DEFINITIONS

A.P.I. Gravity @60°F:

The A.P.I. Gravity of an oil is derived from an equation which relies upon the Specific Gravity or Relative Density of the oil. As the equation relies upon a parameter which has no units (as it is a ratio) this parameter also has no units and is only a factor without any scientific meaning. It is believed that it was originally derived for oil trading purposes for price fixing i.e. the higher the A.P.I, the higher the price for the oil.

DENSITY

Density is by definition measured in vacuum at 15°C.
Use tablles 54A or 54B in volumes VII and VIII.

Density - this parameter is normally recorded at the standard measurement/calculation temperature of 15°C. Its units are reported as either kilograms per litre (kg/ltr) or more correctly kilograms per cubic meter (kg/m3). This parameter gives the ratio of the mass of the oil to its volume albeit that its units record an apparent weight per unit volume. The Density of an oil is normally reported on a certificate of quality to four decimal places as say, 0.8590 kg/ltr. @ 15°C. It is the preferred parameter for the calculation of quantity of the oil cargo.

Reference to density "in vacuo" and density "in air" is to be specifically avoided.
The standard parameter of density is only density (to be associated with density "in vacuo") and density "in air" does not exist save for its associated Petroleum Measurement table 56 factor for tonnage calculation/conversion.

RELATIVE DENSITY 15/4

Relative Density 15/4 is the density of oil at 15°C/density of fresh water at 4°C.
Relative Density 15/4 can be treated exactly the same way as density at 15°C as it is almost the same.
Use tablles 54A or 54B in volumes VII and VIII or convert to API using table 3 in volume XI/XII.

RELATIVE DENSITY 60/60 (SG)

Relative Density 60/60 is the density of cargo at 60°F/density of fresh water at 60°F.
Convert this density at 15°C, or API using table 3 in volume XI/XII.

Specific Gravity - this parameter is more correctly identified and **termed Relative Density**. The parameter has no units as it is the ratio of the Density of oil at a temperature to the Density of water at a temperature (thus the correct terminology of Relative Density). Commonly the recorded temperatures are 60/60°F but alternative temperatures of 15/4°C may also be found. This latter Relative Density is in fact Density @ 15°C given that the Density of water at 4°C is 1.00.

ASTM Tables

- Table 5A, 6A, 23A, 24A, 53A, and 54A are ASTM tables for Crude Oils
- Table 5B, 6B, 23B, 24B, 53B, and 54B are ASTM tables for Petroleum products.
- Table 5C, 24C and 54C are ASTM tables USING Thermal Expansion Coefficients.
- Table 5D, 6D, 53D and 54D are ASTM tables for Lubrication Oils.
- The ODD tables are for converting API, Relative Density or Density into API^{60}, RD^{60} or $DENS^{15}$.

If using Table 11 together with API60/60 and Stowfactor Longtons per Barrel, the result will be weight in longtons and in AIR.

If using Table 13 together with API60/60 and Stowfactor Tonnes per Barrel, the result will be weight in Metric Tons and in AIR.

If converting from VACUUM to AIR do not subtract 1.1 from Dens15/15, always use Table 56 (Dens15 is in Kg/m3, therefore 1.1, and not 0.0011)

PETROLEUM MEASUREMEN

Contents
Definitions

Volume Correction Factor

	- Table	6
Volume I	- Table	6A
Volume II	- Table	6B
Volume VII	- Table	54A
Volume VIII	- Table	54B

Intraconversion Between Volume Measures a

Volume XI	- Tables	1, 2, 3, 4, 8, 9, 10, 11, 12, 1
Volume XII	- Tables	21, 22, 26, 27, 28, 29, 30, 3

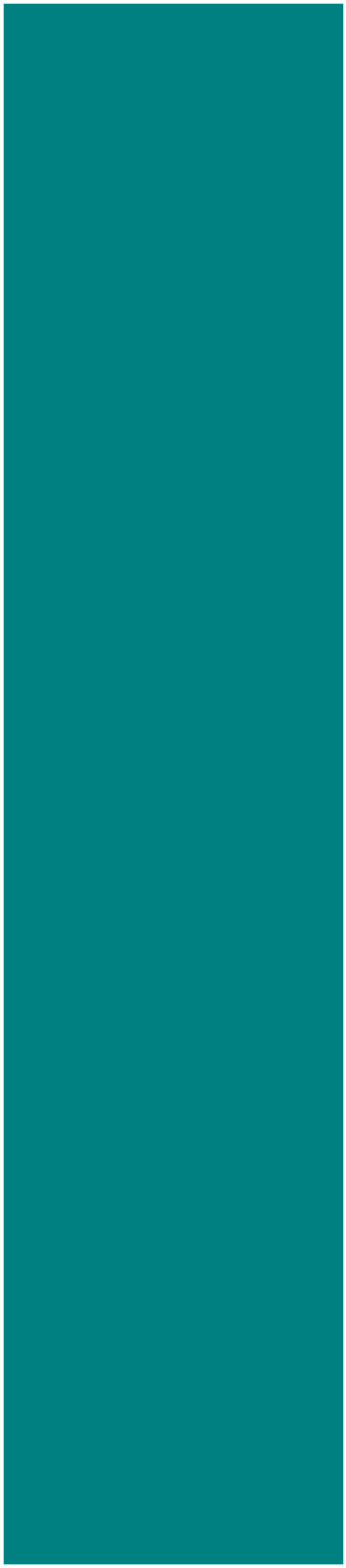
ASTM D 1250-80

Note

s

nd Density Measures

3, and 14
1, 52, 56, 57, and 58



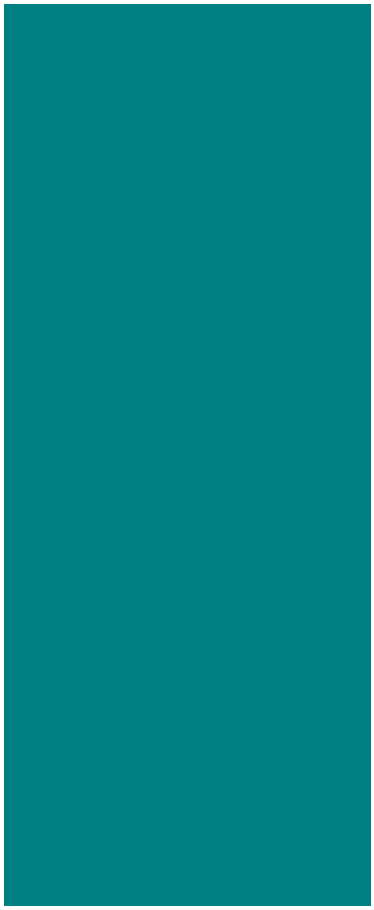


	Table 6
Volume I	Table 6A
Volume II	Table 6B
Volume VII	Table 54A
Volume VIII	Table 54B
Volume XI	**General**
	Table 1
	Table 2
Volume XI	**Entry with**
	Table 3
	Table 4
	Table 8
	Table 9
	Table 10
	Table 11
	Table 12
	Table 13
	Table 14
Volume XII	**Entry with**
	Table 21
	Table 22
	Table 26
	Table 27
	Table 28
	Table 29
	Table 30
	Table 31
Volume XII	**Entry with**
	Table 51
	Table 52
	Table 56
	Table 57
	Table 58

CONTENTS

ASTM Designation: D1250
API Standard L 2540
IP Designation: 200

ASTM Table 6, 6A, 6B
Entry With API Gravity

Select Table : ASTM Table 6A Crude Oils

ASTM Table 6A

Generalized Crude Oils Correction of Volume to 60°F against

API Gravity (60°F)	Observed Temperature (°F)	Table API	Table Temperature (°F)
22.90	100.9	23.00	101

: API Gravity at 60°F.
VCF
0.9827

ASTM Tables 54A, 54B
Entry With Density

Select Table : ASTM Table 54A Crude Oils

ASTM Table 54A Generalized Crude Oils Correction of Volume to 15°C agair			
Density (15°C)	Observed Temperature (°C)	Table Density	Table Temperature (°C)
870.0	36.2	870	36.25

ıst Density at 15°C.
VCF
0.9827

Table 1

Interrelation of Units of Measurement

ASTM—IP

LENGTH

To Convert	Multiply By
Metres:	
To Yards	1.0936
To Feet	3.2808
To Inches	39.37
Yards:	
To Metres	0.9144 †
Feet:	
To Metres	0.3048 †
Inches:	
To Centimetres	2.54 †

WEIGHT

To Convert	Multiply By
Long Tons:	
To Pounds (Avoirdupois)	2240. †
To Short Tons	1.12 †
To Metric Tons (Tonnes)	1.01605
Short Tons:	
To Pounds (Avoirdupois)	2000 †
To Long Tons	0.892857
To Metric Tons (Tonnes)	0.907185
Metric Tons (Tonnes):	
To Long Tons	0.984206
To Short Tons	1.10231
Pounds (Avoirdupois):	
To Kilograms	0.453592
Kilograms:	
To Pounds (Avoirdupois)	2.20462

VOLUME AND CAPACITY *

To Convert	Multiply By
U.S. Gallons:	
To Cubic Inches	231 †
To Cubic Feet	0.133681
To Imperial Gallons	0.832674
To US Barrels	0.0238095
To Litres	3.78541
U.S. Barrels:	
To US Gallons	42 †
To Cubic Inches	9702 †
To Cubic Feet	5.61458
To Imperial Gallons	34.9723
To Litres	158.987
Imperial Gallons:	
To Cubic Inches	277.42
To Cubic Feet	0.160544
To US Gallons	1.20095
To US Barrels	0.0285941
To Litres	4.54596 (4.54609)
Cubic Feet:	
To Imperial Gallons	6.22883
To US Gallons	7.48052
To US Barrels	0.178108
To Litres	28.3169
To Cubic Metres	0.0283169
Cubic Inches:	
To Imperial Gallons	0.00360465
To US Gallons	0.004329
To Litres	0.0163871
Litres:	
To Cubic Inches	61.0238
To Cubic Feet	0.0353147
To Imperial Gallons	0.219969
To US Gallons	0.264172
To US Barrels	0.00628981
Cubic Metres:	
To Imperial Gallons	219.969
To US Gallons	264.172
To US Barrels	6.28981
To Cubic Feet	35.3147

***** These factors are solely for conversion at the same temperature.

† This relationship is exact by definition.

mperatures Convertor

15.0°C	59.0°F
90.0°F	32.2°C

Volume XI - Tables 3, 4, 8, 9, 10, 11, 12, 13, and 14
With API Gravity

Select Table : ASTM Table 9 - API ; Short Tons/1000 US Gallons ; Short Tons/Barrel.

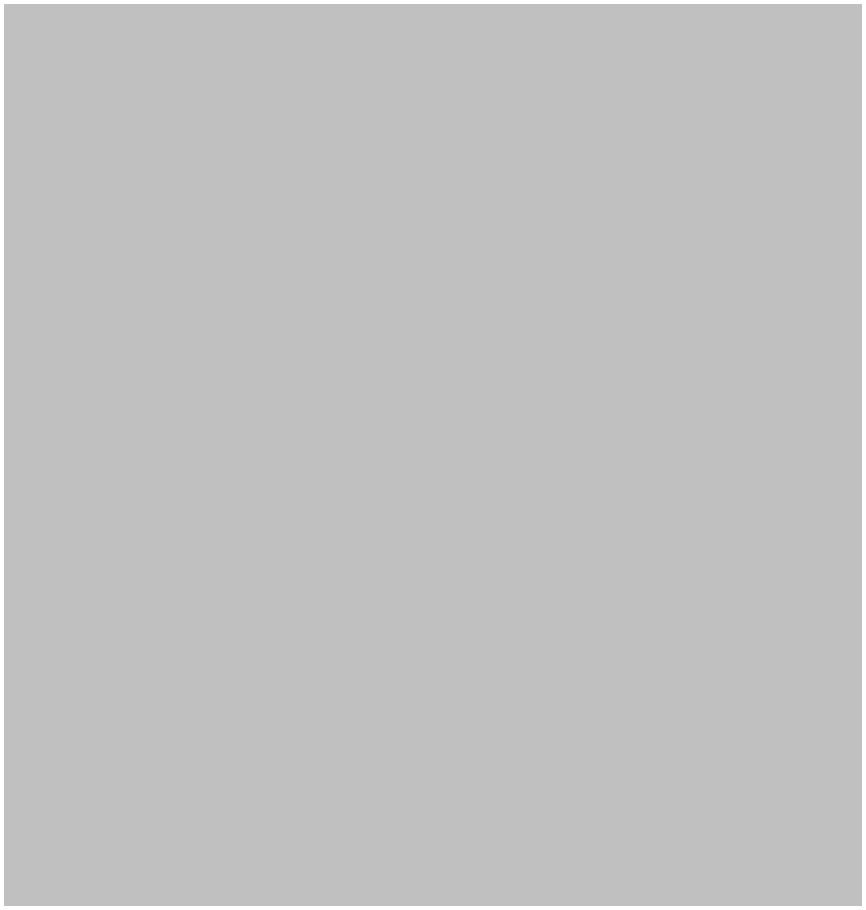
API : 27.05

ASTM Table 9

Short Tons per 1000 US Gallons and per Barrel

API Gravity (60°F)	Short Tons per 1000 US Gallons (60°F)	Short Tons per Barrel (60°F)
27.0	3.7169	0.15611
27.05	**3.71575**	**0.15606**
27.1	3.7146	0.15601

Entry



Volume XII - Tables 21, 22, 26, 27, 28, 29, 30, 31
With Relative Density

Select Table : ASTM Table 27 - Rel.Density ; Short Tons/1000 US Gallons ; Short Tons,

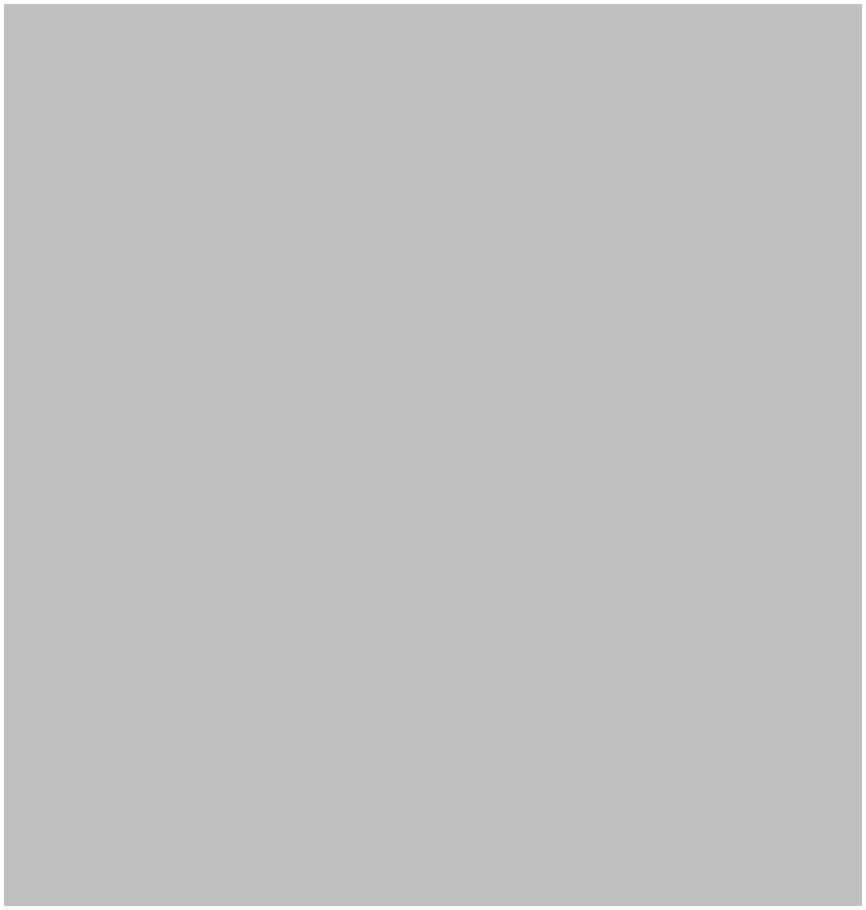
Relative Density : 0.8305

ASTM Table 27

Short Tons per 1000 US Gallons and per Barrel

Relative Density (60/60°F)	Short Tons per 1000 US Gallons (60°F)	Short Tons per Barrel (60°F)
0.830	3.4553	0.14512
0.8305	**3.4574**	**0.14521**
0.831	3.4595	0.1453

Entry



Volume XII - Tables 51, 52, 56, 57, and 58
Entry With Density

Select Table : ASTM Table 56 - Density ; Kilograms/Cubic Mtr ; Cubic Mtrs/Tonne.

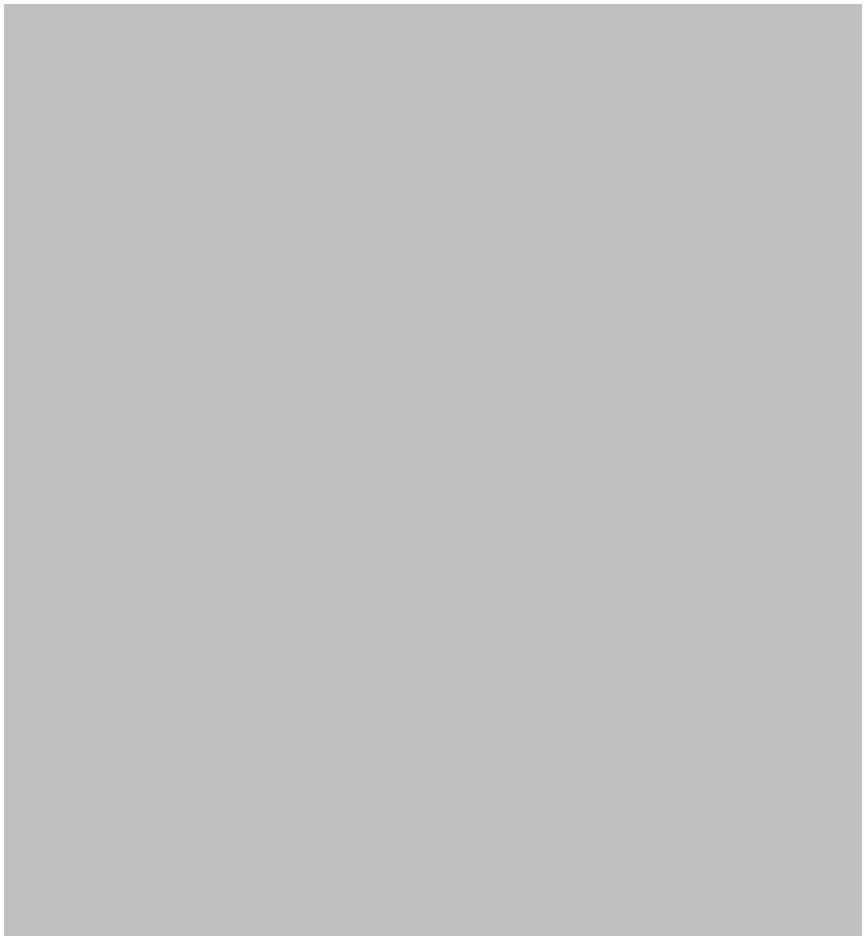
Density : 830.5

ASTM Table 56

Kilograms per Cubic Metre and Cubic Metres per Metric Ton (Tonnes)

Density (15°C)	Kilograms per Cubic Mtr	Cubic Mtrs per Tonne
830	828.9	1.2064
830.5	**829.4**	**1.2057**
831	829.9	1.205

ASTM Table 56		
DENSITY (kg/L) (15°C)	Factor for Converting Weight in Vacuo to Weight in Air	Factor for Converting Weight in Air to Weight in Vacuo
0.650	0.99825	1.00175



PETROLEUM MEASUREMENT TABLES ASTM D 1250-80 V

ASTM Table 3		
API Gravity (60°F)	Relative Density (60/60°F)	Density (15°C)
27	0.89270	892.2
27.05	**0.89245**	**892.0**
27.1	0.89220	891.7

ASTM Table 4		
API Gravity (60°F)	Litres @15°C per US Gallon @60°F	API Gravity (60°F)
21.2	3.7838	15.3
27.05	**3.7838**	**27.05**
28.6	3.7838	33.1

ASTM Table 3		
API Gravity (60°F)	**Relative Density** (60/60°F)	**Density** (15°C)
0.0	1.0760	1075.3
0.1	1.0752	1074.5
0.2	1.0744	1073.7
0.3	1.0736	1072.9
0.4	1.0728	1072.1
0.5	1.0720	1071.3
0.6	1.0712	1070.5
0.7	1.0703	1069.7
0.8	1.0695	1068.8
0.9	1.0687	1068.0
1.0	1.0679	1067.2
1.1	1.0671	1066.4
1.2	1.0663	1065.6
1.3	1.0655	1064.8
1.4	1.0647	1064.0
1.5	1.0639	1063.2
1.6	1.0631	1062.4
1.7	1.0623	1061.6
1.8	1.0615	1060.8
1.9	1.0607	1060.0
2.0	1.0599	1059.2
2.1	1.0591	1058.5
2.2	1.0583	1057.7
2.3	1.0575	1056.9
2.4	1.0568	1056.1
2.5	1.0560	1055.3
2.6	1.0552	1054.5
2.7	1.0544	1053.7
2.8	1.0536	1052.9
2.9	1.0528	1052.2
3.0	1.0520	1051.4
3.1	1.0513	1050.6
3.2	1.0505	1049.8
3.3	1.0497	1049.0
3.4	1.0489	1048.3
3.5	1.0481	1047.5
3.6	1.0474	1046.7
3.7	1.0466	1045.9

ASTM Table 4		
API Gravity (60°F)	**Litres** @15°C per **US Gallon** @60°F	**API Gravity** (60°F)
0.0	3.7841	0.0
5.6	3.7841	15.2
5.7	3.7840	15.3
13.5	3.7840	33.1
13.6	3.7839	33.2
21.1	3.7839	45.5
21.2	3.7838	45.6
28.6	3.7838	49.8
28.7	3.7837	49.9
35.9	3.7837	52.6
36.0	3.7836	52.7
41.0	3.7836	64.3
41.1	3.7835	64.4
45.6	3.7835	75.5
45.7	3.7834	75.6
48.4	3.7834	85.0
48.5	3.7833	
49.4	3.7833	
49.5	3.7832	
50.4	3.7832	
50.5	3.7831	
51.4	3.7831	
51.5	3.7830	
53.9	3.7830	
54.0	3.7829	
58.8	3.7829	
58.9	3.7828	
63.7	3.7828	
63.8	3.7827	
68.5	3.7827	
68.6	3.7826	
73.2	3.7826	
73.3	3.7825	
77.8	3.7825	
77.9	3.7824	
82.4	3.7824	
82.5	3.7823	
85.0	3.7823	

