	1.90E-08	1.41E-08	2.692E+10	3.142E-12	0.085
0.20	15	2.00E-07	1.90E-08	1.41E-08	7.976E+09	7.069E-12	0.056
0.20	20	2.00E-07	1.90E-08	1.41E-08	3.365E+09	1.257E-11	0.042
0.20	30	2.00E-07	1.90E-08	1.41E-08	9.970E+08	2.827E-11	0.028
0.20	50	2.00E-07	1.90E-08	1.41E-08	2.154E+08	7.854E-11	0.017
0.20	100	2.00E-07	1.90E-08	1.41E-08	2.692E+07	3.142E-10	0.008
0.20	200	2.00E-07	1.90E-08	1.41E-08	3.365E+06	1.257E-09	0.004
0.20	500	2.00E-07	1.90E-08	1.41E-08	2.154E+05	7.854E-09	0.002
0.40	0.5	4.00E-07	3.81E-08	2.82E-08	4.307E+14	7.854E-15	3.383
0.40	1	4.00E-07	3.81E-08	2.82E-08	5.384E+13	3.142E-14	1.691
0.40	2	4.00E-07	3.81E-08	2.82E-08	6.730E+12	1.257E-13	0.846
0.40	3	4.00E-07	3.81E-08	2.82E-08	1.994E+12	2.827E-13	0.564
0.40	5	4.00E-07	3.81E-08	2.82E-08	4.307E+11	7.854E-13	0.338
0.40	10	4.00E-07	3.81E-08	2.82E-08	5.384E+10	3.142E-12	0.169
0.40	15	4.00E-07	3.81E-08	2.82E-08	1.595E+10	7.069E-12	0.113
0.40	20	4.00E-07	3.81E-08	2.82E-08	6.730E+09	1.257E-11	0.085
0.40	30	4.00E-07	3.81E-08	2.82E-08	1.994E+09	2.827E-11	0.056
0.40	50	4.00E-07	3.81E-08	2.82E-08	4.307E+08	7.854E-11	0.034
0.40	100	4.00E-07	3.81E-08	2.82E-08	5.384E+07	3.142E-10	0.017
0.40	200	4.00E-07	3.81E-08	2.82E-08	6.730E+06	1.257E-09	0.008
0.40	500	4.00E-07	3.81E-08	2.82E-08	4.307E+05	7.854E-09	0.003
0.60	0.5	6.00E-07	5.71E-08	4.23E-08	6.461E+14	7.854E-15	5.074
0.60	1	6.00E-07	5.71E-08	4.23E-08	8.076E+13	3.142E-14	2.537
0.60	2	6.00E-07	5.71E-08	4.23E-08	1.009E+13	1.257E-13	1.269
0.60	3	6.00E-07	5.71E-08	4.23E-08	2.991E+12	2.827E-13	0.846
0.60	5	6.00E-07	5.71E-08	4.23E-08	6.461E+11	7.854E-13	0.507
0.60	10	6.00E-07	5.71E-08	4.23E-08	8.076E+10	3.142E-12	0.254
0.60	15	6.00E-07	5.71E-08	4.23E-08	2.393E+10	7.069E-12	0.169
0.60	20	6.00E-07	5.71E-08	4.23E-08	1.009E+10	1.257E-11	0.127

0.60	30	6.00E-07	5.71E-08	4.23E-08	2.991E+09	2.827E-11	0.085
0.60	50	6.00E-07	5.71E-08	4.23E-08	6.461E+08	7.854E-11	0.051
0.60	100	6.00E-07	5.71E-08	4.23E-08	8.076E+07	3.142E-10	0.025
0.60	200	6.00E-07	5.71E-08	4.23E-08	1.009E+07	1.257E-09	0.013
0.60	500	6.00E-07	5.71E-08	4.23E-08	6.461E+05	7.854E-09	0.005
0.80	0.5	8.00E-07	7.62E-08	5.64E-08	8.614E+14	7.854E-15	6.766
0.80	1	8.00E-07	7.62E-08	5.64E-08	1.077E+14	3.142E-14	3.383
0.80	2	8.00E-07	7.62E-08	5.64E-08	1.346E+13	1.257E-13	1.691
0.80	3	8.00E-07	7.62E-08	5.64E-08	3.988E+12	2.827E-13	1.128
0.80	5	8.00E-07	7.62E-08	5.64E-08	8.614E+11	7.854E-13	0.677
0.80	10	8.00E-07	7.62E-08	5.64E-08	1.077E+11	3.142E-12	0.338
0.80	15	8.00E-07	7.62E-08	5.64E-08	3.191E+10	7.069E-12	0.226
0.80	20	8.00E-07	7.62E-08	5.64E-08	1.346E+10	1.257E-11	0.169
0.80	30	8.00E-07	7.62E-08	5.64E-08	3.988E+09	2.827E-11	0.113