3.8	1.0458	1045.2
3.9	1.0451	1044.4
4.0	1.0443	1043.6
4.1	1.0435	1042.8
4.2	1.0427	1042.1
4.3	1.0420	1041.3
4.4	1.0412	1040.5
4.5	1.0404	1039.8
4.6	1.0397	1039.0
4.7	1.0389	1038.3
4.8	1.0382	1037.5
4.9	1.0374	1036.7
5.0	1.0366	1036.0
5.1	1.0359	1035.2
5.2	1.0351	1034.5
5.3	1.0344	1033.7
5.4	1.0336	1033.0
5.5	1.0328	1032.2
5.6	1.0321	1031.4
5.7	1.0313	1030.7
5.8	1.0306	1029.9
5.9	1.0298	1029.2
6.0	1.0291	1028.4
6.1	1.0283	1027.7
6.2	1.0276	1027.0
6.3	1.0269	1026.2
6.4	1.0261	1025.5
6.5	1.0254	1024.7
6.6	1.0246	1024.0
6.7	1.0239	1023.2
6.8	1.0231	1022.5
6.9	1.0224	1021.8
7.0	1.0217	1021.0
7.1	1.0209	1020.3
7.2	1.0202	1019.6
7.3	1.0195	1018.8
7.4	1.0187	1018.1
7.5	1.0180	1017.4
7.6	1.0173	1016.6
7.7	1.0165	1015.9
7.8	1.0158	1015.2
7.9	1.0151	1014.4
8.0	1.0143	1013.7
8.1	1.0136	1013.0
8.2	1.0129	1012.3
8.3	1.0122	1011.5
8.4	1.0114	1010.8
8.5	1.0107	1010.1
8.6	1.0100	1009.4
8.7	1.0093	1008.6
8.8	1.0086	1007.9
8.9	1.0078	1007.2
9.0	1.0071	1006.5
9.1	1.0064	1005.8
9.2	1.0057	1005.1
9.3	1.0050	1004.4

9.4	1.0043	1003.6
9.5	1.0035	1002.9
9.6	1.0028	1002.2
9.7	1.0021	1001.5
9.8	1.0014	1000.8
9.9	1.0007	1000.1
10.0	1.0000	999.4
10.1	0.9993	998.7
10.2	0.9986	998.0
10.3	0.9979	997.3
10.4	0.9972	996.6
10.5	0.9965	995.9
10.6	0.9958	995.2
10.7	0.9951	994.5
10.8	0.9944	993.8
10.9	0.9937	993.1
11.0	0.9930	992.4
11.1	0.9923	991.7
11.2	0.9916	991.0
11.3	0.9909	990.3
11.4	0.9902	989.6
11.5	0.9895	988.9
11.6	0.9888	988.2
11.7	0.9881	987.5
11.8	0.9874	986.8
11.9	0.9868	986.2
12.0	0.9861	985.5
12.1	0.9854	984.8
12.2	0.9847	984.1
12.3	0.9840	983.4
12.4	0.9833	982.7
12.5	0.9826	982.0
12.6	0.9820	981.4
12.7	0.9813	980.7
12.8	0.9806	980.0
12.9	0.9799	979.3
13.0	0.9792	978.6
13.1	0.9786	978.0
13.2	0.9779	977.3
13.3	0.9772	976.6
13.4	0.9765	975.9
13.5	0.9759	975.3
13.6	0.9752	974.6
13.7	0.9745	973.9
13.8	0.9738	973.3
13.9	0.9732	972.6
14.0	0.9725	971.9
14.1	0.9718	971.3
14.2	0.9712	970.6
14.3	0.9705	969.9
14.4	0.9698	969.3
14.5	0.9692	968.6
14.6	0.9685	967.9
14.7	0.9679	967.3
14.8	0.9672	966.6
14.9	0.9665	966.0

15.0	0.9659	965.3
15.1	0.9652	964.6
15.2	0.9646	964.0
15.3	0.9639	963.3
15.4	0.9632	962.7
15.5	0.9626	962.0
15.6	0.9619	961.4
15.7	0.9613	960.7
15.8	0.9606	960.1
15.9	0.9600	959.4
16.0	0.9593	958.8
16.1	0.9587	958.1
16.2	0.9580	957.5
16.3	0.9574	956.8
16.4	0.9567	956.2
16.5	0.9561	955.5
16.6	0.9554	954.9
16.7	0.9548	954.2
16.8	0.9541	953.6
16.9	0.9535	952.9
17.0	0.9529	952.3
17.1	0.9522	951.7
17.2	0.9516	951.0
17.3	0.9509	950.4
17.4	0.9503	949.7
17.5	0.9497	949.1
17.6	0.9490	948.5
17.7	0.9484	947.8
17.8	0.9478	947.2
17.9	0.9471	946.6
18.0	0.9465	945.9
18.1	0.9459	945.3
18.2	0.9452	944.7
18.3	0.9446	944.0
18.4	0.9440	943.4
18.5	0.9433	942.8
18.6	0.9427	942.2
18.7	0.9421	941.5
18.8	0.9415	940.9
18.9	0.9408	940.3
19.0	0.9402	939.7
19.1	0.9396	939.0
19.2	0.9390	938.4
19.3	0.9383	937.8
19.4	0.9377	937.2
19.5	0.9371	936.5
19.6	0.9365	935.9
19.7	0.9358	935.3
19.8	0.9352	934.7
19.9	0.9346	934.1
20.0	0.9340	933.5
20.1	0.9334	932.8
20.2	0.9328	932.2
20.3	0.9321	931.6
20.4	0.9315	931.0
20.5	0.9309	930.4

20.6	0.9303	929.8
20.7	0.9297	929.2
20.8	0.9291	928.6
20.9	0.9285	927.9
21.0	0.9279	927.3
21.1	0.9273	926.7
21.2	0.9267	926.1
21.3	0.9260	925.5
21.4	0.9254	924.9
21.5	0.9248	924.3
21.6	0.9242	923.7
21.7	0.9236	923.1
21.8	0.9230	922.5
21.9	0.9224	921.9
22.0	0.9218	921.3
22.1	0.9212	920.7
22.2	0.9206	920.1
22.3	0.9200	919.5
22.4	0.9194	918.9
22.5	0.9188	918.3
22.6	0.9182	917.7
22.7	0.9176	917.1
22.8	0.9170	916.5
22.9	0.9165	915.9
23.0	0.9159	915.3
23.1	0.9153	914.7
23.2	0.9147	914.2
23.3	0.9141	913.6
23.4	0.9135	913.0
23.5	0.9129	912.4
23.6	0.9123	911.8
23.7	0.9117	911.2
23.8	0.9111	910.6
23.9	0.9106	910.0
24.0	0.9100	909.5
24.1	0.9094	908.9
24.2	0.9088	908.3
24.3	0.9082	907.7
24.4	0.9076	907.1
24.5	0.9071	906.5
24.6	0.9065	906.0
24.7	0.9059	905.4
24.8	0.9053	904.8
24.9	0.9047	904.2
25.0	0.9042	903.6
25.1	0.9036	903.1
25.2	0.9030	902.5
25.3	0.9024	901.9
25.4	0.9018	901.3
25.5	0.9013	900.8
25.6	0.9007	900.2
25.7	0.9001	899.6
25.8	0.8996	899.1
25.9	0.8990	898.5
26.0	0.8984	897.9
26.1	0.8978	897.3

26.2	0.8973	896.8
26.3	0.8967	896.2
26.4	0.8961	895.6
26.5	0.8956	895.1
26.6	0.8950	894.5
26.7	0.8944	893.9
26.8	0.8939	893.4
26.9	0.8933	892.8
27.0	0.8927	892.2
27.1	0.8922	891.7
27.2	0.8916	891.1
27.3	0.8911	890.6
27.4	0.8905	890.0
27.5	0.8899	889.4
27.6	0.8894	888.9
27.7	0.8888	888.3
27.8	0.8883	887.8
27.9	0.8877	887.2
28.0	0.8871	886.7
28.1	0.8866	886.1
28.2	0.8860	885.5
28.3	0.8855	885.0
28.4	0.8849	884.4
28.5	0.8844	883.9
28.6	0.8838	883.3
28.7	0.8833	882.8
28.8	0.8827	882.2
28.9	0.8822	881.7
29.0	0.8816	881.1
29.1	0.8811	880.6
29.2	0.8805	880.0
29.3	0.8800	879.5
29.4	0.8794	878.9
29.5	0.8789	878.4
29.6	0.8783	877.9
29.7	0.8778	877.3
29.8	0.8772	876.8
29.9	0.8767	876.2
30.0	0.8762	875.7
30.1	0.8756	875.1
30.2	0.8751	874.6
30.3	0.8745	874.1
30.4	0.8740	873.5
30.5	0.8735	873.0
30.6	0.8729	872.4
30.7	0.8724	871.9
30.8	0.8718	871.4
30.9	0.8713	870.8
31.0	0.8708	870.3
31.1	0.8702	869.8
31.2	0.8697	869.2
31.3	0.8692	868.7
31.4	0.8686	868.2
31.5	0.8681	867.6
31.6	0.8676	867.1
31.7	0.8670	866.6

31.8	0.8665	866.0
31.9	0.8660	865.5
32.0	0.8654	865.0
32.1	0.8649	864.5
32.2	0.8644	863.9
32.3	0.8639	863.4
32.4	0.8633	862.9
32.5	0.8628	862.3
32.6	0.8623	861.8
32.7	0.8618	861.3
32.8	0.8612	860.8
32.9	0.8607	860.2
33.0	0.8602	859.7
33.1	0.8597	859.2
33.2	0.8591	858.7
33.3	0.8586	858.2
33.4	0.8581	857.6
33.5	0.8576	857.1
33.6	0.8571	856.6
33.7	0.8565	856.1
33.8	0.8560	855.6
33.9	0.8555	855.0
34.0	0.8550	854.5
34.1	0.8545	854.0
34.2	0.8540	853.5
34.3	0.8534	853.0
34.4	0.8529	852.5
34.5	0.8524	852.0
34.6	0.8519	851.4
34.7	0.8514	850.9
34.8	0.8509	850.4
34.9	0.8504	849.9
35.0	0.8498	849.4
35.1	0.8493	848.9
35.2	0.8488	848.4
35.3	0.8483	847.9
35.4	0.8478	847.4
35.5	0.8473	846.9
35.6	0.8468	846.4
35.7	0.8463	845.8
35.8	0.8458	845.3
35.9	0.8453	844.8
36.0	0.8448	844.3
36.1	0.8443	843.8
36.2	0.8438	843.3
36.3	0.8433	842.8
36.4	0.8428	842.3
36.5	0.8423	841.8
36.6	0.8418	841.3
36.7	0.8413	840.8
36.8	0.8408	840.3
36.9	0.8403	839.8
37.0	0.8398	839.3
37.1	0.8393	838.8
37.2	0.8388	838.3
37.3	0.8383	837.8

37.4	0.8378	837.3
37.5	0.8373	836.8
37.6	0.8368	836.4
37.7	0.8363	835.9
37.8	0.8358	835.4
37.9	0.8353	834.9
38.0	0.8348	834.4
38.1	0.8343	833.9
38.2	0.8338	833.4
38.3	0.8333	832.9
38.4	0.8328	832.4
38.5	0.8324	831.9
38.6	0.8319	831.4
38.7	0.8314	831.0
38.8	0.8309	830.5
38.9	0.8304	830.0
39.0	0.8299	829.5
39.1	0.8294	829.0
39.2	0.8289	828.5
39.3	0.8285	828.0
39.4	0.8280	827.6
39.5	0.8275	827.1
39.6	0.8270	826.6
39.7	0.8265	826.1
39.8	0.8260	825.6
39.9	0.8256	825.1
40.0	0.8251	824.7
40.1	0.8246	824.2
40.2	0.8241	823.7
40.3	0.8236	823.2
40.4	0.8232	822.7
40.5	0.8227	822.3
40.6	0.8222	821.8
40.7	0.8217	821.3
40.8	0.8212	820.8
40.9	0.8208	820.4
41.0	0.8203	819.9
41.1	0.8198	819.4
41.2	0.8193	818.9
41.3	0.8189	818.5
41.4	0.8184	818.0
41.5	0.8179	817.5
41.6	0.8174	817.0
41.7	0.8170	816.6
41.8	0.8165	816.1
41.9	0.8160	815.6
42.0	0.8156	815.2
42.1	0.8151	814.7
42.2	0.8146	814.2
42.3	0.8142	813.8
42.4	0.8137	813.3
42.5	0.8132	812.8
42.6	0.8128	812.4
42.7	0.8123	811.9
42.8	0.8118	811.4
42.9	0.8114	811.0

43.0	0.8109	810.5
43.1	0.8104	810.0
43.2	0.8100	809.6
43.3	0.8095	809.1
43.4	0.8090	808.6
43.5	0.8086	808.2
43.6	0.8081	807.7
43.7	0.8076	807.3
43.8	0.8072	806.8
43.9	0.8067	806.3
44.0	0.8063	805.9
44.1	0.8058	805.4
44.2	0.8054	805.0
44.3	0.8049	804.5
44.4	0.8044	804.1
44.5	0.8040	803.6
44.6	0.8035	803.1
44.7	0.8031	802.7
44.8	0.8026	802.2
44.9	0.8022	801.8
45.0	0.8017	801.3
45.1	0.8012	800.9
45.2	0.8008	800.4
45.3	0.8003	800.0
45.4	0.7999	799.5
45.5	0.7994	799.1
45.6	0.7990	798.6
45.7	0.7985	798.2
45.8	0.7981	797.7
45.9	0.7976	797.3
46.0	0.7972	796.8
46.1	0.7967	796.4
46.2	0.7963	795.9
46.3	0.7958	795.5
46.4	0.7954	795.0
46.5	0.7949	794.6
46.6	0.7945	794.1
46.7	0.7941	793.7
46.8	0.7936	793.2
46.9	0.7932	792.8
47.0	0.7927	792.4
47.1	0.7923	791.9
47.2	0.7918	791.5
47.3	0.7914	791.0
47.4	0.7909	790.6
47.5	0.7905	790.1
47.6	0.7901	789.7
47.7	0.7896	789.3
47.8	0.7892	788.8
47.9	0.7887	788.4
48.0	0.7883	787.9
48.1	0.7879	787.5
48.2	0.7874	787.1
48.3	0.7870	786.6
48.4	0.7865	786.2
48.5	0.7861	785.8

48.6	0.7857	785.3
48.7	0.7852	784.9
48.8	0.7848	784.5
48.9	0.7844	784.0
49.0	0.7839	783.6
49.1	0.7835	783.2
49.2	0.7831	782.7
49.3	0.7826	782.3
49.4	0.7822	781.9
49.5	0.7818	781.4
49.6	0.7813	781.0
49.7	0.7809	780.6
49.8	0.7805	780.2
49.9	0.7800	779.7
50.0	0.7796	779.3
50.1	0.7792	778.9
50.2	0.7788	778.4
50.3	0.7783	778.0
50.4	0.7779	777.6
50.5	0.7775	777.2
50.6	0.7770	776.7
50.7	0.7766	776.3
50.8	0.7762	775.9
50.9	0.7758	775.5
51.0	0.7753	775.1
51.1	0.7749	774.6
51.2	0.7745	774.2
51.3	0.7741	773.8
51.4	0.7736	773.4
51.5	0.7732	772.9
51.6	0.7728	772.5
51.7	0.7724	772.1
51.8	0.7720	771.7
51.9	0.7715	771.3
52.0	0.7711	770.8
52.1	0.7707	770.4
52.2	0.7703	770.0
52.3	0.7699	769.6
52.4	0.7694	769.2
52.5	0.7690	768.8
52.6	0.7686	768.3
52.7	0.7682	767.9
52.8	0.7678	767.5
52.9	0.7674	767.1
53.0	0.7669	766.7
53.1	0.7665	766.3
53.2	0.7661	765.8
53.3	0.7657	765.4
53.4	0.7653	765.0
53.5	0.7649	764.6
53.6	0.7645	764.2
53.7	0.7640	763.8
53.8	0.7636	763.4
53.9	0.7632	763.0
54.0	0.7628	762.5
54.1	0.7624	762.1

54.2	0.7620	761.7
54.3	0.7616	761.3
54.4	0.7612	760.9
54.5	0.7608	760.5
54.6	0.7603	760.1
54.7	0.7599	759.7
54.8	0.7595	759.3
54.9	0.7591	758.9
55.0	0.7587	758.5
55.1	0.7583	758.1
55.2	0.7579	757.6
55.3	0.7575	757.2
55.4	0.7571	756.8
55.5	0.7567	756.4
55.6	0.7563	756.0
55.7	0.7559	755.6
55.8	0.7555	755.2
55.9	0.7551	754.8
56.0	0.7547	754.4
56.1	0.7543	754.0
56.2	0.7539	753.6
56.3	0.7535	753.2
56.4	0.7531	752.8
56.5	0.7527	752.4
56.6	0.7523	752.0
56.7	0.7519	751.6
56.8	0.7515	751.2
56.9	0.7511	750.8
57.0	0.7507	750.4
57.1	0.7503	750.0
57.2	0.7499	749.6
57.3	0.7495	749.2
57.4	0.7491	748.8
57.5	0.7487	748.4
57.6	0.7483	748.0
57.7	0.7479	747.6
57.8	0.7475	747.3
57.9	0.7471	746.9
58.0	0.7467	746.5
58.1	0.7463	746.1
58.2	0.7459	745.7
58.3	0.7455	745.3
58.4	0.7451	744.9
58.5	0.7447	744.5
58.6	0.7443	744.1
58.7	0.7440	743.7
58.8	0.7436	743.3
58.9	0.7432	742.9
59.0	0.7428	742.6
59.1	0.7424	742.2
59.2	0.7420	741.8
59.3	0.7416	741.4
59.4	0.7412	741.0
59.5	0.7408	740.6
59.6	0.7405	740.2
59.7	0.7401	739.8

59.8	0.7397	739.4
59.9	0.7393	739.1
60.0	0.7389	738.7
60.1	0.7385	738.3
60.2	0.7381	737.9
60.3	0.7377	737.5
60.4	0.7374	737.1
60.5	0.7370	736.8
60.6	0.7366	736.4
60.7	0.7362	736.0
60.8	0.7358	735.6
60.9	0.7354	735.2
61.0	0.7351	734.8
61.1	0.7347	734.5
61.2	0.7343	734.1
61.3	0.7339	733.7
61.4	0.7335	733.3
61.5	0.7332	732.9
61.6	0.7328	732.6
61.7	0.7324	732.2
61.8	0.7320	731.8
61.9	0.7316	731.4
62.0	0.7313	731.1
62.1	0.7309	730.7
62.2	0.7305	730.3
62.3	0.7301	729.9
62.4	0.7298	729.5
62.5	0.7294	729.2
62.6	0.7290	728.8
62.7	0.7286	728.4
62.8	0.7283	728.0
62.9	0.7279	727.7
63.0	0.7275	727.3
63.1	0.7271	726.9
63.2	0.7268	726.5
63.3	0.7264	726.2
63.4	0.7260	725.8
63.5	0.7256	725.4
63.6	0.7253	725.1
63.7	0.7249	724.7
63.8	0.7245	724.3
63.9	0.7242	723.9
64.0	0.7238	723.6
64.1	0.7234	723.2
64.2	0.7230	722.8
64.3	0.7227	722.5
64.4	0.7223	722.1
64.5	0.7219	721.7
64.6	0.7216	721.4
64.7	0.7212	721.0
64.8	0.7208	720.6
64.9	0.7205	720.3
65.0	0.7201	719.9
65.1	0.7197	719.5
65.2	0.7194	719.2
65.3	0.7190	718.8

65.4	0.7186	718.4
65.5	0.7183	718.1
65.6	0.7179	717.7
65.7	0.7175	717.3
65.8	0.7172	717.0
65.9	0.7168	716.6
66.0	0.7165	716.3
66.1	0.7161	715.9
66.2	0.7157	715.5
66.3	0.7154	715.2
66.4	0.7150	714.8
66.5	0.7146	714.5
66.6	0.7143	714.1
66.7	0.7139	713.7
66.8	0.7136	713.4
66.9	0.7132	713.0
67.0	0.7128	712.7
67.1	0.7125	712.3
67.2	0.7121	711.9
67.3	0.7118	711.6
67.4	0.7114	711.2
67.5	0.7111	710.9
67.6	0.7107	710.5
67.7	0.7103	710.2
67.8	0.7100	709.8
67.9	0.7096	709.4
68.0	0.7093	709.1
68.1	0.7089	708.7
68.2	0.7086	708.4
68.3	0.7082	708.0
68.4	0.7079	707.7
68.5	0.7075	707.3
68.6	0.7071	707.0
68.7	0.7068	706.6
68.8	0.7064	706.3
68.9	0.7061	705.9
69.0	0.7057	705.6
69.1	0.7054	705.2
69.2	0.7050	704.9
69.3	0.7047	704.5
69.4	0.7043	704.2
69.5	0.7040	703.8
69.6	0.7036	703.5
69.7	0.7033	703.1
69.8	0.7029	702.8
69.9	0.7026	702.4
70.0	0.7022	702.1
70.1	0.7019	701.7
70.2	0.7015	701.4
70.3	0.7012	701.0
70.4	0.7008	700.7
70.5	0.7005	700.3
70.6	0.7001	700.0
70.7	0.6998	699.6
70.8	0.6995	699.3
70.9	0.6991	698.9

71.0	0.6988	698.6
71.1	0.6984	698.2
71.2	0.6981	697.9
71.3	0.6977	697.6
71.4	0.6974	697.2
71.5	0.6970	696.9
71.6	0.6967	696.5
71.7	0.6964	696.2
71.8	0.6960	695.8
71.9	0.6957	695.5
72.0	0.6953	695.2
72.1	0.6950	694.8
72.2	0.6946	694.5
72.3	0.6943	694.1
72.4	0.6940	693.8
72.5	0.6936	693.5
72.6	0.6933	693.1
72.7	0.6929	692.8
72.8	0.6926	692.4
72.9	0.6923	692.1
73.0	0.6919	691.8
73.1	0.6916	691.4
73.2	0.6913	691.1
73.3	0.6909	690.8
73.4	0.6906	690.4
73.5	0.6902	690.1
73.6	0.6899	689.7
73.7	0.6896	689.4
73.8	0.6892	689.1
73.9	0.6889	688.7
74.0	0.6886	688.4
74.1	0.6882	688.1
74.2	0.6879	687.7
74.3	0.6876	687.4
74.4	0.6872	687.1
74.5	0.6869	686.7
74.6	0.6866	686.4
74.7	0.6862	686.1
74.8	0.6859	685.7
74.9	0.6856	685.4
75.0	0.6852	685.1
75.1	0.6849	684.7
75.2	0.6846	684.4
75.3	0.6842	684.1
75.4	0.6839	683.8
75.5	0.6836	683.4
75.6	0.6832	683.1
75.7	0.6829	682.8
75.8	0.6826	682.4
75.9	0.6823	682.1
76.0	0.6819	681.8
76.1	0.6816	681.5
76.2	0.6813	681.1
76.3	0.6809	680.8
76.4	0.6806	680.5
76.5	0.6803	680.1

76.6	0.6800	679.8
76.7	0.6796	679.5
76.8	0.6793	679.2
76.9	0.6790	678.8
77.0	0.6787	678.5
77.1	0.6783	678.2
77.2	0.6780	677.9
77.3	0.6777	677.5
77.4	0.6774	677.2
77.5	0.6770	676.9
77.6	0.6767	676.6
77.7	0.6764	676.2
77.8	0.6761	675.9
77.9	0.6757	675.6
78.0	0.6754	675.3
78.1	0.6751	675.0
78.2	0.6748	674.6
78.3	0.6745	674.3
78.4	0.6741	674.0
78.5	0.6738	673.7
78.6	0.6735	673.4
78.7	0.6732	673.0
78.8	0.6728	672.7
78.9	0.6725	672.4
79.0	0.6722	672.1
79.1	0.6719	671.8
79.2	0.6716	671.4
79.3	0.6713	671.1
79.4	0.6709	670.8
79.5	0.6706	670.5
79.6	0.6703	670.2
79.7	0.6700	669.9
79.8	0.6697	669.5
79.9	0.6693	669.2
80.0	0.6690	668.9
80.1	0.6687	668.6
80.2	0.6684	668.3
80.3	0.6681	668.0
80.4	0.6678	667.6
80.5	0.6675	667.3
80.6	0.6671	667.0
80.7	0.6668	666.7
80.8	0.6665	666.4
80.9	0.6662	666.1
81.0	0.6659	665.8
81.1	0.6656	665.4
81.2	0.6653	665.1
81.3	0.6649	664.8
81.4	0.6646	664.5
81.5	0.6643	664.2
81.6	0.6640	663.9
81.7	0.6637	663.6
81.8	0.6634	663.3
81.9	0.6631	663.0
82.0	0.6628	662.6
82.1	0.6625	662.3

82.2	0.6621	662.0
82.3	0.6618	661.7
82.4	0.6615	661.4
82.5	0.6612	661.1
82.6	0.6609	660.8
82.7	0.6606	660.5
82.8	0.6603	660.2
82.9	0.6600	659.9
83.0	0.6597	659.6
83.1	0.6594	659.3
83.2	0.6591	658.9
83.3	0.6588	658.6
83.4	0.6584	658.3
83.5	0.6581	658.0
83.6	0.6578	657.7
83.7	0.6575	657.4
83.8	0.6572	657.1
83.9	0.6569	656.8
84.0	0.6566	656.5
84.1	0.6563	656.2
84.2	0.6560	655.9
84.3	0.6557	655.6
84.4	0.6554	655.3
84.5	0.6551	655.0
84.6	0.6548	654.7
84.7	0.6545	654.4
84.8	0.6542	654.1
84.9	0.6539	653.8
85.0	0.6536	653.5

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	ASTM Table 8			ASTM Table 9	
Cubic Mtrs @15°C per Barrel @60°F	API Gravity (60°F)	Pounds per US Gallon (60°F)	US Gallons per Pound (60°F)	API Gravity (60°F)	Short Tons per 1000 US Gallons (60°F)
0.15892	27	7.434	0.13452	27	3.7169
0.15892	**27.05**	**7.432**	**0.13456**	**27.05**	**3.7158**
0.15892	27.1	7.429	0.13460	27.1	3.7146

	ASTM Table 8			ASTM Table 9	
Cubic Mtrs @15°C per **Barrel** @60°F	**API Gravity** (60°F)	**Pounds per US Gallon** (60°F)	**US Gallons per Pound** (60°F)	**API Gravity** (60°F)	**Short Tons per 1000 US Gallons** (60°F)
0.15893	0.0	8.962	0.11158	0.0	4.4812
0.15893	0.1	8.955	0.11166	0.1	4.4777
0.15892	0.2	8.949	0.11175	0.2	4.4743
0.15892	0.3	8.942	0.11183	0.3	4.4709
0.15891	0.4	8.935	0.11192	0.4	4.4675
0.15891	0.5	8.928	0.112	0.5	4.4642
0.15890	0.6	8.922	0.11209	0.6	4.4608
0.15890	0.7	8.915	0.11217	0.7	4.4574
0.15889	0.8	8.908	0.11226	0.8	4.454
0.15889	0.9	8.901	0.11234	0.9	4.4507
0.15888	1.0	8.895	0.11243	1.0	4.4473
0.15888	1.1	8.888	0.11251	1.1	4.4439
0.15887	1.2	8.881	0.1126	1.2	4.4406
0.15887	1.3	8.874	0.11268	1.3	4.4372
0.15886	1.4	8.868	0.11277	1.4	4.4339
0.15886	1.5	8.861	0.11285	1.5	4.4306
	1.6	8.854	0.11294	1.6	4.4272
	1.7	8.848	0.11302	1.7	4.4239
	1.8	8.841	0.11311	1.8	4.4206
	1.9	8.835	0.11319	1.9	4.4173
	2.0	8.828	0.11328	2.0	4.4139
	2.1	8.821	0.11336	2.1	4.4106
	2.2	8.815	0.11345	2.2	4.4073
	2.3	8.808	0.11353	2.3	4.404
	2.4	8.801	0.11362	2.4	4.4007
	2.5	8.795	0.1137	2.5	4.3975
	2.6	8.788	0.11379	2.6	4.3942
	2.7	8.782	0.11387	2.7	4.3909
	2.8	8.775	0.11396	2.8	4.3876
	2.9	8.769	0.11404	2.9	4.3844
	3.0	8.762	0.11413	3.0	4.3811
	3.1	8.756	0.11421	3.1	4.3778
	3.2	8.749	0.1143	3.2	4.3746
	3.3	8.743	0.11438	3.3	4.3713
	3.4	8.736	0.11447	3.4	4.3681
	3.5	8.73	0.11455	3.5	4.3648
	3.6	8.723	0.11464	3.6	4.3616
	3.7	8.717	0.11472	3.7	4.3584

3.8	8.71	0.11481	3.8	4.3552
3.9	8.704	0.11489	3.9	4.3519
4.0	8.697	0.11498	4.0	4.3487
4.1	8.691	0.11506	4.1	4.3455
4.2	8.685	0.11515	4.2	4.3423
4.3	8.678	0.11523	4.3	4.3391
4.4	8.672	0.11532	4.4	4.3359
4.5	8.665	0.1154	4.5	4.3327
4.6	8.659	0.11549	4.6	4.3295
4.7	8.653	0.11557	4.7	4.3263
4.8	8.646	0.11566	4.8	4.3232
4.9	8.64	0.11574	4.9	4.32
5.0	8.634	0.11583	5.0	4.3168
5.1	8.627	0.11591	5.1	4.3137
5.2	8.621	0.116	5.2	4.3105
5.3	8.615	0.11608	5.3	4.3073
5.4	8.608	0.11617	5.4	4.3042
5.5	8.602	0.11625	5.5	4.301
5.6	8.596	0.11634	5.6	4.2979
5.7	8.59	0.11642	5.7	4.2948
5.8	8.583	0.11651	5.8	4.2916
5.9	8.577	0.11659	5.9	4.2885
6.0	8.571	0.11668	6.0	4.2854
6.1	8.565	0.11676	6.1	4.2823
6.2	8.558	0.11685	6.2	4.2792
6.3	8.552	0.11693	6.3	4.276
6.4	8.546	0.11702	6.4	4.2729
6.5	8.54	0.1171	6.5	4.2698
6.6	8.533	0.11719	6.6	4.2667
6.7	8.527	0.11727	6.7	4.2637
6.8	8.521	0.11736	6.8	4.2606
6.9	8.515	0.11744	6.9	4.2575
7.0	8.509	0.11753	7.0	4.2544
7.1	8.503	0.11761	7.1	4.2513
7.2	8.497	0.11769	7.2	4.2483
7.3	8.49	0.11778	7.3	4.2452
7.4	8.484	0.11786	7.4	4.2421
7.5	8.478	0.11795	7.5	4.2391
7.6	8.472	0.11803	7.6	4.236
7.7	8.466	0.11812	7.7	4.233
7.8	8.46	0.1182	7.8	4.2299
7.9	8.454	0.11829	7.9	4.2269
8.0	8.448	0.11837	8.0	4.2239
8.1	8.442	0.11846	8.1	4.2208
8.2	8.436	0.11854	8.2	4.2178
8.3	8.43	0.11863	8.3	4.2148
8.4	8.424	0.11871	8.4	4.2118
8.5	8.418	0.1188	8.5	4.2088
8.6	8.412	0.11888	8.6	4.2058
8.7	8.406	0.11897	8.7	4.2028
8.8	8.4	0.11905	8.8	4.1998
8.9	8.394	0.11914	8.9	4.1968
9.0	8.388	0.11922	9.0	4.1938
9.1	8.382	0.11931	9.1	4.1908
9.2	8.376	0.11939	9.2	4.1878
9.3	8.37	0.11948	9.3	4.1848

9.4	8.364	0.11956	9.4	4.1819
9.5	8.358	0.11965	9.5	4.1789
9.6	8.352	0.11973	9.6	4.1759
9.7	8.346	0.11982	9.7	4.173
9.8	8.34	0.1199	9.8	4.17
9.9	8.334	0.11999	9.9	4.1671
10.0	8.328	0.12007	10.0	4.1641
10.1	8.322	0.12016	10.1	4.1612
10.2	8.316	0.12024	10.2	4.1582
10.3	8.311	0.12033	10.3	4.1553
10.4	8.305	0.12041	10.4	4.1524
10.5	8.299	0.1205	10.5	4.1494
10.6	8.293	0.12058	10.6	4.1465
10.7	8.287	0.12067	10.7	4.1436
10.8	8.281	0.12075	10.8	4.1407
10.9	8.276	0.12084	10.9	4.1378
11.0	8.27	0.12092	11.0	4.1348
11.1	8.264	0.12101	11.1	4.1319
11.2	8.258	0.12109	11.2	4.129
11.3	8.252	0.12118	11.3	4.1261
11.4	8.247	0.12126	11.4	4.1233
11.5	8.241	0.12135	11.5	4.1204
11.6	8.235	0.12143	11.6	4.1175
11.7	8.229	0.12152	11.7	4.1146
11.8	8.223	0.1216	11.8	4.1117
11.9	8.218	0.12169	11.9	4.1089
12.0	8.212	0.12177	12.0	4.106
12.1	8.206	0.12186	12.1	4.1031
12.2	8.201	0.12194	12.2	4.1003
12.3	8.195	0.12203	12.3	4.0974
12.4	8.189	0.12211	12.4	4.0946
12.5	8.183	0.1222	12.5	4.0917
12.6	8.178	0.12228	12.6	4.0889
12.7	8.172	0.12237	12.7	4.086
12.8	8.166	0.12245	12.8	4.0832
12.9	8.161	0.12254	12.9	4.0804
13.0	8.155	0.12262	13.0	4.0775
13.1	8.149	0.12271	13.1	4.0747
13.2	8.144	0.12279	13.2	4.0719
13.3	8.136	0.12288	13.3	4.0691
13.4	8.133	0.12296	13.4	4.0663
13.5	8.127	0.12305	13.5	4.0635
13.6	8.121	0.12313	13.6	4.0607
13.7	8.116	0.12322	13.7	4.0579
13.8	8.11	0.1233	13.8	4.0551
13.9	8.105	0.12339	13.9	4.0523
14.0	8.099	0.12347	14.0	4.0495
14.1	8.093	0.12356	14.1	4.0467
14.2	8.088	0.12364	14.2	4.0439
14.3	8.082	0.12373	14.3	4.0411
14.4	8.077	0.12381	14.4	4.0384
14.5	8.071	0.1239	14.5	4.0356
14.6	8.066	0.12398	14.6	4.0328
14.7	8.06	0.12407	14.7	4.0301
14.8	8.055	0.12415	14.8	4.0273
14.9	8.049	0.12424	14.9	4.0246

15.0	8.044	0.12432	15.0	4.0218
15.1	8.038	0.12441	15.1	4.0191
15.2	8.033	0.12449	15.2	4.0163
15.3	8.027	0.12458	15.3	4.0136
15.4	8.022	0.12466	15.4	4.0108
15.5	8.016	0.12475	15.5	4.0081
15.6	8.011	0.12483	15.6	4.0054
15.7	8.005	0.12492	15.7	4.0027
15.8	8	0.125	15.8	3.9999
15.9	7.994	0.12509	15.9	3.9972
16.0	7.989	0.12517	16.0	3.9945
16.1	7.984	0.12526	16.1	3.9918
16.2	7.978	0.12534	16.2	3.9891
16.3	7.973	0.12543	16.3	3.9864
16.4	7.967	0.12551	16.4	3.9837
16.5	7.962	0.1256	16.5	3.981
16.6	7.957	0.12568	16.6	3.9783
16.7	7.951	0.12577	16.7	3.9756
16.8	7.946	0.12585	16.8	3.9729
16.9	7.941	0.12594	16.9	3.9703
17.0	7.935	0.12602	17.0	3.9676
17.1	7.93	0.12611	17.1	3.9649
17.2	7.924	0.12619	17.2	3.9622
17.3	7.919	0.12628	17.3	3.9596
17.4	7.914	0.12636	17.4	3.9569
17.5	7.908	0.12645	17.5	3.9542
17.6	7.903	0.12653	17.6	3.9516
17.7	7.898	0.12662	17.7	3.9489
17.8	7.893	0.1267	17.8	3.9463
17.9	7.887	0.12679	17.9	3.9436
18.0	7.882	0.12687	18.0	3.941
18.1	7.877	0.12696	18.1	3.9384
18.2	7.871	0.12704	18.2	3.9357
18.3	7.866	0.12713	18.3	3.9331
18.4	7.861	0.12721	18.4	3.9305
18.5	7.856	0.1273	18.5	3.9279
18.6	7.85	0.12738	18.6	3.9252
18.7	7.845	0.12747	18.7	3.9226
18.8	7.84	0.12755	18.8	3.92
18.9	7.835	0.12764	18.9	3.9174
19.0	7.83	0.12772	19.0	3.9148
19.1	7.824	0.12781	19.1	3.9122
19.2	7.819	0.12789	19.2	3.9096
19.3	7.814	0.12798	19.3	3.907
19.4	7.809	0.12806	19.4	3.9044
19.5	7.804	0.12815	19.5	3.9018
19.6	7.798	0.12823	19.6	3.8992
19.7	7.793	0.12832	19.7	3.8966
19.8	7.788	0.1284	19.8	3.8941
19.9	7.783	0.12849	19.9	3.8915
20.0	7.778	0.12857	20.0	3.8889
20.1	7.773	0.12866	20.1	3.8863
20.2	7.768	0.12874	20.2	3.8838
20.3	7.762	0.12883	20.3	3.8812
20.4	7.757	0.12891	20.4	3.8787
20.5	7.752	0.129	20.5	3.8761

20.6	7.747	0.12908	20.6	3.8736
20.7	7.742	0.12917	20.7	3.871
20.8	7.737	0.12925	20.8	3.8685
20.9	7.732	0.12934	20.9	3.8659
21.0	7.727	0.12942	21.0	3.8634
21.1	7.722	0.12951	21.1	3.8608
21.2	7.717	0.12959	21.2	3.8583
21.3	7.712	0.12968	21.3	3.8558
21.4	7.707	0.12976	21.4	3.8533
21.5	7.701	0.12985	21.5	3.8507
21.6	7.696	0.12993	21.6	3.8482
21.7	7.691	0.13002	21.7	3.8457
21.8	7.686	0.1301	21.8	3.8432
21.9	7.681	0.13019	21.9	3.8407
22.0	7.676	0.13027	22.0	3.8382
22.1	7.671	0.13036	22.1	3.8357
22.2	7.666	0.13044	22.2	3.8332
22.3	7.661	0.13053	22.3	3.8307
22.4	7.656	0.13061	22.4	3.8282
22.5	7.651	0.1307	22.5	3.8257
22.6	7.646	0.13078	22.6	3.8232
22.7	7.641	0.13087	22.7	3.8207
22.8	7.636	0.13095	22.8	3.8182
22.9	7.632	0.13104	22.9	3.8158
23.0	7.627	0.13112	23.0	3.8133
23.1	7.622	0.13121	23.1	3.8108
23.2	7.617	0.13129	23.2	3.8084
23.3	7.612	0.13137	23.3	3.8059
23.4	7.607	0.13146	23.4	3.8034
23.5	7.602	0.13154	23.5	3.801
23.6	7.597	0.13163	23.6	3.7985
23.7	7.592	0.13171	23.7	3.7961
23.8	7.587	0.1318	23.8	3.7936
23.9	7.582	0.13188	23.9	3.7912
24.0	7.577	0.13197	24.0	3.7887
24.1	7.573	0.13205	24.1	3.7863
24.2	7.568	0.13214	24.2	3.7839
24.3	7.563	0.13222	24.3	3.7814
24.4	7.558	0.13231	24.4	3.779
24.5	7.553	0.13239	24.5	3.7766
24.6	7.548	0.13248	24.6	3.7742
24.7	7.543	0.13256	24.7	3.7717
24.8	7.539	0.13265	24.8	3.7693
24.9	7.534	0.13273	24.9	3.7669
25.0	7.529	0.13282	25.0	3.7645
25.1	7.524	0.1329	25.1	3.7621
25.2	7.519	0.13299	25.2	3.7597
25.3	7.515	0.13307	25.3	3.7573
25.4	7.51	0.13316	25.4	3.7549
25.5	7.505	0.13324	25.5	3.7525
25.6	7.5	0.13333	25.6	3.7501
25.7	7.495	0.13341	25.7	3.7477
25.8	7.491	0.1335	25.8	3.7453
25.9	7.486	0.13358	25.9	3.7429
26.0	7.481	0.13367	26.0	3.7406
26.1	7.476	0.13375	26.1	3.7382

26.2	7.472	0.13384	26.2	3.7358
26.3	7.467	0.13392	26.3	3.7334
26.4	7.462	0.13401	26.4	3.7311
26.5	7.457	0.13409	26.5	3.7287
26.6	7.453	0.13418	26.6	3.7264
26.7	7.448	0.13426	26.7	3.724
26.8	7.443	0.13435	26.8	3.7216
26.9	7.439	0.13443	26.9	3.7193
27.0	7.434	0.13452	27.0	3.7169
27.1	7.429	0.1346	27.1	3.7146
27.2	7.424	0.13469	27.2	3.7122
27.3	7.42	0.13477	27.3	3.7099
27.4	7.415	0.13486	27.4	3.7076
27.5	7.41	0.13494	27.5	3.7052
27.6	7.406	0.13503	27.6	3.7029
27.7	7.401	0.13511	27.7	3.7006
27.8	7.396	0.1352	27.8	3.6982
27.9	7.392	0.13528	27.9	3.6959
28.0	7.387	0.13537	28.0	3.6936
28.1	7.383	0.13545	28.1	3.6913
28.2	7.378	0.13554	28.2	3.689
28.3	7.373	0.13562	28.3	3.6867
28.4	7.369	0.13571	28.4	3.6843
28.5	7.364	0.13579	28.5	3.682
28.6	7.359	0.13588	28.6	3.6797
28.7	7.355	0.13596	28.7	3.6774
28.8	7.35	0.13605	28.8	3.6751
28.9	7.346	0.13613	28.9	3.6728
29.0	7.341	0.13622	29.0	3.6706
29.1	7.337	0.1363	29.1	3.6683
29.2	7.332	0.13639	29.2	3.666
29.3	7.327	0.13647	29.3	3.6637
29.4	7.323	0.13656	29.4	3.6614
29.5	7.318	0.13664	29.5	3.6591
29.6	7.314	0.13673	29.6	3.6569
29.7	7.309	0.13681	29.7	3.6546
29.8	7.305	0.1369	29.8	3.6523
29.9	7.3	0.13698	29.9	3.6501
30.0	7.296	0.13707	30.0	3.6478
30.1	7.291	0.13715	30.1	3.6455
30.2	7.287	0.13724	30.2	3.6433
30.3	7.282	0.13732	30.3	3.641
30.4	7.278	0.13741	30.4	3.6388
30.5	7.273	0.13749	30.5	3.6365
30.6	7.269	0.13758	30.6	3.6343
30.7	7.264	0.13766	30.7	3.632
30.8	7.26	0.13775	30.8	3.6298
30.9	7.255	0.13783	30.9	3.6276
31.0	7.251	0.13792	31.0	3.6253
31.1	7.246	0.138	31.1	3.6231
31.2	7.242	0.13809	31.2	3.6209
31.3	7.237	0.13817	31.3	3.6186
31.4	7.233	0.13826	31.4	3.6164
31.5	7.228	0.13834	31.5	3.6142
31.6	7.224	0.13843	31.6	3.612
31.7	7.219	0.13851	31.7	3.6097

31.8	7.215	0.1386	31.8	3.6075
31.9	7.211	0.13868	31.9	3.6053
32.0	7.206	0.13877	32.0	3.6031
32.1	7.202	0.13885	32.1	3.6009
32.2	7.197	0.13894	32.2	3.5987
32.3	7.193	0.13902	32.3	3.5965
32.4	7.189	0.13911	32.4	3.5943
32.5	7.184	0.13919	32.5	3.5921
32.6	7.18	0.13928	32.6	3.5899
32.7	7.175	0.13936	32.7	3.5877
32.8	7.171	0.13945	32.8	3.5855
32.9	7.167	0.13953	32.9	3.5834
33.0	7.162	0.13962	33.0	3.5812
33.1	7.158	0.1397	33.1	3.579
33.2	7.154	0.13979	33.2	3.5768
33.3	7.149	0.13987	33.3	3.5747
33.4	7.145	0.13996	33.4	3.5725
33.5	7.141	0.14004	33.5	3.5703
33.6	7.136	0.14013	33.6	3.5681
33.7	7.132	0.14021	33.7	3.566
33.8	7.128	0.1403	33.8	3.5638
33.9	7.123	0.14038	33.9	3.5617
34.0	7.119	0.14047	34.0	3.5595
34.1	7.115	0.14055	34.1	3.5574
34.2	7.11	0.14064	34.2	3.5552
34.3	7.106	0.14072	34.3	3.5531
34.4	7.102	0.14081	34.4	3.5509
34.5	7.098	0.14089	34.5	3.5488
34.6	7.093	0.14098	34.6	3.5466
34.7	7.089	0.14106	34.7	3.5445
34.8	7.085	0.14115	34.8	3.5424
34.9	7.08	0.14123	34.9	3.5402
35.0	7.076	0.14132	35.0	3.5381
35.1	7.072	0.1414	35.1	3.536
35.2	7.068	0.14149	35.2	3.5339
35.3	7.063	0.14157	35.3	3.5317
35.4	7.059	0.14166	35.4	3.5296
35.5	7.055	0.14174	35.5	3.5275
35.6	7.051	0.14183	35.6	3.5254
35.7	7.047	0.14191	35.7	3.5233
35.8	7.042	0.142	35.8	3.5212
35.9	7.038	0.14208	35.9	3.5191
36.0	7.034	0.14217	36.0	3.5169
36.1	7.03	0.14225	36.1	3.5148
36.2	7.025	0.14234	36.2	3.5127
36.3	7.021	0.14242	36.3	3.5107
36.4	7.017	0.14251	36.4	3.5086
36.5	7.013	0.14259	36.5	3.5065
36.6	7.009	0.14268	36.6	3.5044
36.7	7.005	0.14276	36.7	3.5023
36.8	7	0.14285	36.8	3.5002
36.9	6.996	0.14293	36.9	3.4981
37.0	6.992	0.14302	37.0	3.496
37.1	6.988	0.1431	37.1	3.494
37.2	6.984	0.14319	37.2	3.4919
37.3	6.98	0.14327	37.3	3.4898