0.80	50	8.00E-07	7.62E-08	5.64E-08	8.614E+08	7.854E-11	0.068
0.80	100	8.00E-07	7.62E-08	5.64E-08	1.077E+08	3.142E-10	0.034
0.80	200	8.00E-07	7.62E-08	5.64E-08	1.346E+07	1.257E-09	0.017
0.80	500	8.00E-07	7.62E-08	5.64E-08	8.614E+05	7.854E-09	0.007
1.00	0.5	1.00E-06	9.52E-08	7.05E-08	1.077E+15	7.854E-15	8.457
1.00	1	1.00E-06	9.52E-08	7.05E-08	1.346E+14	3.142E-14	4.229
1.00	2	1.00E-06	9.52E-08	7.05E-08	1.682E+13	1.257E-13	2.114
1.00	3	1.00E-06	9.52E-08	7.05E-08	4.985E+12	2.827E-13	1.410
1.00	5	1.00E-06	9.52E-08	7.05E-08	1.077E+12	7.854E-13	0.846
1.00	10	1.00E-06	9.52E-08	7.05E-08	1.346E+11	3.142E-12	0.423
1.00	15	1.00E-06	9.52E-08	7.05E-08	3.988E+10	7.069E-12	0.282
1.00	20	1.00E-06	9.52E-08	7.05E-08	1.682E+10	1.257E-11	0.211
1.00	30	1.00E-06	9.52E-08	7.05E-08	4.985E+09	2.827E-11	0.141
1.00	50	1.00E-06	9.52E-08	7.05E-08	1.077E+09	7.854E-11	0.085
1.00	100	1.00E-06	9.52E-08	7.05E-08	1.346E+08	3.142E-10	0.042
1.00	200	1.00E-06	9.52E-08	7.05E-08	1.682E+07	1.257E-09	0.021
1.00	500	1.00E-06	9.52E-08	7.05E-08	1.077E+06	7.854E-09	0.008
2.00	0.5	2.00E-06	1.90E-07	1.41E-07	2.154E+15	7.854E-15	16.914
2.00	1	2.00E-06	1.90E-07	1.41E-07	2.692E+14	3.142E-14	8.457
2.00	2	2.00E-06	1.90E-07	1.41E-07	3.365E+13	1.257E-13	4.229
2.00	3	2.00E-06	1.90E-07	1.41E-07	9.970E+12	2.827E-13	2.819
2.00	5	2.00E-06	1.90E-07	1.41E-07	2.154E+12	7.854E-13	1.691
2.00	10	2.00E-06	1.90E-07	1.41E-07	2.692E+11	3.142E-12	0.846
2.00	15	2.00E-06	1.90E-07	1.41E-07	7.976E+10	7.069E-12	0.564
2.00	20	2.00E-06	1.90E-07	1.41E-07	3.365E+10	1.257E-11	0.423
2.00	30	2.00E-06	1.90E-07	1.41E-07	9.970E+09	2.827E-11	0.282
2.00	50	2.00E-06	1.90E-07	1.41E-07	2.154E+09	7.854E-11	0.169
2.00	100	2.00E-06	1.90E-07	1.41E-07	2.692E+08	3.142E-10	0.085
2.00	200	2.00E-06	1.90E-07	1.41E-07	3.365E+07	1.257E-09	0.042
2.00	500	2.00E-06	1.90E-07	1.41E-07	2.154E+06	7.854E-09	0.017
3.00	0.5	3.00E-06	2.86E-07	2.11E-07	3.230E+15	7.854E-15	25.371
3.00	1	3.00E-06	2.86E-07	2.11E-07	4.038E+14	3.142E-14	12.686
3.00	2	3.00E-06	2.86E-07	2.11E-07	5.047E+13	1.257E-13	6.343
3.00	3	3.00E-06	2.86E-07	2.11E-07	1.496E+13	2.827E-13	4.229
3.00	5	3.00E-06	2.86E-07	2.11E-07	3.230E+12	7.854E-13	2.537
3.00	10	3.00E-06	2.86E-07	2.11E-07	4.038E+11	3.142E-12	1.269
3.00	15	3.00E-06	2.86E-07	2.11E-07	1.196E+11	7.069E-12	0.846
3.00	20	3.00E-06	2.86E-07	2.11E-07	5.047E+10	1.257E-11	0.634

3.00	30	3.00E-06	2.86E-07	2.11E-07	1.496E+10	2.827E-11	0.423
3.00	50	3.00E-06	2.86E-07	2.11E-07	3.230E+09	7.854E-11	0.254
3.00	100	3.00E-06	2.86E-07	2.11E-07	4.038E+08	3.142E-10	0.127
3.00	200	3.00E-06	2.86E-07	2.11E-07	5.047E+07	1.257E-09	0.063
3.00	500	3.00E-06	2.86E-07	2.11E-07	3.230E+06	7.854E-09	0.025