37.4	6.976	0.14336	37.4	3.4878
37.5	6.971	0.14344	37.5	3.4857
37.6	6.967	0.14353	37.6	3.4836
37.7	6.963	0.14361	37.7	3.4816
37.8	6.959	0.1437	37.8	3.4795
37.9	6.955	0.14378	37.9	3.4774
38.0	6.951	0.14387	38.0	3.4754
38.1	6.947	0.14395	38.1	3.4733
38.2	6.943	0.14404	38.2	3.4713
38.3	6.938	0.14412	38.3	3.4692
38.4	6.934	0.14421	38.4	3.4672
38.5	6.93	0.14429	38.5	3.4652
38.6	6.926	0.14438	38.6	3.4631
38.7	6.922	0.14446	38.7	3.4611
38.8	6.918	0.14455	38.8	3.459
38.9	6.914	0.14463	38.9	3.457
39.0	6.91	0.14472	39.0	3.455
39.1	6.906	0.1448	39.1	3.4529
39.2	6.902	0.14489	39.2	3.4509
39.3	6.898	0.14497	39.3	3.4489
39.4	6.894	0.14506	39.4	3.4469
39.5	6.89	0.14514	39.5	3.4449
39.6	6.886	0.14523	39.6	3.4428
39.7	6.882	0.14531	39.7	3.4408
39.8	6.878	0.1454	39.8	3.4388
39.9	6.874	0.14548	39.9	3.4368
40.0	6.87	0.14557	40.0	3.4348
40.1	6.866	0.14565	40.1	3.4328
40.2	6.862	0.14574	40.2	3.4308
40.3	6.858	0.14582	40.3	3.4288
40.4	6.854	0.14591	40.4	3.4268
40.5	6.85	0.14599	40.5	3.4248
40.6	6.846	0.14608	40.6	3.4228
40.7	6.842	0.14616	40.7	3.4208
40.8	6.838	0.14625	40.8	3.4188
40.9	6.834	0.14633	40.9	3.4168
41.0	6.83	0.14642	41.0	3.4149
41.1	6.826	0.1465	41.1	3.4129
41.2	6.822	0.14659	41.2	3.4109
41.3	6.818	0.14667	41.3	3.4089
41.4	6.814	0.14676	41.4	3.4069
41.5	6.81	0.14684	41.5	3.405
41.6	6.806	0.14693	41.6	3.403
41.7	6.802	0.14701	41.7	3.401
41.8	6.798	0.1471	41.8	3.3991
41.9	6.794	0.14718	41.9	3.3971
42.0	6.79	0.14727	42.0	3.3951
42.1	6.786	0.14735	42.1	3.3932
42.2	6.782	0.14744	42.2	3.3912
42.3	6.779	0.14752	42.3	3.3893
42.4	6.775	0.14761	42.4	3.3873
42.5	6.771	0.14769	42.5	3.3854
42.6	6.767	0.14778	42.6	3.3834
42.7	6.763	0.14786	42.7	3.3815
42.8	6.759	0.14795	42.8	3.3795
42.9	6.755	0.14803	42.9	3.3776

43.0	6.751	0.14812	43.0	3.3757
43.1	6.747	0.1482	43.1	3.3737
43.2	6.744	0.14829	43.2	3.3718
43.3	6.74	0.14837	43.3	3.3699
43.4	6.736	0.14846	43.4	3.3679
43.5	6.732	0.14854	43.5	3.366
43.6	6.728	0.14863	43.6	3.3641
43.7	6.724	0.14871	43.7	3.3622
43.8	6.72	0.1488	43.8	3.3602
43.9	6.717	0.14888	43.9	3.3583
44.0	6.713	0.14897	44.0	3.3564
44.1	6.709	0.14905	44.1	3.3545
44.2	6.705	0.14914	44.2	3.3526
44.3	6.701	0.14922	44.3	3.3507
44.4	6.698	0.14931	44.4	3.3488
44.5	6.694	0.14939	44.5	3.3468
44.6	6.69	0.14948	44.6	3.3449
44.7	6.686	0.14956	44.7	3.343
44.8	6.682	0.14965	44.8	3.3411
44.9	6.678	0.14973	44.9	3.3392
45.0	6.675	0.14982	45.0	3.3374
45.1	6.671	0.1499	45.1	3.3355
45.2	6.667	0.14999	45.2	3.3336
45.3	6.663	0.15007	45.3	3.3317
45.4	6.66	0.15016	45.4	3.3298
45.5	6.656	0.15024	45.5	3.3279
45.6	6.652	0.15033	45.6	3.326
45.7	6.648	0.15041	45.7	3.3242
45.8	6.645	0.1505	45.8	3.3223
45.9	6.641	0.15058	45.9	3.3204
46.0	6.637	0.15067	46.0	3.3185
46.1	6.633	0.15075	46.1	3.3167
46.2	6.63	0.15084	46.2	3.3148
46.3	6.626	0.15092	46.3	3.3129
46.4	6.622	0.15101	46.4	3.3111
46.5	6.618	0.15109	46.5	3.3092
46.6	6.615	0.15118	46.6	3.3073
46.7	6.611	0.15126	46.7	3.3055
46.8	6.607	0.15135	46.8	3.3036
46.9	6.604	0.15143	46.9	3.3018
47.0	6.6	0.15152	47.0	3.2999
47.1	6.596	0.1516	47.1	3.2981
47.2	6.592	0.15169	47.2	3.2962
47.3	6.589	0.15177	47.3	3.2944
47.4	6.585	0.15186	47.4	3.2925
47.5	6.581	0.15194	47.5	3.2907
47.6	6.578	0.15203	47.6	3.2888
47.7	6.574	0.15211	47.7	3.287
47.8	6.57	0.1522	47.8	3.2852
47.9	6.567	0.15228	47.9	3.2833
48.0	6.563	0.15237	48.0	3.2815
48.1	6.559	0.15245	48.1	3.2797
48.2	6.556	0.15254	48.2	3.2778
48.3	6.552	0.15262	48.3	3.276
48.4	6.548	0.15271	48.4	3.2742
48.5	6.545	0.15279	48.5	3.2724

48.6	6.541	0.15288	48.6	3.2705
48.7	6.537	0.15296	48.7	3.2687
48.8	6.534	0.15305	48.8	3.2669
48.9	6.53	0.15313	48.9	3.2651
49.0	6.527	0.15322	49.0	3.2633
49.1	6.523	0.1533	49.1	3.2615
49.2	6.519	0.15339	49.2	3.2597
49.3	6.516	0.15347	49.3	3.2579
49.4	6.512	0.15356	49.4	3.2561
49.5	6.509	0.15364	49.5	3.2543
49.6	6.505	0.15373	49.6	3.2525
49.7	6.501	0.15382	49.7	3.2507
49.8	6.498	0.1539	49.8	3.2489
49.9	6.494	0.15399	49.9	3.2471
50.0	6.491	0.15407	50.0	3.2453
50.1	6.487	0.15416	50.1	3.2435
50.2	6.483	0.15424	50.2	3.2417
50.3	6.48	0.15433	50.3	3.2399
50.4	6.476	0.15441	50.4	3.2381
50.5	6.473	0.1545	50.5	3.2363
50.6	6.469	0.15458	50.6	3.2346
50.7	6.466	0.15467	50.7	3.2328
50.8	6.462	0.15475	50.8	3.231
50.9	6.458	0.15484	50.9	3.2292
51.0	6.455	0.15492	51.0	3.2275
51.1	6.451	0.15501	51.1	3.2257
51.2	6.448	0.15509	51.2	3.2239
51.3	6.444	0.15518	51.3	3.2222
51.4	6.441	0.15526	51.4	3.2204
51.5	6.437	0.15535	51.5	3.2186
51.6	6.434	0.15543	51.6	3.2169
51.7	6.43	0.15552	51.7	3.2151
51.8	6.427	0.1556	51.8	3.2134
51.9	6.423	0.15569	51.9	3.2116
52.0	6.42	0.15577	52.0	3.2099
52.1	6.416	0.15586	52.1	3.2081
52.2	6.413	0.15594	52.2	3.2063
52.3	6.409	0.15603	52.3	3.2046
52.4	6.406	0.15611	52.4	3.2029
52.5	6.402	0.1562	52.5	3.2011
52.6	6.399	0.15628	52.6	3.1994
52.7	6.395	0.15637	52.7	3.1976
52.8	6.392	0.15645	52.8	3.1959
52.9	6.388	0.15654	52.9	3.1942
53.0	6.385	0.15662	53.0	3.1924
53.1	6.381	0.15671	53.1	3.1907
53.2	6.378	0.15679	53.2	3.189
53.3	6.374	0.15688	53.3	3.1872
53.4	6.371	0.15696	53.4	3.1855
53.5	6.368	0.15705	53.5	3.1838
53.6	6.364	0.15713	53.6	3.1821
53.7	6.361	0.15722	53.7	3.1803
53.8	6.357	0.1573	53.8	3.1786
53.9	6.354	0.15739	53.9	3.1769
54.0	6.35	0.15747	54.0	3.1752
54.1	6.347	0.15756	54.1	3.1735

54.2	6.344	0.15764	54.2	3.1718
54.3	6.34	0.15773	54.3	3.1701
54.4	6.337	0.15781	54.4	3.1683
54.5	6.333	0.1579	54.5	3.1666
54.6	6.33	0.15798	54.6	3.1649
54.7	6.326	0.15807	54.7	3.1632
54.8	6.323	0.15815	54.8	3.1615
54.9	6.32	0.15824	54.9	3.1598
55.0	6.316	0.15832	55.0	3.1581
55.1	6.313	0.15841	55.1	3.1564
55.2	6.309	0.15849	55.2	3.1547
55.3	6.306	0.15858	55.3	3.1531
55.4	6.303	0.15866	55.4	3.1514
55.5	6.299	0.15875	55.5	3.1497
55.6	6.296	0.15883	55.6	3.148
55.7	6.293	0.15892	55.7	3.1463
55.8	6.289	0.159	55.8	3.1446
55.9	6.286	0.15909	55.9	3.1429
56.0	6.283	0.15917	56.0	3.1413
56.1	6.279	0.15926	56.1	3.1396
56.2	6.276	0.15934	56.2	3.1379
56.3	6.272	0.15943	56.3	3.1362
56.4	6.269	0.15951	56.4	3.1346
56.5	6.266	0.1596	56.5	3.1329
56.6	6.262	0.15968	56.6	3.1312
56.7	6.259	0.15977	56.7	3.1296
56.8	6.256	0.15985	56.8	3.1279
56.9	6.252	0.15994	56.9	3.1262
57.0	6.249	0.16002	57.0	3.1246
57.1	6.246	0.16011	57.1	3.1229
57.2	6.243	0.16019	57.2	3.1213
57.3	6.239	0.16028	57.3	3.1196
57.4	6.236	0.16036	57.4	3.1179
57.5	6.233	0.16045	57.5	3.1163
57.6	6.229	0.16053	57.6	3.1146
57.7	6.226	0.16062	57.7	3.113
57.8	6.223	0.1607	57.8	3.1113
57.9	6.219	0.16079	57.9	3.1097
58.0	6.216	0.16087	58.0	3.1081
58.1	6.213	0.16096	58.1	3.1064
58.2	6.21	0.16104	58.2	3.1048
58.3	6.206	0.16113	58.3	3.1031
58.4	6.203	0.16121	58.4	3.1015
58.5	6.2	0.1613	58.5	3.0999
58.6	6.196	0.16138	58.6	3.0982
58.7	6.193	0.16147	58.7	3.0966
58.8	6.19	0.16155	58.8	3.095
58.9	6.187	0.16164	58.9	3.0933
59.0	6.183	0.16172	59.0	3.0917
59.1	6.18	0.16181	59.1	3.0901
59.2	6.177	0.16189	59.2	3.0885
59.3	6.174	0.16198	59.3	3.0868
59.4	6.17	0.16206	59.4	3.0852
59.5	6.167	0.16215	59.5	3.0836
59.6	6.164	0.16223	59.6	3.082
59.7	6.161	0.16232	59.7	3.0804

59.8	6.158	0.1624	59.8	3.0788
59.9	6.154	0.16249	59.9	3.0772
60.0	6.151	0.16257	60.0	3.0755
60.1	6.148	0.16266	60.1	3.0739
60.2	6.145	0.16274	60.2	3.0723
60.3	6.141	0.16283	60.3	3.0707
60.4	6.138	0.16291	60.4	3.0691
60.5	6.135	0.163	60.5	3.0675
60.6	6.132	0.16308	60.6	3.0659
60.7	6.129	0.16317	60.7	3.0643
60.8	6.125	0.16325	60.8	3.0627
60.9	6.122	0.16334	60.9	3.0611
61.0	6.119	0.16342	61.0	3.0595
61.1	6.116	0.16351	61.1	3.058
61.2	6.113	0.16359	61.2	3.0564
61.3	6.11	0.16368	61.3	3.0548
61.4	6.106	0.16376	61.4	3.0532
61.5	6.103	0.16385	61.5	3.0516
61.6	6.1	0.16393	61.6	3.05
61.7	6.097	0.16402	61.7	3.0484
61.8	6.094	0.1641	61.8	3.0469
61.9	6.091	0.16419	61.9	3.0453
62.0	6.087	0.16427	62.0	3.0437
62.1	6.084	0.16436	62.1	3.0421
62.2	6.081	0.16444	62.2	3.0406
62.3	6.078	0.16453	62.3	3.039
62.4	6.075	0.16461	62.4	3.0374
62.5	6.072	0.1647	62.5	3.0358
62.6	6.069	0.16478	62.6	3.0343
62.7	6.065	0.16487	62.7	3.0327
62.8	6.062	0.16495	62.8	3.0312
62.9	6.059	0.16504	62.9	3.0296
63.0	6.056	0.16512	63.0	3.028
63.1	6.053	0.16521	63.1	3.0265
63.2	6.05	0.16529	63.2	3.0249
63.3	6.047	0.16538	63.3	3.0234
63.4	6.044	0.16546	63.4	3.0218
63.5	6.041	0.16555	63.5	3.0203
63.6	6.037	0.16563	63.6	3.0187
63.7	6.034	0.16572	63.7	3.0172
63.8	6.031	0.1658	63.8	3.0156
63.9	6.028	0.16589	63.9	3.0141
64.0	6.025	0.16597	64.0	3.0125
64.1	6.022	0.16606	64.1	3.011
64.2	6.019	0.16614	64.2	3.0094
64.3	6.016	0.16623	64.3	3.0079
64.4	6.013	0.16631	64.4	3.0064
64.5	6.01	0.1664	64.5	3.0048
64.6	6.007	0.16648	64.6	3.0033
64.7	6.003	0.16657	64.7	3.0017
64.8	6	0.16665	64.8	3.0002
64.9	5.997	0.16674	64.9	2.9987
65.0	5.994	0.16682	65.0	2.9972
65.1	5.991	0.16691	65.1	2.9956
65.2	5.988	0.16699	65.2	2.9941
65.3	5.985	0.16708	65.3	2.9926

65.4	5.982	0.16716	65.4	2.9911
65.5	5.979	0.16725	65.5	2.9895
65.6	5.976	0.16733	65.6	2.988
65.7	5.973	0.16742	65.7	2.9865
65.8	5.97	0.16751	65.8	2.985
65.9	5.967	0.16759	65.9	2.9835
66.0	5.964	0.16768	66.0	2.982
66.1	5.961	0.16776	66.1	2.9804
66.2	5.958	0.16785	66.2	2.9789
66.3	5.955	0.16793	66.3	2.9774
66.4	5.952	0.16802	66.4	2.9759
66.5	5.949	0.1681	66.5	2.9744
66.6	5.946	0.16819	66.6	2.9729
66.7	5.943	0.16827	66.7	2.9714
66.8	5.94	0.16836	66.8	2.9699
66.9	5.937	0.16844	66.9	2.9684
67.0	5.934	0.16853	67.0	2.9669
67.1	5.931	0.16861	67.1	2.9654
67.2	5.928	0.1687	67.2	2.9639
67.3	5.925	0.16878	67.3	2.9624
67.4	5.922	0.16887	67.4	2.9609
67.5	5.919	0.16895	67.5	2.9594
67.6	5.916	0.16904	67.6	2.958
67.7	5.913	0.16912	67.7	2.9565
67.8	5.91	0.16921	67.8	2.955
67.9	5.907	0.16929	67.9	2.9535
68.0	5.904	0.16938	68.0	2.952
68.1	5.901	0.16946	68.1	2.9505
68.2	5.898	0.16955	68.2	2.949
68.3	5.895	0.16963	68.3	2.9476
68.4	5.892	0.16972	68.4	2.9461
68.5	5.889	0.1698	68.5	2.9446
68.6	5.886	0.16989	68.6	2.9431
68.7	5.883	0.16997	68.7	2.9417
68.8	5.88	0.17006	68.8	2.9402
68.9	5.877	0.17014	68.9	2.9387
69.0	5.875	0.17023	69.0	2.9373
69.1	5.872	0.17031	69.1	2.9358
69.2	5.869	0.1704	69.2	2.9343
69.3	5.866	0.17048	69.3	2.9329
69.4	5.863	0.17057	69.4	2.9314
69.5	5.86	0.17065	69.5	2.9299
69.6	5.857	0.17074	69.6	2.9285
69.7	5.854	0.17082	69.7	2.927
69.8	5.851	0.17091	69.8	2.9256
69.9	5.848	0.17099	69.9	2.9241
70.0	5.845	0.17108	70.0	2.9227
70.1	5.842	0.17116	70.1	2.9212
70.2	5.84	0.17125	70.2	2.9198
70.3	5.837	0.17133	70.3	2.9183
70.4	5.834	0.17142	70.4	2.9169
70.5	5.831	0.1715	70.5	2.9154
70.6	5.828	0.17159	70.6	2.914
70.7	5.825	0.17167	70.7	2.9125
70.8	5.822	0.17176	70.8	2.9111
70.9	5.819	0.17184	70.9	2.9096

71.0	5.816	0.17193	71.0	2.9082
71.1	5.814	0.17201	71.1	2.9068
71.2	5.811	0.1721	71.2	2.9053
71.3	5.808	0.17218	71.3	2.9039
71.4	5.805	0.17227	71.4	2.9025
71.5	5.802	0.17235	71.5	2.901
71.6	5.799	0.17244	71.6	2.8996
71.7	5.796	0.17252	71.7	2.8982
71.8	5.793	0.17261	71.8	2.8967
71.9	5.791	0.17269	71.9	2.8953
72.0	5.788	0.17278	72.0	2.8939
72.1	5.785	0.17286	72.1	2.8925
72.2	5.782	0.17295	72.2	2.891
72.3	5.779	0.17303	72.3	2.8896
72.4	5.776	0.17312	72.4	2.8882
72.5	5.774	0.1732	72.5	2.8868
72.6	5.771	0.17329	72.6	2.8854
72.7	5.768	0.17337	72.7	2.8839
72.8	5.765	0.17346	72.8	2.8825
72.9	5.762	0.17354	72.9	2.8811
73.0	5.759	0.17363	73.0	2.8797
73.1	5.757	0.17371	73.1	2.8783
73.2	5.754	0.1738	73.2	2.8769
73.3	5.751	0.17388	73.3	2.8755
73.4	5.748	0.17397	73.4	2.8741
73.5	5.745	0.17405	73.5	2.8727
73.6	5.743	0.17414	73.6	2.8713
73.7	5.74	0.17422	73.7	2.8699
73.8	5.737	0.17431	73.8	2.8685
73.9	5.734	0.17439	73.9	2.8671
74.0	5.731	0.17448	74.0	2.8657
74.1	5.729	0.17456	74.1	2.8643
74.2	5.726	0.17465	74.2	2.8629
74.3	5.723	0.17473	74.3	2.8615
74.4	5.72	0.17482	74.4	2.8601
74.5	5.717	0.1749	74.5	2.8587
74.6	5.715	0.17499	74.6	2.8573
74.7	5.712	0.17507	74.7	2.8559
74.8	5.709	0.17516	74.8	2.8545
74.9	5.706	0.17524	74.9	2.8532
75.0	5.704	0.17533	75.0	2.8518
75.1	5.701	0.17541	75.1	2.8504
75.2	5.698	0.1755	75.2	2.849
75.3	5.695	0.17558	75.3	2.8476
75.4	5.692	0.17567	75.4	2.8462
75.5	5.69	0.17575	75.5	2.8449
75.6	5.687	0.17584	75.6	2.8435
75.7	5.684	0.17593	75.7	2.8421
75.8	5.681	0.17601	75.8	2.8407
75.9	5.679	0.1761	75.9	2.8394
76.0	5.676	0.17618	76.0	2.838
76.1	5.673	0.17627	76.1	2.8366
76.2	5.671	0.17635	76.2	2.8353
76.3	5.668	0.17644	76.3	2.8339
76.4	5.665	0.17652	76.4	2.8325
76.5	5.662	0.17661	76.5	2.8312

76.6	5.66	0.17669	76.6	2.8298
76.7	5.657	0.17678	76.7	2.8284
76.8	5.654	0.17686	76.8	2.8271
76.9	5.651	0.17695	76.9	2.8257
77.0	5.649	0.17703	77.0	2.8244
77.1	5.646	0.17712	77.1	2.823
77.2	5.643	0.1772	77.2	2.8217
77.3	5.641	0.17729	77.3	2.8203
77.4	5.638	0.17737	77.4	2.8189
77.5	5.635	0.17746	77.5	2.8176
77.6	5.632	0.17754	77.6	2.8162
77.7	5.63	0.17763	77.7	2.8149
77.8	5.627	0.17771	77.8	2.8136
77.9	5.624	0.1778	77.9	2.8122
78.0	5.622	0.17788	78.0	2.8109
78.1	5.619	0.17797	78.1	2.8095
78.2	5.616	0.17805	78.2	2.8082
78.3	5.614	0.17814	78.3	2.8068
78.4	5.611	0.17822	78.4	2.8055
78.5	5.608	0.17831	78.5	2.8042
78.6	5.606	0.17839	78.6	2.8028
78.7	5.603	0.17848	78.7	2.8015
78.8	5.6	0.17856	78.8	2.8001
78.9	5.598	0.17865	78.9	2.7988
79.0	5.595	0.17873	79.0	2.7975
79.1	5.592	0.17882	79.1	2.7962
79.2	5.59	0.1789	79.2	2.7948
79.3	5.587	0.17899	79.3	2.7935
79.4	5.584	0.17907	79.4	2.7922
79.5	5.582	0.17916	79.5	2.7908
79.6	5.579	0.17924	79.6	2.7895
79.7	5.576	0.17933	79.7	2.7882
79.8	5.574	0.17941	79.8	2.7869
79.9	5.571	0.1795	79.9	2.7856
80.0	5.568	0.17958	80.0	2.7842
80.1	5.566	0.17967	80.1	2.7829
80.2	5.563	0.17975	80.2	2.7816
80.3	5.561	0.17984	80.3	2.7803
80.4	5.558	0.17992	80.4	2.779
80.5	5.555	0.18001	80.5	2.7777
80.6	5.553	0.18009	80.6	2.7763
80.7	5.55	0.18018	80.7	2.775
80.8	5.547	0.18026	80.8	2.7737
80.9	5.545	0.18035	80.9	2.7724
81.0	5.542	0.18043	81.0	2.7711
81.1	5.54	0.18052	81.1	2.7698
81.2	5.537	0.1806	81.2	2.7685
81.3	5.534	0.18069	81.3	2.7672
81.4	5.532	0.18077	81.4	2.7659
81.5	5.529	0.18086	81.5	2.7646
81.6	5.527	0.18094	81.6	2.7633
81.7	5.524	0.18103	81.7	2.762
81.8	5.521	0.18111	81.8	2.7607
81.9	5.519	0.1812	81.9	2.7594
82.0	5.516	0.18128	82.0	2.7581
82.1	5.514	0.18137	82.1	2.7568

82.2	5.511	0.18145	82.2	2.7555
82.3	5.508	0.18154	82.3	2.7542
82.4	5.506	0.18162	82.4	2.7529
82.5	5.503	0.18171	82.5	2.7516
82.6	5.501	0.18179	82.6	2.7504
82.7	5.498	0.18188	82.7	2.7491
82.8	5.496	0.18196	82.8	2.7478
82.9	5.493	0.18205	82.9	2.7465
83.0	5.49	0.18213	83.0	2.7452
83.1	5.488	0.18222	83.1	2.7439
83.2	5.485	0.1823	83.2	2.7427
83.3	5.483	0.18239	83.3	2.7414
83.4	5.48	0.18247	83.4	2.7401
83.5	5.478	0.18256	83.5	2.7388
83.6	5.475	0.18265	83.6	2.7375
83.7	5.473	0.18273	83.7	2.7363
83.8	5.47	0.18282	83.8	2.735
83.9	5.467	0.1829	83.9	2.7337
84.0	5.465	0.18299	84.0	2.7325
84.1	5.462	0.18307	84.1	2.7312
84.2	5.46	0.18316	84.2	2.7299
84.3	5.457	0.18324	84.3	2.7287
84.4	5.455	0.18333	84.4	2.7274
84.5	5.452	0.18341	84.5	2.7261
84.6	5.45	0.1835	84.6	2.7249
84.7	5.447	0.18358	84.7	2.7236
84.8	5.445	0.18367	84.8	2.7223
84.9	5.442	0.18375	84.9	2.7211
85.0	5.44	0.18384	85.0	2.7198

	ASTM Table 10			ASTM Table 11	
Short Tons per Barrel (60°F)	API Gravity (60°F)	US Gallons per Short Ton (60°F)	Barrels per Short Ton (60°F)	API Gravity (60°F)	Long Tons per 1000 US Gallons (60°F)
0.15611	27	269.04	6.406	27	3.3187
0.15606	**27.05**	**269.13**	**6.408**	**27.05**	**3.3177**
0.15601	27.1	269.21	6.410	27.1	3.3166

	ASTM Table 10			ASTM Table 11	
Short Tons per Barrel (60°F)	**API Gravity** (60°F)	**US Gallons per Short Ton** (60°F)	**Barrels per Short Ton** (60°F)	**API Gravity** (60°F)	**Long Tons per 1000 US Gallons** (60°F)
0.18821	0.0	223.16	5.313	0.0	4.0010
0.18807	0.1	223.33	5.317	0.1	3.9980
0.18792	0.2	223.5	5.321	0.2	3.9949
0.18778	0.3	223.67	5.325	0.3	3.9919
0.18764	0.4	223.84	5.329	0.4	3.9889
0.18749	0.5	224.01	5.333	0.5	3.9859
0.18735	0.6	224.18	5.338	0.6	3.9828
0.18721	0.7	224.35	5.342	0.7	3.9798
0.18707	0.8	224.52	5.346	0.8	3.9768
0.18693	0.9	224.69	5.35	0.9	3.9738
0.18679	1.0	224.86	5.354	1.0	3.9708
0.18665	1.1	225.03	5.358	1.1	3.9678
0.1865	1.2	225.2	5.362	1.2	3.9648
0.18636	1.3	225.37	5.366	1.3	3.9618
0.18622	1.4	225.54	5.37	1.4	3.9588
0.18608	1.5	225.71	5.374	1.5	3.9559
0.18594	1.6	225.88	5.378	1.6	3.9529
0.1858	1.7	226.05	5.382	1.7	3.9499
0.18566	1.8	226.21	5.386	1.8	3.9469
0.18552	1.9	226.38	5.39	1.9	3.9440
0.18539	2.0	226.55	5.394	2.0	3.9410
0.18525	2.1	226.72	5.398	2.1	3.9381
0.18511	2.2	226.89	5.402	2.2	3.9351
0.18497	2.3	227.06	5.406	2.3	3.9322
0.18483	2.4	227.23	5.41	2.4	3.9292
0.18469	2.5	227.4	5.414	2.5	3.9263
0.18456	2.6	227.57	5.418	2.6	3.9234
0.18442	2.7	227.74	5.422	2.7	3.9204
0.18428	2.8	227.91	5.427	2.8	3.9175
0.18414	2.9	228.08	5.431	2.9	3.9146
0.18401	3.0	228.25	5.435	3.0	3.9117
0.18387	3.1	228.42	5.439	3.1	3.9088
0.18373	3.2	228.59	5.443	3.2	3.9059
0.1836	3.3	228.76	5.447	3.3	3.9030
0.18346	3.4	228.93	5.451	3.4	3.9001
0.18332	3.5	229.1	5.455	3.5	3.8972
0.18319	3.6	229.27	5.459	3.6	3.8943
0.18305	3.7	229.44	5.463	3.7	3.8914

0.18292	3.8	229.61	5.467	3.8	3.8885
0.18278	3.9	229.78	5.471	3.9	3.8857
0.18265	4.0	229.95	5.475	4.0	3.8828
0.18251	4.1	230.12	5.479	4.1	3.8799
0.18238	4.2	230.29	5.483	4.2	3.8771
0.18224	4.3	230.46	5.487	4.3	3.8742
0.18211	4.4	230.63	5.491	4.4	3.8713
0.18197	4.5	230.8	5.495	4.5	3.8685
0.18184	4.6	230.97	5.499	4.6	3.8656
0.18171	4.7	231.14	5.503	4.7	3.8628
0.18157	4.8	231.31	5.507	4.8	3.8600
0.18144	4.9	231.48	5.511	4.9	3.8571
0.18131	5.0	231.65	5.516	5.0	3.8543
0.18117	5.1	231.82	5.52	5.1	3.8515
0.18104	5.2	231.99	5.524	5.2	3.8487
0.18091	5.3	232.16	5.528	5.3	3.8458
0.18078	5.4	232.33	5.532	5.4	3.8430
0.18064	5.5	232.5	5.536	5.5	3.8402
0.18051	5.6	232.67	5.54	5.6	3.8374
0.18038	5.7	232.84	5.544	5.7	3.8346
0.18025	5.8	233.01	5.548	5.8	3.8318
0.18012	5.9	233.18	5.552	5.9	3.8290
0.17999	6.0	233.35	5.556	6.0	3.8262
0.17986	6.1	233.52	5.56	6.1	3.8235
0.17972	6.2	233.69	5.564	6.2	3.8207
0.17959	6.3	233.86	5.568	6.3	3.8179
0.17946	6.4	234.03	5.572	6.4	3.8151
0.17933	6.5	234.2	5.576	6.5	3.8124
0.1792	6.6	234.37	5.58	6.6	3.8096
0.17907	6.7	234.54	5.584	6.7	3.8068
0.17894	6.8	234.71	5.588	6.8	3.8041
0.17881	6.9	234.88	5.592	6.9	3.8013
0.17869	7.0	235.05	5.596	7.0	3.7986
0.17856	7.1	235.22	5.6	7.1	3.7958
0.17843	7.2	235.39	5.605	7.2	3.7931
0.1783	7.3	235.56	5.609	7.3	3.7904
0.17817	7.4	235.73	5.613	7.4	3.7876
0.17804	7.5	235.9	5.617	7.5	3.7849
0.17791	7.6	236.07	5.621	7.6	3.7822
0.17779	7.7	236.24	5.625	7.7	3.7795
0.17766	7.8	236.41	5.629	7.8	3.7767
0.17753	7.9	236.58	5.633	7.9	3.7740
0.1774	8.0	236.75	5.637	8.0	3.7713
0.17728	8.1	236.92	5.641	8.1	3.7686
0.17715	8.2	237.09	5.645	8.2	3.7659
0.17702	8.3	237.26	5.649	8.3	3.7632
0.1769	8.4	237.43	5.653	8.4	3.7605
0.17677	8.5	237.6	5.657	8.5	3.7578
0.17664	8.6	237.77	5.661	8.6	3.7551
0.17652	8.7	237.94	5.665	8.7	3.7525
0.17639	8.8	238.11	5.669	8.8	3.7498
0.17626	8.9	238.28	5.673	8.9	3.7471
0.17614	9.0	238.45	5.677	9.0	3.7444
0.17601	9.1	238.62	5.681	9.1	3.7418
0.17589	9.2	238.79	5.685	9.2	3.7391
0.17576	9.3	238.96	5.689	9.3	3.7365

0.17564	9.4	239.13	5.694	9.4	3.7338
0.17551	9.5	239.3	5.698	9.5	3.7312
0.17539	9.6	239.47	5.702	9.6	3.7285
0.17526	9.7	239.64	5.706	9.7	3.7259
0.17514	9.8	239.81	5.71	9.8	3.7232
0.17502	9.9	239.98	5.714	9.9	3.7206
0.17489	10.0	240.15	5.718	10.0	3.7180
0.17477	10.1	240.32	5.722	10.1	3.7153
0.17465	10.2	240.49	5.726	10.2	3.7127
0.17452	10.3	240.66	5.73	10.3	3.7101
0.1744	10.4	240.83	5.734	10.4	3.7075
0.17428	10.5	241	5.738	10.5	3.7048
0.17415	10.6	241.17	5.742	10.6	3.7022
0.17403	10.7	241.34	5.746	10.7	3.6996
0.17391	10.8	241.51	5.75	10.8	3.6970
0.17379	10.9	241.68	5.754	10.9	3.6944
0.17366	11.0	241.85	5.758	11.0	3.6918
0.17354	11.1	242.02	5.762	11.1	3.6892
0.17342	11.2	242.19	5.766	11.2	3.6866
0.1733	11.3	242.36	5.77	11.3	3.6841
0.17318	11.4	242.53	5.774	11.4	3.6815
0.17306	11.5	242.7	5.778	11.5	3.6789
0.17293	11.6	242.87	5.783	11.6	3.6763
0.17281	11.7	243.04	5.787	11.7	3.6738
0.17269	11.8	243.21	5.791	11.8	3.6712
0.17257	11.9	243.38	5.795	11.9	3.6686
0.17245	12.0	243.55	5.799	12.0	3.6661
0.17233	12.1	243.72	5.803	12.1	3.6635
0.17221	12.2	243.89	5.807	12.2	3.6610
0.17209	12.3	244.06	5.811	12.3	3.6584
0.17197	12.4	244.23	5.815	12.4	3.6559
0.17185	12.5	244.4	5.819	12.5	3.6533
0.17173	12.6	244.57	5.823	12.6	3.6508
0.17161	12.7	244.74	5.827	12.7	3.6483
0.17149	12.8	244.91	5.831	12.8	3.6457
0.17138	12.9	245.08	5.835	12.9	3.6432
0.17126	13.0	245.25	5.839	13.0	3.6407
0.17114	13.1	245.42	5.843	13.1	3.6381
0.17102	13.2	245.59	5.847	13.2	3.6356
0.1709	13.3	245.76	5.851	13.3	3.6331
0.17078	13.4	245.93	5.855	13.4	3.6306
0.17067	13.5	246.1	5.859	13.5	3.6281
0.17055	13.6	246.27	5.863	13.6	3.6256
0.17043	13.7	246.44	5.868	13.7	3.6231
0.17031	13.8	246.6	5.872	13.8	3.6206
0.1702	13.9	246.77	5.876	13.9	3.6181
0.17008	14.0	246.94	5.88	14.0	3.6156
0.16996	14.1	247.11	5.884	14.1	3.6131
0.16984	14.2	247.28	5.888	14.2	3.6106
0.16973	14.3	247.45	5.892	14.3	3.6082
0.16961	14.4	247.62	5.896	14.4	3.6057
0.1695	14.5	247.79	5.9	14.5	3.6032
0.16938	14.6	247.96	5.904	14.6	3.6007
0.16926	14.7	248.13	5.908	14.7	3.5983
0.16915	14.8	248.3	5.912	14.8	3.5958
0.16903	14.9	248.47	5.916	14.9	3.5934

0.16892	15.0	248.64	5.92	15.0	3.5909
0.1688	15.1	248.81	5.924	15.1	3.5885
0.16869	15.2	248.98	5.928	15.2	3.5860
0.16857	15.3	249.15	5.932	15.3	3.5836
0.16846	15.4	249.32	5.936	15.4	3.5811
0.16834	15.5	249.49	5.94	15.5	3.5787
0.16823	15.6	249.66	5.944	15.6	3.5762
0.16811	15.7	249.83	5.948	15.7	3.5738
0.168	15.8	250	5.952	15.8	3.5714
0.16788	15.9	250.17	5.957	15.9	3.5690
0.16777	16.0	250.34	5.961	16.0	3.5665
0.16766	16.1	250.51	5.965	16.1	3.5641
0.16754	16.2	250.68	5.969	16.2	3.5617
0.16743	16.3	250.85	5.973	16.3	3.5593
0.16732	16.4	251.02	5.977	16.4	3.5569
0.1672	16.5	251.19	5.981	16.5	3.5545
0.16709	16.6	251.36	5.985	16.6	3.5521
0.16698	16.7	251.53	5.989	16.7	3.5497
0.16686	16.8	251.7	5.993	16.8	3.5473
0.16675	16.9	251.87	5.997	16.9	3.5449
0.16664	17.0	252.04	6.001	17.0	3.5425
0.16653	17.1	252.21	6.005	17.1	3.5401
0.16641	17.2	252.38	6.009	17.2	3.5377
0.1663	17.3	252.55	6.013	17.3	3.5353
0.16619	17.4	252.72	6.017	17.4	3.5330
0.16608	17.5	252.89	6.021	17.5	3.5306
0.16597	17.6	253.06	6.025	17.6	3.5282
0.16586	17.7	253.23	6.029	17.7	3.5258
0.16574	17.8	253.4	6.033	17.8	3.5235
0.16563	17.9	253.57	6.037	17.9	3.5211
0.16552	18.0	253.74	6.041	18.0	3.5188
0.16541	18.1	253.91	6.046	18.1	3.5164
0.1653	18.2	254.08	6.05	18.2	3.5140
0.16519	18.3	254.25	6.054	18.3	3.5117
0.16508	18.4	254.42	6.058	18.4	3.5094
0.16497	18.5	254.59	6.062	18.5	3.5070
0.16486	18.6	254.76	6.066	18.6	3.5047
0.16475	18.7	254.93	6.07	18.7	3.5023
0.16464	18.8	255.1	6.074	18.8	3.5000
0.16453	18.9	255.27	6.078	18.9	3.4977
0.16442	19.0	255.44	6.082	19.0	3.4953
0.16431	19.1	255.61	6.086	19.1	3.4930
0.1642	19.2	255.78	6.09	19.2	3.4907
0.16409	19.3	255.95	6.094	19.3	3.4884
0.16398	19.4	256.12	6.098	19.4	3.4861
0.16388	19.5	256.29	6.102	19.5	3.4838
0.16377	19.6	256.46	6.106	19.6	3.4814
0.16366	19.7	256.63	6.11	19.7	3.4791
0.16355	19.8	256.8	6.114	19.8	3.4768
0.16344	19.9	256.97	6.118	19.9	3.4745
0.16333	20.0	257.14	6.122	20.0	3.4722
0.16323	20.1	257.31	6.126	20.1	3.4699
0.16312	20.2	257.48	6.131	20.2	3.4677
0.16301	20.3	257.65	6.135	20.3	3.4654
0.1629	20.4	257.82	6.139	20.4	3.4631
0.1628	20.5	257.99	6.143	20.5	3.4608

0.16269	20.6	258.16	6.147	20.6	3.4585
0.16258	20.7	258.33	6.151	20.7	3.4563
0.16248	20.8	258.5	6.155	20.8	3.4540
0.16237	20.9	258.67	6.159	20.9	3.4517
0.16226	21.0	258.84	6.163	21.0	3.4494
0.16216	21.1	259.01	6.167	21.1	3.4472
0.16205	21.2	259.18	6.171	21.2	3.4449
0.16194	21.3	259.35	6.175	21.3	3.4427
0.16184	21.4	259.52	6.179	21.4	3.4404
0.16173	21.5	259.69	6.183	21.5	3.4382
0.16163	21.6	259.86	6.187	21.6	3.4359
0.16152	21.7	260.03	6.191	21.7	3.4337
0.16141	21.8	260.2	6.195	21.8	3.4314
0.16131	21.9	260.37	6.199	21.9	3.4292
0.1612	22.0	260.54	6.203	22.0	3.4269
0.1611	22.1	260.71	6.207	22.1	3.4247
0.16099	22.2	260.88	6.211	22.2	3.4225
0.16089	22.3	261.05	6.215	22.3	3.4202
0.16078	22.4	261.22	6.22	22.4	3.4180
0.16068	22.5	261.39	6.224	22.5	3.4158
0.16057	22.6	261.56	6.228	22.6	3.4136
0.16047	22.7	261.73	6.232	22.7	3.4114
0.16037	22.8	261.9	6.236	22.8	3.4092
0.16026	22.9	262.07	6.24	22.9	3.4069
0.16016	23.0	262.24	6.244	23.0	3.4047
0.16005	23.1	262.41	6.248	23.1	3.4025
0.15995	23.2	262.58	6.252	23.2	3.4003
0.15985	23.3	262.75	6.256	23.3	3.3981
0.15974	23.4	262.92	6.26	23.4	3.3959
0.15964	23.5	263.09	6.264	23.5	3.3937
0.15954	23.6	263.26	6.268	23.6	3.3915
0.15944	23.7	263.43	6.272	23.7	3.3894
0.15933	23.8	263.6	6.276	23.8	3.3872
0.15923	23.9	263.77	6.28	23.9	3.3850
0.15913	24.0	263.94	6.284	24.0	3.3828
0.15902	24.1	264.11	6.288	24.1	3.3806
0.15892	24.2	264.28	6.292	24.2	3.3785
0.15882	24.3	264.45	6.296	24.3	3.3763
0.15872	24.4	264.62	6.3	24.4	3.3741
0.15862	24.5	264.79	6.305	24.5	3.3720
0.15851	24.6	264.96	6.309	24.6	3.3698
0.15841	24.7	265.13	6.313	24.7	3.3676
0.15831	24.8	265.3	6.317	24.8	3.3655
0.15821	24.9	265.47	6.321	24.9	3.3633
0.15811	25.0	265.64	6.325	25.0	3.3612
0.15801	25.1	265.81	6.329	25.1	3.3590
0.15791	25.2	265.98	6.333	25.2	3.3569
0.15781	25.3	266.15	6.337	25.3	3.3547
0.15771	25.4	266.32	6.341	25.4	3.3526
0.1576	25.5	266.49	6.345	25.5	3.3504
0.1575	25.6	266.66	6.349	25.6	3.3483
0.1574	25.7	266.83	6.353	25.7	3.3462
0.1573	25.8	267	6.357	25.8	3.3440
0.1572	25.9	267.17	6.361	25.9	3.3419
0.1571	26.0	267.34	6.365	26.0	3.3398
0.157	26.1	267.51	6.369	26.1	3.3377