5.00	0.5	5.00E-06	4.76E-07	3.52E-07	5.384E+15	7.854E-15	42.286
5.00	1	5.00E-06	4.76E-07	3.52E-07	6.730E+14	3.142E-14	21.143
5.00	2	5.00E-06	4.76E-07	3.52E-07	8.412E+13	1.257E-13	10.571
5.00	3	5.00E-06	4.76E-07	3.52E-07	2.493E+13	2.827E-13	7.048
5.00	5	5.00E-06	4.76E-07	3.52E-07	5.384E+12	7.854E-13	4.229
5.00	10	5.00E-06	4.76E-07	3.52E-07	6.730E+11	3.142E-12	2.114
5.00	15	5.00E-06	4.76E-07	3.52E-07	1.994E+11	7.069E-12	1.410
5.00	20	5.00E-06	4.76E-07	3.52E-07	8.412E+10	1.257E-11	1.057
5.00	30	5.00E-06	4.76E-07	3.52E-07	2.493E+10	2.827E-11	0.705
5.00	50	5.00E-06	4.76E-07	3.52E-07	5.384E+09	7.854E-11	0.423
5.00	100	5.00E-06	4.76E-07	3.52E-07	6.730E+08	3.142E-10	0.211
5.00	200	5.00E-06	4.76E-07	3.52E-07	8.412E+07	1.257E-09	0.106
5.00	500	5.00E-06	4.76E-07	3.52E-07	5.384E+06	7.854E-09	0.042
10.00	0.5	1.00E-05	9.52E-07	7.05E-07	1.077E+16	7.854E-15	84.571
10.00	1	1.00E-05	9.52E-07	7.05E-07	1.346E+15	3.142E-14	42.286
10.00	2	1.00E-05	9.52E-07	7.05E-07	1.682E+14	1.257E-13	21.143
10.00	3	1.00E-05	9.52E-07	7.05E-07	4.985E+13	2.827E-13	14.095
10.00	5	1.00E-05	9.52E-07	7.05E-07	1.077E+13	7.854E-13	8.457
10.00	10	1.00E-05	9.52E-07	7.05E-07	1.346E+12	3.142E-12	4.229
10.00	15	1.00E-05	9.52E-07	7.05E-07	3.988E+11	7.069E-12	2.819
10.00	20	1.00E-05	9.52E-07	7.05E-07	1.682E+11	1.257E-11	2.114
10.00	30	1.00E-05	9.52E-07	7.05E-07	4.985E+10	2.827E-11	1.410
10.00	50	1.00E-05	9.52E-07	7.05E-07	1.077E+10	7.854E-11	0.846
10.00	100	1.00E-05	9.52E-07	7.05E-07	1.346E+09	3.142E-10	0.423
10.00	200	1.00E-05	9.52E-07	7.05E-07	1.682E+08	1.257E-09	0.211
10.00	500	1.00E-05	9.52E-07	7.05E-07	1.077E+07	7.854E-09	0.085
15.00	0.5	1.50E-05	1.43E-06	1.06E-06	1.615E+16	7.854E-15	126.857
15.00	1	1.50E-05	1.43E-06	1.06E-06	2.019E+15	3.142E-14	63.429
15.00	2	1.50E-05	1.43E-06	1.06E-06	2.524E+14	1.257E-13	31.714
15.00	3	1.50E-05	1.43E-06	1.06E-06	7.478E+13	2.827E-13	21.143
15.00	5	1.50E-05	1.43E-06	1.06E-06	1.615E+13	7.854E-13	12.686
15.00	10	1.50E-05	1.43E-06	1.06E-06	2.019E+12	3.142E-12	6.343
15.00	15	1.50E-05	1.43E-06	1.06E-06	5.982E+11	7.069E-12	4.229
15.00	20	1.50E-05	1.43E-06	1.06E-06	2.524E+11	1.257E-11	3.171
15.00	30	1.50E-05	1.43E-06	1.06E-06	7.478E+10	2.827E-11	2.114
15.00	50	1.50E-05	1.43E-06	1.06E-06	1.615E+10	7.854E-11	1.269
15.00	100	1.50E-05	1.43E-06	1.06E-06	2.019E+09	3.142E-10	0.634
15.00	200	1.50E-05	1.43E-06	1.06E-06	2.524E+08	1.257E-09	0.317
15.00	500	1.50E-05	1.43E-06	1.06E-06	1.615E+07	7.854E-09	0.127

- (1) mean diameter is in nanometers
- (2) the density of Ag is 10.5 g/cc
- (3) Column 5 corrects col.4 for the void volume in cubic close packing (26% voids)
- (4) particles are spherical, with surface area = πd^2
- (5) Surface area in cm^2