0.1569	26.2	267.68	6.373	26.2	3.3356
0.1568	26.3	267.85	6.377	26.3	3.3334
0.15671	26.4	268.02	6.381	26.4	3.3313
0.15661	26.5	268.19	6.385	26.5	3.3292
0.15651	26.6	268.36	6.389	26.6	3.3271
0.15641	26.7	268.53	6.394	26.7	3.3250
0.15631	26.8	268.7	6.398	26.8	3.3229
0.15621	26.9	268.87	6.402	26.9	3.3208
0.15611	27.0	269.04	6.406	27.0	3.3187
0.15601	27.1	269.21	6.41	27.1	3.3166
0.15591	27.2	269.38	6.414	27.2	3.3145
0.15582	27.3	269.55	6.418	27.3	3.3124
0.15572	27.4	269.72	6.422	27.4	3.3103
0.15562	27.5	269.89	6.426	27.5	3.3082
0.15552	27.6	270.06	6.43	27.6	3.3062
0.15542	27.7	270.23	6.434	27.7	3.3041
0.15533	27.8	270.4	6.438	27.8	3.3020
0.15523	27.9	270.57	6.442	27.9	3.2999
0.15513	28.0	270.74	6.446	28.0	3.2979
0.15503	28.1	270.91	6.45	28.1	3.2958
0.15494	28.2	271.08	6.454	28.2	3.2937
0.15484	28.3	271.25	6.458	28.3	3.2917
0.15474	28.4	271.42	6.462	28.4	3.2896
0.15465	28.5	271.59	6.466	28.5	3.2875
0.15455	28.6	271.76	6.47	28.6	3.2855
0.15445	28.7	271.93	6.474	28.7	3.2834
0.15436	28.8	272.1	6.479	28.8	3.2814
0.15426	28.9	272.27	6.483	28.9	3.2793
0.15416	29.0	272.44	6.487	29.0	3.2773
0.15407	29.1	272.61	6.491	29.1	3.2752
0.15397	29.2	272.78	6.495	29.2	3.2732
0.15388	29.3	272.95	6.499	29.3	3.2712
0.15378	29.4	273.12	6.503	29.4	3.2691
0.15368	29.5	273.29	6.507	29.5	3.2671
0.15359	29.6	273.46	6.511	29.6	3.2651
0.15349	29.7	273.63	6.515	29.7	3.2630
0.1534	29.8	273.8	6.519	29.8	3.2610
0.1533	29.9	273.97	6.523	29.9	3.2590
0.15321	30.0	274.14	6.527	30.0	3.2570
0.15311	30.1	274.31	6.531	30.1	3.2549
0.15302	30.2	274.48	6.535	30.2	3.2529
0.15292	30.3	274.65	6.539	30.3	3.2509
0.15283	30.4	274.82	6.543	30.4	3.2489
0.15273	30.5	274.99	6.547	30.5	3.2469
0.15264	30.6	275.16	6.551	30.6	3.2449
0.15255	30.7	275.33	6.555	30.7	3.2429
0.15245	30.8	275.5	6.559	30.8	3.2409
0.15236	30.9	275.67	6.564	30.9	3.2389
0.15226	31.0	275.84	6.568	31.0	3.2369
0.15217	31.1	276.01	6.572	31.1	3.2349
0.15208	31.2	276.18	6.576	31.2	3.2329
0.15198	31.3	276.35	6.58	31.3	3.2309
0.15189	31.4	276.52	6.584	31.4	3.2289
0.1518	31.5	276.69	6.588	31.5	3.2269
0.1517	31.6	276.86	6.592	31.6	3.2250
0.15161	31.7	277.03	6.596	31.7	3.2230

0.15152	31.8	277.2	6.6	31.8	3.2210
0.15142	31.9	277.37	6.604	31.9	3.2190
0.15133	32.0	277.54	6.608	32.0	3.2171
0.15124	32.1	277.71	6.612	32.1	3.2151
0.15115	32.2	277.88	6.616	32.2	3.2131
0.15105	32.3	278.05	6.62	32.3	3.2112
0.15096	32.4	278.22	6.624	32.4	3.2092
0.15087	32.5	278.39	6.628	32.5	3.2072
0.15078	32.6	278.56	6.632	32.6	3.2053
0.15068	32.7	278.73	6.636	32.7	3.2033
0.15059	32.8	278.9	6.64	32.8	3.2014
0.1505	32.9	279.07	6.644	32.9	3.1994
0.15041	33.0	279.24	6.649	33.0	3.1975
0.15032	33.1	279.41	6.653	33.1	3.1955
0.15023	33.2	279.58	6.657	33.2	3.1936
0.15014	33.3	279.75	6.661	33.3	3.1917
0.15004	33.4	279.92	6.665	33.4	3.1897
0.14995	33.5	280.09	6.669	33.5	3.1878
0.14986	33.6	280.26	6.673	33.6	3.1858
0.14977	33.7	280.43	6.677	33.7	3.1839
0.14968	33.8	280.6	6.681	33.8	3.1820
0.14959	33.9	280.77	6.685	33.9	3.1801
0.1495	34.0	280.94	6.689	34.0	3.1781
0.14941	34.1	281.11	6.693	34.1	3.1762
0.14932	34.2	281.28	6.697	34.2	3.1743
0.14923	34.3	281.45	6.701	34.3	3.1724
0.14914	34.4	281.62	6.705	34.4	3.1705
0.14905	34.5	281.79	6.709	34.5	3.1685
0.14896	34.6	281.96	6.713	34.6	3.1666
0.14887	34.7	282.13	6.717	34.7	3.1647
0.14878	34.8	282.3	6.721	34.8	3.1628
0.14869	34.9	282.47	6.725	34.9	3.1609
0.1486	35.0	282.64	6.729	35.0	3.1590
0.14851	35.1	282.81	6.734	35.1	3.1571
0.14842	35.2	282.98	6.738	35.2	3.1552
0.14833	35.3	283.15	6.742	35.3	3.1533
0.14824	35.4	283.32	6.746	35.4	3.1514
0.14815	35.5	283.49	6.75	35.5	3.1495
0.14807	35.6	283.66	6.754	35.6	3.1477
0.14798	35.7	283.83	6.758	35.7	3.1458
0.14789	35.8	284	6.762	35.8	3.1439
0.1478	35.9	284.17	6.766	35.9	3.1420
0.14771	36.0	284.34	6.77	36.0	3.1401
0.14762	36.1	284.51	6.774	36.1	3.1383
0.14754	36.2	284.68	6.778	36.2	3.1364
0.14745	36.3	284.85	6.782	36.3	3.1345
0.14736	36.4	285.02	6.786	36.4	3.1326
0.14727	36.5	285.19	6.79	36.5	3.1308
0.14718	36.6	285.36	6.794	36.6	3.1289
0.1471	36.7	285.53	6.798	36.7	3.1270
0.14701	36.8	285.7	6.802	36.8	3.1252
0.14692	36.9	285.87	6.806	36.9	3.1233
0.14683	37.0	286.04	6.81	37.0	3.1215
0.14675	37.1	286.21	6.814	37.1	3.1196
0.14666	37.2	286.38	6.819	37.2	3.1178
0.14657	37.3	286.55	6.823	37.3	3.1159

0.14649	37.4	286.72	6.827	37.4	3.1141
0.1464	37.5	286.89	6.831	37.5	3.1122
0.14631	37.6	287.06	6.835	37.6	3.1104
0.14623	37.7	287.23	6.839	37.7	3.1085
0.14614	37.8	287.4	6.843	37.8	3.1067
0.14605	37.9	287.57	6.847	37.9	3.1049
0.14597	38.0	287.74	6.851	38.0	3.1030
0.14588	38.1	287.91	6.855	38.1	3.1012
0.14579	38.2	288.08	6.859	38.2	3.0994
0.14571	38.3	288.25	6.863	38.3	3.0975
0.14562	38.4	288.42	6.867	38.4	3.0957
0.14554	38.5	288.59	6.871	38.5	3.0939
0.14545	38.6	288.76	6.875	38.6	3.0921
0.14537	38.7	288.93	6.879	38.7	3.0902
0.14528	38.8	289.1	6.883	38.8	3.0884
0.14519	38.9	289.27	6.887	38.9	3.0866
0.14511	39.0	289.44	6.891	39.0	3.0848
0.14502	39.1	289.61	6.895	39.1	3.0830
0.14494	39.2	289.78	6.899	39.2	3.0812
0.14485	39.3	289.95	6.904	39.3	3.0794
0.14477	39.4	290.12	6.908	39.4	3.0776
0.14468	39.5	290.29	6.912	39.5	3.0758
0.1446	39.6	290.46	6.916	39.6	3.0740
0.14451	39.7	290.63	6.92	39.7	3.0722
0.14443	39.8	290.8	6.924	39.8	3.0704
0.14435	39.9	290.97	6.928	39.9	3.0686
0.14426	40.0	291.14	6.932	40.0	3.0668
0.14418	40.1	291.31	6.936	40.1	3.0650
0.14409	40.2	291.48	6.94	40.2	3.0632
0.14401	40.3	291.65	6.944	40.3	3.0614
0.14393	40.4	291.82	6.948	40.4	3.0596
0.14384	40.5	291.99	6.952	40.5	3.0579
0.14376	40.6	292.16	6.956	40.6	3.0561
0.14367	40.7	292.33	6.96	40.7	3.0543
0.14359	40.8	292.5	6.964	40.8	3.0525
0.14351	40.9	292.67	6.968	40.9	3.0508
0.14342	41.0	292.84	6.972	41.0	3.0490
0.14334	41.1	293.01	6.976	41.1	3.0472
0.14326	41.2	293.18	6.98	41.2	3.0454
0.14317	41.3	293.35	6.984	41.3	3.0437
0.14309	41.4	293.52	6.989	41.4	3.0419
0.14301	41.5	293.69	6.993	41.5	3.0402
0.14293	41.6	293.86	6.997	41.6	3.0384
0.14284	41.7	294.03	7.001	41.7	3.0366
0.14276	41.8	294.2	7.005	41.8	3.0349
0.14268	41.9	294.37	7.009	41.9	3.0331
0.1426	42.0	294.54	7.013	42.0	3.0314
0.14251	42.1	294.71	7.017	42.1	3.0296
0.14243	42.2	294.88	7.021	42.2	3.0279
0.14235	42.3	295.05	7.025	42.3	3.0261
0.14227	42.4	295.22	7.029	42.4	3.0244
0.14219	42.5	295.39	7.033	42.5	3.0227
0.1421	42.6	295.56	7.037	42.6	3.0209
0.14202	42.7	295.73	7.041	42.7	3.0192
0.14194	42.8	295.9	7.045	42.8	3.0174
0.14186	42.9	296.07	7.049	42.9	3.0157

0.14178	43.0	296.24	7.053	43.0	3.0140
0.1417	43.1	296.41	7.057	43.1	3.0123
0.14162	43.2	296.58	7.061	43.2	3.0105
0.14153	43.3	296.75	7.065	43.3	3.0088
0.14145	43.4	296.92	7.069	43.4	3.0071
0.14137	43.5	297.09	7.074	43.5	3.0054
0.14129	43.6	297.26	7.078	43.6	3.0036
0.14121	43.7	297.43	7.082	43.7	3.0019
0.14113	43.8	297.6	7.086	43.8	3.0002
0.14105	43.9	297.77	7.09	43.9	2.9985
0.14097	44.0	297.94	7.094	44.0	2.9968
0.14089	44.1	298.11	7.098	44.1	2.9951
0.14081	44.2	298.28	7.102	44.2	2.9934
0.14073	44.3	298.45	7.106	44.3	2.9917
0.14065	44.4	298.62	7.11	44.4	2.9900
0.14057	44.5	298.79	7.114	44.5	2.9883
0.14049	44.6	298.96	7.118	44.6	2.9866
0.14041	44.7	299.13	7.122	44.7	2.9849
0.14033	44.8	299.3	7.126	44.8	2.9832
0.14025	44.9	299.47	7.13	44.9	2.9815
0.14017	45.0	299.64	7.134	45.0	2.9798
0.14009	45.1	299.81	7.138	45.1	2.9781
0.14001	45.2	299.98	7.142	45.2	2.9764
0.13993	45.3	300.15	7.146	45.3	2.9747
0.13985	45.4	300.32	7.15	45.4	2.9730
0.13977	45.5	300.49	7.154	45.5	2.9714
0.13969	45.6	300.66	7.159	45.6	2.9697
0.13961	45.7	300.83	7.163	45.7	2.9680
0.13954	45.8	301	7.167	45.8	2.9663
0.13946	45.9	301.17	7.171	45.9	2.9646
0.13938	46.0	301.34	7.175	46.0	2.9630
0.1393	46.1	301.51	7.179	46.1	2.9613
0.13922	46.2	301.68	7.183	46.2	2.9596
0.13914	46.3	301.85	7.187	46.3	2.9580
0.13906	46.4	302.02	7.191	46.4	2.9563
0.13899	46.5	302.19	7.195	46.5	2.9546
0.13891	46.6	302.36	7.199	46.6	2.9530
0.13883	46.7	302.53	7.203	46.7	2.9513
0.13875	46.8	302.7	7.207	46.8	2.9497
0.13867	46.9	302.87	7.211	46.9	2.9480
0.1386	47.0	303.04	7.215	47.0	2.9463
0.13852	47.1	303.21	7.219	47.1	2.9447
0.13844	47.2	303.38	7.223	47.2	2.9430
0.13836	47.3	303.55	7.227	47.3	2.9414
0.13829	47.4	303.72	7.231	47.4	2.9397
0.13821	47.5	303.89	7.235	47.5	2.9381
0.13813	47.6	304.06	7.24	47.6	2.9365
0.13805	47.7	304.23	7.244	47.7	2.9348
0.13798	47.8	304.4	7.248	47.8	2.9332
0.1379	47.9	304.57	7.252	47.9	2.9315
0.13782	48.0	304.74	7.256	48.0	2.9299
0.13775	48.1	304.91	7.26	48.1	2.9283
0.13767	48.2	305.08	7.264	48.2	2.9266
0.13759	48.3	305.25	7.268	48.3	2.9250
0.13752	48.4	305.42	7.272	48.4	2.9234
0.13744	48.5	305.59	7.276	48.5	2.9218

0.13736	48.6	305.76	7.28	48.6	2.9201
0.13729	48.7	305.93	7.284	48.7	2.9185
0.13721	48.8	306.1	7.288	48.8	2.9169
0.13713	48.9	306.27	7.292	48.9	2.9153
0.13706	49.0	306.44	7.296	49.0	2.9136
0.13698	49.1	306.61	7.3	49.1	2.9120
0.13691	49.2	306.78	7.304	49.2	2.9104
0.13683	49.3	306.95	7.308	49.3	2.9088
0.13675	49.4	307.12	7.312	49.4	2.9072
0.13668	49.5	307.29	7.316	49.5	2.9056
0.1366	49.6	307.46	7.32	49.6	2.9040
0.13653	49.7	307.63	7.325	49.7	2.9024
0.13645	49.8	307.8	7.329	49.8	2.9008
0.13638	49.9	307.97	7.333	49.9	2.8992
0.1363	50.0	308.14	7.337	50.0	2.8976
0.13623	50.1	308.31	7.341	50.1	2.8960
0.13615	50.2	308.48	7.345	50.2	2.8944
0.13608	50.3	308.65	7.349	50.3	2.8928
0.136	50.4	308.82	7.353	50.4	2.8912
0.13593	50.5	308.99	7.357	50.5	2.8896
0.13585	50.6	309.16	7.361	50.6	2.8880
0.13578	50.7	309.33	7.365	50.7	2.8864
0.1357	50.8	309.5	7.369	50.8	2.8848
0.13563	50.9	309.67	7.373	50.9	2.8832
0.13555	51.0	309.84	7.377	51.0	2.8817
0.13548	51.1	310.01	7.381	51.1	2.8801
0.1354	51.2	310.18	7.385	51.2	2.8785
0.13533	51.3	310.35	7.389	51.3	2.8769
0.13526	51.4	310.52	7.393	51.4	2.8754
0.13518	51.5	310.69	7.397	51.5	2.8738
0.13511	51.6	310.86	7.401	51.6	2.8722
0.13503	51.7	311.03	7.405	51.7	2.8706
0.13496	51.8	311.2	7.41	51.8	2.8691
0.13489	51.9	311.37	7.414	51.9	2.8675
0.13481	52.0	311.54	7.418	52.0	2.8659
0.13474	52.1	311.71	7.422	52.1	2.8644
0.13467	52.2	311.88	7.426	52.2	2.8628
0.13459	52.3	312.05	7.43	52.3	2.8613
0.13452	52.4	312.22	7.434	52.4	2.8597
0.13445	52.5	312.39	7.438	52.5	2.8581
0.13437	52.6	312.56	7.442	52.6	2.8566
0.1343	52.7	312.73	7.446	52.7	2.8550
0.13423	52.8	312.9	7.45	52.8	2.8535
0.13415	52.9	313.07	7.454	52.9	2.8519
0.13408	53.0	313.24	7.458	53.0	2.8504
0.13401	53.1	313.41	7.462	53.1	2.8488
0.13394	53.2	313.58	7.466	53.2	2.8473
0.13386	53.3	313.75	7.47	53.3	2.8457
0.13379	53.4	313.92	7.474	53.4	2.8442
0.13372	53.5	314.09	7.478	53.5	2.8427
0.13365	53.6	314.26	7.482	53.6	2.8411
0.13357	53.7	314.43	7.486	53.7	2.8396
0.1335	53.8	314.6	7.491	53.8	2.8381
0.13343	53.9	314.77	7.495	53.9	2.8365
0.13336	54.0	314.94	7.499	54.0	2.8350
0.13329	54.1	315.11	7.503	54.1	2.8335

0.13321	54.2	315.28	7.507	54.2	2.8319
0.13314	54.3	315.45	7.511	54.3	2.8304
0.13307	54.4	315.62	7.515	54.4	2.8289
0.133	54.5	315.79	7.519	54.5	2.8274
0.13293	54.6	315.96	7.523	54.6	2.8258
0.13286	54.7	316.13	7.527	54.7	2.8243
0.13278	54.8	316.3	7.531	54.8	2.8228
0.13271	54.9	316.47	7.535	54.9	2.8213
0.13264	55.0	316.64	7.539	55.0	2.8198
0.13257	55.1	316.81	7.543	55.1	2.8183
0.1325	55.2	316.98	7.547	55.2	2.8167
0.13243	55.3	317.15	7.551	55.3	2.8152
0.13236	55.4	317.32	7.555	55.4	2.8137
0.13229	55.5	317.49	7.559	55.5	2.8122
0.13222	55.6	317.66	7.563	55.6	2.8107
0.13214	55.7	317.83	7.567	55.7	2.8092
0.13207	55.8	318	7.571	55.8	2.8077
0.132	55.9	318.17	7.576	55.9	2.8062
0.13193	56.0	318.34	7.58	56.0	2.8047
0.13186	56.1	318.51	7.584	56.1	2.8032
0.13179	56.2	318.68	7.588	56.2	2.8017
0.13172	56.3	318.85	7.592	56.3	2.8002
0.13165	56.4	319.02	7.596	56.4	2.7987
0.13158	56.5	319.19	7.6	56.5	2.7972
0.13151	56.6	319.36	7.604	56.6	2.7957
0.13144	56.7	319.53	7.608	56.7	2.7943
0.13137	56.8	319.7	7.612	56.8	2.7928
0.1313	56.9	319.87	7.616	56.9	2.7913
0.13123	57.0	320.04	7.62	57.0	2.7898
0.13116	57.1	320.21	7.624	57.1	2.7883
0.13109	57.2	320.38	7.628	57.2	2.7868
0.13102	57.3	320.55	7.632	57.3	2.7854
0.13095	57.4	320.72	7.636	57.4	2.7839
0.13088	57.5	320.89	7.64	57.5	2.7824
0.13082	57.6	321.06	7.644	57.6	2.7809
0.13075	57.7	321.23	7.648	57.7	2.7795
0.13068	57.8	321.4	7.652	57.8	2.7780
0.13061	57.9	321.57	7.657	57.9	2.7765
0.13054	58.0	321.74	7.661	58.0	2.7751
0.13047	58.1	321.91	7.665	58.1	2.7736
0.1304	58.2	322.08	7.669	58.2	2.7721
0.13033	58.3	322.25	7.673	58.3	2.7707
0.13026	58.4	322.42	7.677	58.4	2.7692
0.13019	58.5	322.59	7.681	58.5	2.7677
0.13013	58.6	322.76	7.685	58.6	2.7663
0.13006	58.7	322.93	7.689	58.7	2.7648
0.12999	58.8	323.1	7.693	58.8	2.7634
0.12992	58.9	323.27	7.697	58.9	2.7619
0.12985	59.0	323.44	7.701	59.0	2.7605
0.12978	59.1	323.62	7.705	59.1	2.7590
0.12972	59.2	323.79	7.709	59.2	2.7576
0.12965	59.3	323.96	7.713	59.3	2.7561
0.12958	59.4	324.13	7.717	59.4	2.7547
0.12951	59.5	324.3	7.721	59.5	2.7532
0.12944	59.6	324.47	7.725	59.6	2.7518
0.12938	59.7	324.64	7.729	59.7	2.7503

0.12931	59.8	324.81	7.733	59.8	2.7489
0.12924	59.9	324.98	7.738	59.9	2.7475
0.12917	60.0	325.15	7.742	60.0	2.7460
0.12911	60.1	325.32	7.746	60.1	2.7446
0.12904	60.2	325.49	7.75	60.2	2.7432
0.12897	60.3	325.66	7.754	60.3	2.7417
0.1289	60.4	325.83	7.758	60.4	2.7403
0.12884	60.5	326	7.762	60.5	2.7389
0.12877	60.6	326.17	7.766	60.6	2.7374
0.1287	60.7	326.34	7.77	60.7	2.7360
0.12863	60.8	326.51	7.774	60.8	2.7346
0.12857	60.9	326.68	7.778	60.9	2.7332
0.1285	61.0	326.85	7.782	61.0	2.7317
0.12843	61.1	327.02	7.786	61.1	2.7303
0.12837	61.2	327.19	7.79	61.2	2.7289
0.1283	61.3	327.36	7.794	61.3	2.7275
0.12823	61.4	327.53	7.798	61.4	2.7261
0.12817	61.5	327.7	7.802	61.5	2.7246
0.1281	61.6	327.87	7.806	61.6	2.7232
0.12803	61.7	328.04	7.81	61.7	2.7218
0.12797	61.8	328.21	7.814	61.8	2.7204
0.1279	61.9	328.38	7.818	61.9	2.7190
0.12784	62.0	328.55	7.823	62.0	2.7176
0.12777	62.1	328.72	7.827	62.1	2.7162
0.1277	62.2	328.89	7.831	62.2	2.7148
0.12764	62.3	329.06	7.835	62.3	2.7134
0.12757	62.4	329.23	7.839	62.4	2.7120
0.12751	62.5	329.4	7.843	62.5	2.7106
0.12744	62.6	329.57	7.847	62.6	2.7092
0.12737	62.7	329.74	7.851	62.7	2.7078
0.12731	62.8	329.91	7.855	62.8	2.7064
0.12724	62.9	330.08	7.859	62.9	2.7050
0.12718	63.0	330.25	7.863	63.0	2.7036
0.12711	63.1	330.42	7.867	63.1	2.7022
0.12705	63.2	330.59	7.871	63.2	2.7008
0.12698	63.3	330.76	7.875	63.3	2.6994
0.12692	63.4	330.93	7.879	63.4	2.6980
0.12685	63.5	331.1	7.883	63.5	2.6967
0.12679	63.6	331.27	7.887	63.6	2.6953
0.12672	63.7	331.44	7.891	63.7	2.6939
0.12666	63.8	331.61	7.895	63.8	2.6925
0.12659	63.9	331.78	7.899	63.9	2.6911
0.12653	64.0	331.95	7.904	64.0	2.6897
0.12646	64.1	332.12	7.908	64.1	2.6884
0.1264	64.2	332.29	7.912	64.2	2.6870
0.12633	64.3	332.46	7.916	64.3	2.6856
0.12627	64.4	332.63	7.92	64.4	2.6842
0.1262	64.5	332.8	7.924	64.5	2.6829
0.12614	64.6	332.97	7.928	64.6	2.6815
0.12607	64.7	333.14	7.932	64.7	2.6801
0.12601	64.8	333.31	7.936	64.8	2.6788
0.12594	64.9	333.48	7.94	64.9	2.6774
0.12588	65.0	333.65	7.944	65.0	2.6760
0.12582	65.1	333.82	7.948	65.1	2.6747
0.12575	65.2	333.99	7.952	65.2	2.6733
0.12569	65.3	334.16	7.956	65.3	2.6719

0.12562	65.4	334.33	7.96	65.4	2.6706
0.12556	65.5	334.5	7.964	65.5	2.6692
0.1255	65.6	334.67	7.968	65.6	2.6679
0.12543	65.7	334.84	7.972	65.7	2.6665
0.12537	65.8	335.01	7.976	65.8	2.6652
0.12531	65.9	335.18	7.98	65.9	2.6638
0.12524	66.0	335.35	7.985	66.0	2.6625
0.12518	66.1	335.52	7.989	66.1	2.6611
0.12512	66.2	335.69	7.993	66.2	2.6598
0.12505	66.3	335.86	7.997	66.3	2.6584
0.12499	66.4	336.03	8.001	66.4	2.6571
0.12493	66.5	336.2	8.005	66.5	2.6557
0.12486	66.6	336.37	8.009	66.6	2.6544
0.1248	66.7	336.54	8.013	66.7	2.6530
0.12474	66.8	336.71	8.017	66.8	2.6517
0.12467	66.9	336.88	8.021	66.9	2.6504
0.12461	67.0	337.05	8.025	67.0	2.6490
0.12455	67.1	337.22	8.029	67.1	2.6477
0.12448	67.2	337.39	8.033	67.2	2.6464
0.12442	67.3	337.56	8.037	67.3	2.6450
0.12436	67.4	337.73	8.041	67.4	2.6437
0.1243	67.5	337.9	8.045	67.5	2.6424
0.12423	67.6	338.07	8.049	67.6	2.6410
0.12417	67.7	338.24	8.053	67.7	2.6397
0.12411	67.8	338.41	8.057	67.8	2.6384
0.12405	67.9	338.58	8.061	67.9	2.6370
0.12398	68.0	338.75	8.066	68.0	2.6357
0.12392	68.1	338.92	8.07	68.1	2.6344
0.12386	68.2	339.09	8.074	68.2	2.6331
0.1238	68.3	339.26	8.078	68.3	2.6318
0.12374	68.4	339.43	8.082	68.4	2.6304
0.12367	68.5	339.6	8.086	68.5	2.6291
0.12361	68.6	339.77	8.09	68.6	2.6278
0.12355	68.7	339.94	8.094	68.7	2.6265
0.12349	68.8	340.11	8.098	68.8	2.6252
0.12343	68.9	340.28	8.102	68.9	2.6239
0.12337	69.0	340.45	8.106	69.0	2.6226
0.1233	69.1	340.62	8.11	69.1	2.6212
0.12324	69.2	340.79	8.114	69.2	2.6199
0.12318	69.3	340.96	8.118	69.3	2.6186
0.12312	69.4	341.13	8.122	69.4	2.6173
0.12306	69.5	341.3	8.126	69.5	2.6160
0.123	69.6	341.47	8.13	69.6	2.6147
0.12294	69.7	341.64	8.134	69.7	2.6134
0.12287	69.8	341.81	8.138	69.8	2.6121
0.12281	69.9	341.98	8.142	69.9	2.6108
0.12275	70.0	342.15	8.147	70.0	2.6095
0.12269	70.1	342.32	8.151	70.1	2.6082
0.12263	70.2	342.49	8.155	70.2	2.6069
0.12257	70.3	342.66	8.159	70.3	2.6056
0.12251	70.4	342.83	8.163	70.4	2.6043
0.12245	70.5	343	8.167	70.5	2.6030
0.12239	70.6	343.17	8.171	70.6	2.6018
0.12233	70.7	343.34	8.175	70.7	2.6005
0.12227	70.8	343.51	8.179	70.8	2.5992
0.1222	70.9	343.68	8.183	70.9	2.5979

0.12214	71.0	343.86	8.187	71.0	2.5966
0.12208	71.1	344.03	8.191	71.1	2.5953
0.12202	71.2	344.2	8.195	71.2	2.5940
0.12196	71.3	344.37	8.199	71.3	2.5928
0.1219	71.4	344.54	8.203	71.4	2.5915
0.12184	71.5	344.71	8.207	71.5	2.5902
0.12178	71.6	344.88	8.211	71.6	2.5889
0.12172	71.7	345.05	8.215	71.7	2.5876
0.12166	71.8	345.22	8.219	71.8	2.5864
0.1216	71.9	345.39	8.223	71.9	2.5851
0.12154	72.0	345.56	8.228	72.0	2.5838
0.12148	72.1	345.73	8.232	72.1	2.5826
0.12142	72.2	345.9	8.236	72.2	2.5813
0.12136	72.3	346.07	8.24	72.3	2.5800
0.1213	72.4	346.24	8.244	72.4	2.5787
0.12124	72.5	346.41	8.248	72.5	2.5775
0.12119	72.6	346.58	8.252	72.6	2.5762
0.12113	72.7	346.75	8.256	72.7	2.5750
0.12107	72.8	346.92	8.26	72.8	2.5737
0.12101	72.9	347.09	8.264	72.9	2.5724
0.12095	73.0	347.26	8.268	73.0	2.5712
0.12089	73.1	347.43	8.272	73.1	2.5699
0.12083	73.2	347.6	8.276	73.2	2.5687
0.12077	73.3	347.77	8.28	73.3	2.5674
0.12071	73.4	347.94	8.284	73.4	2.5661
0.12065	73.5	348.11	8.288	73.5	2.5649
0.12059	73.6	348.28	8.292	73.6	2.5636
0.12053	73.7	348.45	8.296	73.7	2.5624
0.12048	73.8	348.62	8.3	73.8	2.5611
0.12042	73.9	348.79	8.304	73.9	2.5599
0.12036	74.0	348.96	8.309	74.0	2.5586
0.1203	74.1	349.13	8.313	74.1	2.5574
0.12024	74.2	349.3	8.317	74.2	2.5561
0.12018	74.3	349.47	8.321	74.3	2.5549
0.12012	74.4	349.64	8.325	74.4	2.5537
0.12007	74.5	349.81	8.329	74.5	2.5524
0.12001	74.6	349.98	8.333	74.6	2.5512
0.11995	74.7	350.15	8.337	74.7	2.5499
0.11989	74.8	350.32	8.341	74.8	2.5487
0.11983	74.9	350.49	8.345	74.9	2.5475
0.11977	75.0	350.66	8.349	75.0	2.5462
0.11972	75.1	350.83	8.353	75.1	2.5450
0.11966	75.2	351	8.357	75.2	2.5438
0.1196	75.3	351.17	8.361	75.3	2.5425
0.11954	75.4	351.34	8.365	75.4	2.5413
0.11948	75.5	351.51	8.369	75.5	2.5401
0.11943	75.6	351.68	8.373	75.6	2.5388
0.11937	75.7	351.85	8.377	75.7	2.5376
0.11931	75.8	352.02	8.381	75.8	2.5364
0.11925	75.9	352.19	8.385	75.9	2.5352
0.1192	76.0	352.36	8.39	76.0	2.5339
0.11914	76.1	352.53	8.394	76.1	2.5327
0.11908	76.2	352.7	8.398	76.2	2.5315
0.11902	76.3	352.87	8.402	76.3	2.5303
0.11897	76.4	353.04	8.406	76.4	2.5290
0.11891	76.5	353.21	8.41	76.5	2.5277

0.11885	76.6	353.38	8.414	76.6	2.5266
0.11879	76.7	353.55	8.418	76.7	2.5254
0.11874	76.8	353.72	8.422	76.8	2.5242
0.11868	76.9	353.89	8.426	76.9	2.5230
0.11862	77.0	354.06	8.43	77.0	2.5218
0.11857	77.1	354.23	8.434	77.1	2.5205
0.11851	77.2	354.4	8.438	77.2	2.5193
0.11845	77.3	354.57	8.442	77.3	2.5181
0.1184	77.4	354.74	8.446	77.4	2.5169
0.11834	77.5	354.91	8.45	77.5	2.5157
0.11828	77.6	355.08	8.454	77.6	2.5145
0.11823	77.7	355.25	8.458	77.7	2.5133
0.11817	77.8	355.42	8.462	77.8	2.5121
0.11811	77.9	355.59	8.466	77.9	2.5109
0.11806	78.0	355.76	8.471	78.0	2.5097
0.118	78.1	355.93	8.475	78.1	2.5085
0.11794	78.2	356.1	8.479	78.2	2.5073
0.11789	78.3	356.27	8.483	78.3	2.5061
0.11783	78.4	356.44	8.487	78.4	2.5049
0.11777	78.5	356.61	8.491	78.5	2.5037
0.11772	78.6	356.78	8.495	78.6	2.5025
0.11766	78.7	356.95	8.499	78.7	2.5013
0.11761	78.8	357.12	8.503	78.8	2.5001
0.11755	78.9	357.29	8.507	78.9	2.4989
0.11749	79.0	357.46	8.511	79.0	2.4978
0.11744	79.1	357.63	8.515	79.1	2.4966
0.11738	79.2	357.8	8.519	79.2	2.4954
0.11733	79.3	357.97	8.523	79.3	2.4942
0.11727	79.4	358.14	8.527	79.4	2.4930
0.11722	79.5	358.31	8.531	79.5	2.4918
0.11716	79.6	358.48	8.535	79.6	2.4906
0.1171	79.7	358.65	8.539	79.7	2.4895
0.11705	79.8	358.83	8.543	79.8	2.4883
0.11699	79.9	359	8.548	79.9	2.4871
0.11694	80.0	359.17	8.552	80.0	2.4859
0.11688	80.1	359.34	8.556	80.1	2.4847
0.11683	80.2	359.51	8.56	80.2	2.4836
0.11677	80.3	359.68	8.564	80.3	2.4824
0.11672	80.4	359.85	8.568	80.4	2.4812
0.11666	80.5	360.02	8.572	80.5	2.4800
0.11661	80.6	360.19	8.576	80.6	2.4789
0.11655	80.7	360.36	8.58	80.7	2.4777
0.1165	80.8	360.53	8.584	80.8	2.4765
0.11644	80.9	360.7	8.588	80.9	2.4754
0.11639	81.0	360.87	8.592	81.0	2.4742
0.11633	81.1	361.04	8.596	81.1	2.4730
0.11628	81.2	361.21	8.6	81.2	2.4719
0.11622	81.3	361.38	8.604	81.3	2.4707
0.11617	81.4	361.55	8.608	81.4	2.4695
0.11611	81.5	361.72	8.612	81.5	2.4684
0.11606	81.6	361.89	8.616	81.6	2.4672
0.116	81.7	362.06	8.62	81.7	2.4661
0.11595	81.8	362.23	8.624	81.8	2.4649
0.11589	81.9	362.4	8.629	81.9	2.4637
0.11584	82.0	362.57	8.633	82.0	2.4626
0.11579	82.1	362.74	8.637	82.1	2.4614

0.11573	82.2	362.91	8.641	82.2	2.4603
0.11568	82.3	363.08	8.645	82.3	2.4591
0.11562	82.4	363.25	8.649	82.4	2.4580
0.11557	82.5	363.42	8.653	82.5	2.4568
0.11552	82.6	363.59	8.657	82.6	2.4557
0.11546	82.7	363.76	8.661	82.7	2.4545
0.11541	82.8	363.93	8.665	82.8	2.4534
0.11535	82.9	364.1	8.669	82.9	2.4522
0.1153	83.0	364.27	8.673	83.0	2.4511
0.11525	83.1	364.44	8.677	83.1	2.4499
0.11519	83.2	364.61	8.681	83.2	2.4488
0.11514	83.3	364.78	8.685	83.3	2.4477
0.11508	83.4	364.95	8.689	83.4	2.4465
0.11503	83.5	365.12	8.693	83.5	2.4454
0.11498	83.6	365.29	8.697	83.6	2.4442
0.11492	83.7	365.46	8.701	83.7	2.4431
0.11487	83.8	365.63	8.705	83.8	2.4420
0.11482	83.9	365.8	8.71	83.9	2.4408
0.11476	84.0	365.97	8.714	84.0	2.4397
0.11471	84.1	366.14	8.718	84.1	2.4386
0.11466	84.2	366.31	8.722	84.2	2.4374
0.1146	84.3	366.48	8.726	84.3	2.4363
0.11455	84.4	366.65	8.73	84.4	2.4352
0.1145	84.5	366.82	8.734	84.5	2.4340
0.11444	84.6	366.99	8.738	84.6	2.4329
0.11439	84.7	367.16	8.742	84.7	2.4318
0.11434	84.8	367.33	8.746	84.8	2.4307
0.11429	84.9	367.5	8.75	84.9	2.4295
0.11423	85.0	367.67	8.754	85.0	2.4284

	ASTM Table 12			ASTM Table 13	
Long Tons per Barrel (60°F)	API Gravity (60°F)	US Gallons per Long Ton (60°F)	Barrels per Long Ton (60°F)	API Gravity (60°F)	Tonnes per 1000 US Gallons (60°F)
0.13939	27	301.32	7.17400	27	3.3719
0.13935	**27.05**	**301.42**	**7.17650**	**27.05**	**3.3709**
0.13930	27.1	301.51	7.17900	27.1	3.3698

	ASTM Table 12			ASTM Table 13	
Long Tons per Barrel (60°F)	**API Gravity** (60°F)	**US Gallons per Long Ton** (60°F)	**Barrels per Long Ton** (60°F)	**API Gravity** (60°F)	**Tonnes per 1000 US Gallons** (60°F)
0.16804	0.0	249.94	5.95100	0.0	4.0652
0.16792	0.1	250.13	5.95500	0.1	4.0621
0.16779	0.2	250.32	5.96000	0.2	4.0591
0.16766	0.3	250.51	5.96433	0.3	4.0560
0.16753	0.4	250.70	5.96900	0.4	4.0529
0.16741	0.5	250.89	5.97400	0.5	4.0498
0.16728	0.6	251.08	5.97800	0.6	4.0467
0.16715	0.7	251.27	5.98300	0.7	4.0437
0.16703	0.8	251.46	5.98700	0.8	4.0406
0.16690	0.9	251.65	5.99200	0.9	4.0376
0.16677	1.0	251.84	5.99600	1.0	4.0345
0.16665	1.1	252.03	6.00100	1.1	4.0315
0.16652	1.2	252.22	6.00500	1.2	4.0284
0.16640	1.3	252.41	6.01000	1.3	4.0254
0.16627	1.4	252.60	6.01400	1.4	4.0224
0.16615	1.5	252.79	6.01900	1.5	4.0193
0.16602	1.6	252.98	6.02300	1.6	4.0163
0.16590	1.7	253.17	6.02800	1.7	4.0133
0.16577	1.8	253.36	6.03200	1.8	4.0103
0.16565	1.9	253.55	6.03700	1.9	4.0073
0.16552	2.0	253.74	6.04100	2.0	4.0043
0.16540	2.1	253.93	6.04600	2.1	4.0013
0.16527	2.2	254.12	6.05100	2.2	3.9983
0.16515	2.3	254.31	6.05500	2.3	3.9953
0.16503	2.4	254.50	6.06000	2.4	3.9923
0.16490	2.5	254.69	6.06400	2.5	3.9893
0.16478	2.6	254.88	6.06900	2.6	3.9863
0.16466	2.7	255.07	6.07300	2.7	3.9834
0.16454	2.8	255.26	6.07800	2.8	3.9804
0.16441	2.9	255.45	6.08200	2.9	3.9774
0.16429	3.0	255.64	6.08700	3.0	3.9745
0.16417	3.1	255.83	6.09100	3.1	3.9715
0.16405	3.2	256.02	6.09600	3.2	3.9685
0.16392	3.3	256.21	6.10000	3.3	3.9656
0.16380	3.4	256.40	6.10500	3.4	3.9627
0.16368	3.5	256.60	6.10900	3.5	3.9597
0.16356	3.6	256.79	6.11400	3.6	3.9568
0.16344	3.7	256.97	6.11800	3.7	3.9539

0.16332	3.8	257.16	6.12300	3.8	3.9509
0.16320	3.9	257.35	6.12800	3.9	3.9480
0.16308	4.0	257.55	6.13200	4.0	3.9451
0.16296	4.1	257.74	6.13700	4.1	3.9422
0.16284	4.2	257.93	6.14100	4.2	3.9393
0.16272	4.3	258.12	6.14600	4.3	3.9364
0.16260	4.4	258.31	6.15000	4.4	3.9335
0.16248	4.5	258.50	6.15500	4.5	3.9306
0.16236	4.6	258.69	6.15900	4.6	3.9277
0.16224	4.7	258.88	6.16400	4.7	3.9248
0.16212	4.8	259.07	6.16800	4.8	3.9219
0.16200	4.9	259.26	6.17300	4.9	3.9190
0.16188	5.0	259.45	6.17700	5.0	3.9162
0.16176	5.1	259.64	6.18200	5.1	3.9133
0.16164	5.2	259.83	6.18600	5.2	3.9104
0.16153	5.3	260.02	6.19100	5.3	3.9076
0.16141	5.4	260.21	6.19600	5.4	3.9047
0.16129	5.5	260.40	6.20000	5.5	3.9018
0.16117	5.6	260.59	6.20500	5.6	3.8990
0.16105	5.7	260.78	6.20900	5.7	3.8962
0.16094	5.8	260.97	6.21400	5.8	3.8933
0.16082	5.9	261.16	6.21800	5.9	3.8905
0.16070	6.0	261.35	6.22300	6.0	3.8876
0.16059	6.1	261.54	6.22700	6.1	3.8848
0.16047	6.2	261.73	6.23200	6.2	3.8820
0.16035	6.3	261.92	6.23600	6.3	3.8792
0.16024	6.4	262.11	6.24100	6.4	3.8764
0.16012	6.5	262.30	6.24500	6.5	3.8735
0.16000	6.6	262.49	6.25000	6.6	3.8707
0.15989	6.7	262.69	6.25400	6.7	3.8679
0.15977	6.8	262.88	6.25900	6.8	3.8651
0.15966	6.9	263.07	6.26300	6.9	3.8623
0.15954	7.0	263.26	6.26800	7.0	3.8595
0.15943	7.1	263.45	6.27300	7.1	3.8568
0.15931	7.2	263.64	6.27700	7.2	3.8540
0.15920	7.3	263.83	6.28200	7.3	3.8512
0.15908	7.4	264.02	6.28600	7.4	3.8484
0.15897	7.5	264.21	6.29100	7.5	3.8456
0.15885	7.6	264.40	6.29500	7.6	3.8429
0.15874	7.7	264.59	6.30000	7.7	3.8401
0.15862	7.8	264.78	6.30400	7.8	3.8373
0.15851	7.9	264.97	6.30900	7.9	3.8346
0.15840	8.0	265.16	6.31300	8.0	3.8318
0.15828	8.1	265.35	6.31800	8.1	3.8291
0.15817	8.2	265.54	6.32200	8.2	3.8263
0.15806	8.3	265.73	6.32700	8.3	3.8236
0.15794	8.4	265.92	6.33100	8.4	3.8209
0.15783	8.5	266.11	6.33600	8.5	3.8181
0.15772	8.6	266.30	6.34100	8.6	3.8154
0.15760	8.7	266.49	6.34500	8.7	3.8127
0.15749	8.8	266.68	6.35000	8.8	3.8100
0.15738	8.9	266.87	6.35400	8.9	3.8072
0.15727	9.0	267.06	6.35900	9.0	3.8045
0.15715	9.1	267.25	6.36300	9.1	3.8018
0.15704	9.2	267.44	6.36800	9.2	3.7991
0.15693	9.3	267.63	6.37200	9.3	3.7964

0.15682	9.4	267.82	6.37700	9.4	3.7937
0.15671	9.5	268.01	6.38100	9.5	3.7910
0.15660	9.6	268.20	6.38600	9.6	3.7883
0.15649	9.7	268.39	6.39000	9.7	3.7856
0.15638	9.8	268.58	6.39500	9.8	3.7830
0.15626	9.9	268.78	6.39900	9.9	3.7803
0.15615	10.0	268.97	6.40400	10.0	3.7776
0.15604	10.1	269.16	6.40800	10.1	3.7749
0.15593	10.2	269.35	6.41300	10.2	3.7723
0.15582	10.3	269.54	6.41800	10.3	3.7696
0.15571	10.4	269.73	6.42200	10.4	3.7670
0.15560	10.5	269.92	6.42700	10.5	3.7643
0.15549	10.6	270.11	6.43100	10.6	3.7616
0.15538	10.7	270.30	6.43600	10.7	3.7590
0.15527	10.8	270.49	6.44000	10.8	3.7563
0.15517	10.9	270.68	6.44500	10.9	3.7537
0.15506	11.0	270.87	6.44900	11.0	3.7511
0.15495	11.1	271.06	6.45400	11.1	3.7484
0.15484	11.2	271.25	6.45800	11.2	3.7458
0.15473	11.3	271.44	6.46300	11.3	3.7432
0.15462	11.4	271.63	6.46700	11.4	3.7406
0.15451	11.5	271.82	6.47200	11.5	3.7379
0.15441	11.6	272.01	6.47600	11.6	3.7353
0.15430	11.7	272.20	6.48100	11.7	3.7327
0.15419	11.8	272.39	6.48600	11.8	3.7301
0.15408	11.9	272.58	6.49000	11.9	3.7275
0.15397	12.0	272.77	6.49500	12.0	3.7249
0.15387	12.1	272.96	6.49900	12.1	3.7223
0.15376	12.2	273.15	6.50400	12.2	3.7197
0.15365	12.3	273.34	6.50800	12.3	3.7171
0.15355	12.4	273.53	6.51300	12.4	3.7145
0.15344	12.5	273.72	6.51700	12.5	3.7119
0.15333	12.6	273.91	6.52200	12.6	3.7094
0.15323	12.7	274.10	6.52600	12.7	3.7068
0.15312	12.8	274.29	6.53100	12.8	3.7042
0.15301	12.9	274.48	6.53500	12.9	3.7017
0.15291	13.0	274.67	6.54000	13.0	3.6991
0.15280	13.1	274.87	6.54400	13.1	3.6965
0.15270	13.2	275.06	6.54900	13.2	3.6940
0.15259	13.3	275.25	6.55300	13.3	3.6914
0.15249	13.4	275.44	6.55800	13.4	3.6889
0.15238	13.5	275.63	6.56300	13.5	3.6863
0.15227	13.6	275.82	6.56700	13.6	3.6838
0.15217	13.7	276.01	6.57200	13.7	3.6812
0.15207	13.8	276.20	6.57600	13.8	3.6787
0.15196	13.9	276.39	6.58100	13.9	3.6762
0.15186	14.0	276.58	6.58500	14.0	3.6736
0.15175	14.1	276.77	6.59000	14.1	3.6711
0.15165	14.2	276.96	6.59400	14.2	3.6686
0.15154	14.3	277.15	6.59900	14.3	3.6661
0.15144	14.4	277.34	6.60300	14.4	3.6635
0.15134	14.5	277.53	6.60800	14.5	3.6610
0.15123	14.6	277.72	6.61200	14.6	3.6585
0.15113	14.7	277.91	6.61700	14.7	3.6560
0.15102	14.8	278.10	6.62100	14.8	3.6535
0.15092	14.9	278.29	6.62600	14.9	3.6510

0.15082	15.0	278.48	6.63100	15.0	3.6485
0.15071	15.1	278.67	6.63500	15.1	3.6460
0.15061	15.2	278.86	6.64000	15.2	3.6435
0.15051	15.3	279.05	6.64400	15.3	3.6411
0.15041	15.4	279.24	6.64900	15.4	3.6386
0.15030	15.5	279.43	6.65300	15.5	3.6361
0.15020	15.6	279.62	6.65800	15.6	3.6336
0.15010	15.7	279.81	6.66200	15.7	3.6312
0.15000	15.8	280.00	6.66700	15.8	3.6287
0.14990	15.9	280.19	6.67100	15.9	3.6262
0.14979	16.0	280.38	6.67600	16.0	3.6238
0.14969	16.1	280.58	6.68000	16.1	3.6213
0.14959	16.2	280.77	6.68500	16.2	3.6188
0.14949	16.3	280.95	6.68900	16.3	3.6164
0.14939	16.4	281.14	6.69400	16.4	3.6139
0.14929	16.5	281.34	6.69800	16.5	3.6115
0.14919	16.6	281.53	6.70300	16.6	3.6091
0.14909	16.7	281.72	6.70800	16.7	3.6066
0.14899	16.8	281.91	6.71200	16.8	3.6042
0.14888	16.9	282.10	6.71700	16.9	3.6018
0.14878	17.0	282.29	6.72100	17.0	3.5993
0.14868	17.1	282.48	6.72600	17.1	3.5969
0.14858	17.2	282.67	6.73000	17.2	3.5945
0.14848	17.3	282.86	6.73500	17.3	3.5921
0.14838	17.4	283.05	6.73900	17.4	3.5896
0.14828	17.5	283.24	6.74400	17.5	3.5872
0.14818	17.6	283.43	6.74800	17.6	3.5848
0.14809	17.7	283.62	6.75300	17.7	3.5824
0.14799	17.8	283.81	6.75700	17.8	3.5800
0.14789	17.9	284.00	6.76200	17.9	3.5776
0.14779	18.0	284.19	6.76600	18.0	3.5752
0.14769	18.1	284.38	6.77100	18.1	3.5728
0.14759	18.2	284.57	6.77600	18.2	3.5704
0.14749	18.3	284.76	6.78000	18.3	3.5681
0.14739	18.4	284.95	6.78500	18.4	3.5657
0.14729	18.5	285.14	6.78900	18.5	3.5633
0.14720	18.6	285.33	6.79400	18.6	3.5609
0.14710	18.7	285.52	6.79800	18.7	3.5585
0.14700	18.8	285.71	6.80300	18.8	3.5562
0.14690	18.9	285.90	6.80700	18.9	3.5538
0.14680	19.0	286.09	6.81200	19.0	3.5514
0.14671	19.1	286.29	6.81600	19.1	3.5491
0.14661	19.2	286.48	6.82100	19.2	3.5467
0.14651	19.3	286.67	6.82500	19.3	3.5444
0.14641	19.4	286.86	6.83000	19.4	3.5420
0.14632	19.5	287.05	6.83400	19.5	3.5397
0.14622	19.6	287.24	6.83900	19.6	3.5373
0.14612	19.7	287.43	6.84400	19.7	3.5350
0.14603	19.8	287.62	6.84800	19.8	3.5326
0.14593	19.9	287.81	6.85300	19.9	3.5303
0.14583	20.0	288.00	6.85700	20.0	3.5280
0.14574	20.1	288.19	6.86200	20.1	3.5256
0.14564	20.2	288.38	6.86600	20.2	3.5233
0.14555	20.3	288.57	6.87100	20.3	3.5210
0.14545	20.4	288.76	6.87500	20.4	3.5187
0.14535	20.5	288.95	6.88000	20.5	3.5163

0.14526	20.6	289.14	6.88400	20.6	3.5140
0.14516	20.7	289.33	6.88900	20.7	3.5117
0.14507	20.8	289.52	6.89300	20.8	3.5094
0.14497	20.9	289.71	6.89800	20.9	3.5071
0.14488	21.0	289.90	6.90200	21.0	3.5048
0.14478	21.1	290.09	6.90700	21.1	3.5025
0.14469	21.2	290.28	6.91100	21.2	3.5002
0.14459	21.3	290.47	6.91600	21.3	3.4979
0.14450	21.4	290.66	6.92100	21.4	3.4956
0.14440	21.5	290.85	6.92500	21.5	3.4933
0.14431	21.6	291.04	6.93000	21.6	3.4910
0.14421	21.7	291.23	6.93400	21.7	3.4888
0.14412	21.8	291.42	6.93900	21.8	3.4865
0.14403	21.9	291.61	6.94300	21.9	3.4842
0.14393	22.0	291.81	6.94800	22.0	3.4819
0.14384	22.1	292.00	6.95200	22.1	3.4797
0.14374	22.2	292.19	6.95700	22.2	3.4774
0.14365	22.3	292.38	6.96100	22.3	3.4751
0.14356	22.4	292.57	6.96600	22.4	3.4729
0.14346	22.5	292.76	6.97000	22.5	3.4706
0.14337	22.6	292.95	6.97500	22.6	3.4684
0.14328	22.7	293.14	6.97900	22.7	3.4661
0.14318	22.8	293.33	6.98400	22.8	3.4639
0.14309	22.9	293.52	6.98900	22.9	3.4616
0.14300	23.0	293.71	6.99300	23.0	3.4594
0.14291	23.1	293.90	6.99800	23.1	3.4571
0.14281	23.2	294.09	7.00200	23.2	3.4549
0.14272	23.3	294.28	7.00700	23.3	3.4527
0.14263	23.4	294.47	7.01100	23.4	3.4504
0.14254	23.5	294.66	7.01600	23.5	3.4482
0.14244	23.6	294.85	7.02000	23.6	3.4460
0.14235	23.7	295.04	7.02500	23.7	3.4437
0.14226	23.8	295.23	7.02900	23.8	3.4415
0.14217	23.9	295.42	7.03400	23.9	3.4393
0.14208	24.0	295.61	7.03800	24.0	3.4371
0.14199	24.1	295.80	7.04300	24.1	3.4349
0.14190	24.2	295.99	7.04700	24.2	3.4327
0.14180	24.3	296.18	7.05200	24.3	3.4305
0.14171	24.4	296.37	7.05700	24.4	3.4283
0.14162	24.5	296.56	7.06100	24.5	3.4261
0.14153	24.6	296.75	7.06600	24.6	3.4239
0.14144	24.7	296.94	7.07000	24.7	3.4217
0.14135	24.8	297.14	7.07500	24.8	3.4195
0.14126	24.9	297.33	7.07900	24.9	3.4173
0.14117	25.0	297.52	7.08400	25.0	3.4151
0.14108	25.1	297.71	7.08800	25.1	3.4129
0.14099	25.2	297.90	7.09300	25.2	3.4107
0.14090	25.3	298.09	7.09700	25.3	3.4086
0.14081	25.4	298.28	7.10200	25.4	3.4064
0.14072	25.5	298.47	7.10600	25.5	3.4042
0.14063	25.6	298.66	7.11100	25.6	3.4020
0.14054	25.7	298.85	7.11500	25.7	3.3999
0.14045	25.8	299.04	7.12000	25.8	3.3977
0.14036	25.9	299.23	7.12500	25.9	3.3955
0.14027	26.0	299.42	7.12900	26.0	3.3934
0.14018	26.1	299.61	7.13400	26.1	3.3912

0.14009	26.2	299.80	7.13800	26.2	3.3891
0.14000	26.3	299.99	7.14300	26.3	3.3869
0.13992	26.4	300.18	7.14700	26.4	3.3848
0.13983	26.5	300.37	7.15200	26.5	3.3826
0.13974	26.6	300.56	7.15600	26.6	3.3805
0.13965	26.7	300.75	7.16100	26.7	3.3784
0.13956	26.8	300.94	7.16500	26.8	3.3762
0.13947	26.9	301.13	7.17000	26.9	3.3741
0.13939	27.0	301.32	7.17400	27.0	3.3719
0.13930	27.1	301.51	7.17900	27.1	3.3698
0.13921	27.2	301.70	7.18300	27.2	3.3677
0.13912	27.3	301.89	7.18800	27.3	3.3656
0.13903	27.4	302.08	7.19200	27.4	3.3634
0.13895	27.5	302.28	7.19700	27.5	3.3613
0.13886	27.6	302.47	7.20200	27.6	3.3592
0.13877	27.7	302.66	7.20600	27.7	3.3571
0.13868	27.8	302.85	7.21100	27.8	3.3550
0.13860	27.9	303.04	7.21500	27.9	3.3529
0.13851	28.0	303.23	7.22000	28.0	3.3508
0.13842	28.1	303.42	7.22400	28.1	3.3487
0.13834	28.2	303.61	7.22900	28.2	3.3466
0.13825	28.3	303.80	7.23300	28.3	3.3445
0.13816	28.4	303.99	7.23800	28.4	3.3424
0.13808	28.5	304.18	7.24200	28.5	3.3403
0.13799	28.6	304.37	7.24700	28.6	3.3382
0.13790	28.7	304.56	7.25100	28.7	3.3361
0.13782	28.8	304.75	7.25600	28.8	3.3340
0.13773	28.9	304.94	7.26000	28.9	3.3320
0.13765	29.0	305.13	7.26500	29.0	3.3299
0.13756	29.1	305.32	7.27000	29.1	3.3278
0.13747	29.2	305.51	7.27400	29.2	3.3257
0.13739	29.3	305.70	7.27900	29.3	3.3237
0.13730	29.4	305.89	7.28300	29.4	3.3216
0.13722	29.5	306.08	7.28800	29.5	3.3195
0.13713	29.6	306.27	7.29200	29.6	3.3175
0.13705	29.7	306.46	7.29700	29.7	3.3154
0.13696	29.8	306.65	7.30100	29.8	3.3133
0.13688	29.9	306.84	7.30600	29.9	3.3113
0.13679	30.0	307.03	7.31000	30.0	3.3092
0.13671	30.1	307.22	7.31500	30.1	3.3072
0.13662	30.2	307.42	7.31900	30.2	3.3051
0.13654	30.3	307.61	7.32400	30.3	3.3031
0.13645	30.4	307.80	7.32800	30.4	3.3010
0.13637	30.5	307.99	7.33300	30.5	3.2990
0.13629	30.6	308.18	7.33800	30.6	3.2970
0.13620	30.7	308.37	7.34200	30.7	3.2949
0.13612	30.8	308.56	7.34700	30.8	3.2929
0.13603	30.9	308.75	7.35100	30.9	3.2909
0.13595	31.0	308.94	7.35600	31.0	3.2888
0.13587	31.1	309.13	7.36000	31.1	3.2868
0.13578	31.2	309.32	7.36500	31.2	3.2848
0.13570	31.3	309.51	7.36900	31.3	3.2828
0.13562	31.4	309.70	7.37400	31.4	3.2807
0.13553	31.5	309.89	7.37800	31.5	3.2787
0.13545	31.6	310.08	7.38300	31.6	3.2767
0.13537	31.7	310.27	7.38700	31.7	3.2747

0.13528	31.8	310.46	7.39200	31.8	3.2727
0.13520	31.9	310.65	7.39600	31.9	3.2707
0.13512	32.0	310.84	7.40100	32.0	3.2687
0.13503	32.1	311.03	7.40600	32.1	3.2667
0.13495	32.2	311.22	7.41000	32.2	3.2647
0.13487	32.3	311.41	7.41500	32.3	3.2627
0.13479	32.4	311.60	7.41900	32.4	3.2607
0.13470	32.5	311.79	7.42400	32.5	3.2587
0.13462	32.6	311.98	7.42800	32.6	3.2567
0.13454	32.7	312.17	7.43300	32.7	3.2547
0.13446	32.8	312.37	7.43700	32.8	3.2528
0.13438	32.9	312.56	7.44200	32.9	3.2508
0.13429	33.0	312.75	7.44600	33.0	3.2488
0.13421	33.1	312.94	7.45100	33.1	3.2468
0.13413	33.2	313.13	7.45500	33.2	3.2448
0.13405	33.3	313.32	7.46000	33.3	3.2429
0.13397	33.4	313.51	7.46400	33.4	3.2409
0.13389	33.5	313.70	7.46900	33.5	3.2389
0.13381	33.6	313.89	7.47400	33.6	3.2370
0.13372	33.7	314.08	7.47800	33.7	3.2350
0.13364	33.8	314.27	7.48300	33.8	3.2330
0.13356	33.9	314.46	7.48700	33.9	3.2311
0.13348	34.0	314.65	7.49200	34.0	3.2291
0.13340	34.1	314.84	7.49600	34.1	3.2272
0.13332	34.2	315.03	7.50100	34.2	3.2252
0.13324	34.3	315.22	7.50500	34.3	3.2233
0.13316	34.4	315.41	7.51000	34.4	3.2213
0.13308	34.5	315.60	7.51400	34.5	3.2194
0.13300	34.6	315.79	7.51900	34.6	3.2175
0.13292	34.7	315.98	7.52300	34.7	3.2155
0.13284	34.8	316.17	7.52800	34.8	3.2136
0.13276	34.9	316.36	7.53200	34.9	3.2116
0.13268	35.0	316.55	7.53700	35.0	3.2097
0.13260	35.1	316.74	7.54200	35.1	3.2078
0.13252	35.2	316.93	7.54600	35.2	3.2059
0.13244	35.3	317.13	7.55100	35.3	3.2039
0.13236	35.4	317.32	7.55500	35.4	3.2020
0.13228	35.5	317.51	7.56000	35.5	3.2001
0.13220	35.6	317.70	7.56400	35.6	3.1982
0.13212	35.7	317.89	7.56900	35.7	3.1963
0.13204	35.8	318.08	7.57300	35.8	3.1943
0.13196	35.9	318.27	7.57800	35.9	3.1924
0.13189	36.0	318.46	7.58200	36.0	3.1905
0.13181	36.1	318.65	7.58700	36.1	3.1886
0.13173	36.2	318.84	7.59100	36.2	3.1867
0.13165	36.3	319.03	7.59600	36.3	3.1848
0.13157	36.4	319.22	7.60000	36.4	3.1829
0.13149	36.5	319.41	7.60500	36.5	3.1810
0.13141	36.6	319.60	7.61000	36.6	3.1791
0.13134	36.7	319.79	7.61400	36.7	3.1772
0.13126	36.8	319.98	7.61900	36.8	3.1753
0.13118	36.9	320.17	7.62300	36.9	3.1734
0.13110	37.0	320.36	7.62800	37.0	3.1716
0.13102	37.1	320.55	7.63200	37.1	3.1697
0.13095	37.2	320.74	7.63700	37.2	3.1678
0.13087	37.3	320.93	7.64100	37.3	3.1659

0.13079	37.4	321.12	7.64600	37.4	3.1640
0.13071	37.5	321.31	7.65000	37.5	3.1622
0.13064	37.6	321.50	7.65500	37.6	3.1603
0.13056	37.7	321.69	7.65900	37.7	3.1584
0.13048	37.8	321.89	7.66400	37.8	3.1566
0.13040	37.9	322.08	7.66800	37.9	3.1547
0.13033	38.0	322.27	7.67300	38.0	3.1528
0.13025	38.1	322.46	7.67800	38.1	3.1510
0.13017	38.2	322.65	7.68200	38.2	3.1491
0.13010	38.3	322.84	7.68700	38.3	3.1472
0.13002	38.4	323.03	7.69100	38.4	3.1454
0.12994	38.5	323.22	7.69600	38.5	3.1435
0.12987	38.6	323.41	7.70000	38.6	3.1417
0.12979	38.7	323.60	7.70500	38.7	3.1398
0.12971	38.8	323.79	7.70900	38.8	3.1380
0.12964	38.9	323.98	7.71400	38.9	3.1361
0.12956	39.0	324.17	7.71800	39.0	3.1343
0.12949	39.1	324.36	7.72300	39.1	3.1325
0.12941	39.2	324.55	7.72700	39.2	3.1306
0.12933	39.3	324.74	7.73200	39.3	3.1288
0.12926	39.4	324.93	7.73600	39.4	3.1270
0.12918	39.5	325.12	7.74100	39.5	3.1251
0.12911	39.6	325.31	7.74600	39.6	3.1233
0.12903	39.7	325.50	7.75000	39.7	3.1215
0.12896	39.8	325.69	7.75500	39.8	3.1196
0.12888	39.9	325.88	7.75900	39.9	3.1178
0.12881	40.0	326.07	7.76400	40.0	3.1160
0.12873	40.1	326.26	7.76800	40.1	3.1142
0.12865	40.2	326.45	7.77300	40.2	3.1124
0.12858	40.3	326.65	7.77700	40.3	3.1106
0.12850	40.4	326.84	7.78200	40.4	3.1087
0.12843	40.5	327.03	7.78600	40.5	3.1069
0.12836	40.6	327.22	7.79100	40.6	3.1051
0.12828	40.7	327.41	7.79500	40.7	3.1033
0.12821	40.8	327.60	7.80000	40.8	3.1015
0.12813	40.9	327.79	7.80400	40.9	3.0997
0.12806	41.0	327.98	7.80900	41.0	3.0979
0.12798	41.1	328.17	7.81400	41.1	3.0961
0.12791	41.2	328.36	7.81800	41.2	3.0943
0.12783	41.3	328.55	7.82300	41.3	3.0925
0.12776	41.4	328.74	7.82700	41.4	3.0907
0.12769	41.5	328.93	7.83200	41.5	3.0889
0.12761	41.6	329.12	7.83600	41.6	3.0872
0.12754	41.7	329.31	7.84100	41.7	3.0854
0.12747	41.8	329.50	7.84500	41.8	3.0836
0.12739	41.9	329.69	7.85000	41.9	3.0818
0.12732	42.0	329.88	7.85400	42.0	3.0800
0.12724	42.1	330.07	7.85900	42.1	3.0783
0.12717	42.2	330.26	7.86300	42.2	3.0765
0.12710	42.3	330.45	7.86800	42.3	3.0747
0.12702	42.4	330.64	7.87200	42.4	3.0729
0.12695	42.5	330.83	7.87700	42.5	3.0712
0.12688	42.6	331.02	7.88200	42.6	3.0694
0.12681	42.7	331.22	7.88600	42.7	3.0676
0.12673	42.8	331.41	7.89100	42.8	3.0659
0.12666	42.9	331.60	7.89500	42.9	3.0641

0.12659	43.0	331.79	7.90000	43.0	3.0624
0.12651	43.1	331.98	7.90400	43.1	3.0606
0.12644	43.2	332.17	7.90900	43.2	3.0588
0.12637	43.3	332.36	7.91300	43.3	3.0571
0.12630	43.4	332.55	7.91800	43.4	3.0553
0.12623	43.5	332.74	7.92200	43.5	3.0536
0.12615	43.6	332.93	7.92700	43.6	3.0518
0.12608	43.7	333.12	7.93100	43.7	3.0501
0.12601	43.8	333.31	7.93600	43.8	3.0484
0.12594	43.9	333.50	7.94000	43.9	3.0466
0.12586	44.0	333.69	7.94500	44.0	3.0449
0.12579	44.1	333.88	7.95000	44.1	3.0431
0.12572	44.2	334.07	7.95400	44.2	3.0414
0.12565	44.3	334.26	7.95900	44.3	3.0397
0.12558	44.4	334.45	7.96300	44.4	3.0379
0.12551	44.5	334.64	7.96800	44.5	3.0362
0.12544	44.6	334.83	7.97200	44.6	3.0345
0.12536	44.7	335.02	7.97700	44.7	3.0328
0.12529	44.8	335.21	7.98100	44.8	3.0310
0.12522	44.9	335.40	7.98600	44.9	3.0293
0.12515	45.0	335.60	7.99000	45.0	3.0276
0.12508	45.1	335.79	7.99500	45.1	3.0259
0.12501	45.2	335.98	7.99900	45.2	3.0242
0.12494	45.3	336.17	8.00400	45.3	3.0225
0.12487	45.4	336.36	8.00800	45.4	3.0207
0.12480	45.5	336.55	8.01300	45.5	3.0190
0.12473	45.6	336.74	8.01800	45.6	3.0173
0.12466	45.7	336.93	8.02200	45.7	3.0156
0.12459	45.8	337.12	8.02700	45.8	3.0139
0.12451	45.9	337.31	8.03100	45.9	3.0122
0.12444	46.0	337.50	8.03600	46.0	3.0105
0.12437	46.1	337.69	8.04000	46.1	3.0088
0.12430	46.2	337.88	8.04500	46.2	3.0071
0.12423	46.3	338.07	8.04900	46.3	3.0054
0.12416	46.4	338.26	8.05400	46.4	3.0037
0.12409	46.5	338.45	8.05800	46.5	3.0020
0.12402	46.6	338.64	8.06300	46.6	3.0004
0.12396	46.7	338.83	8.06700	46.7	2.9987
0.12389	46.8	339.02	8.07200	46.8	2.9970
0.12382	46.9	339.21	8.07700	46.9	2.9953
0.12375	47.0	339.40	8.08100	47.0	2.9936
0.12368	47.1	339.59	8.08600	47.1	2.9919
0.12361	47.2	339.78	8.09000	47.2	2.9903
0.12354	47.3	339.98	8.09500	47.3	2.9886
0.12347	47.4	340.17	8.09900	47.4	2.9869
0.12340	47.5	340.36	8.10400	47.5	2.9852
0.12333	47.6	340.55	8.10800	47.6	2.9836
0.12326	47.7	340.74	8.11300	47.7	2.9819
0.12319	47.8	340.93	8.11700	47.8	2.9802
0.12312	47.9	341.12	8.12200	47.9	2.9786
0.12306	48.0	341.31	8.12600	48.0	2.9769
0.12299	48.1	341.50	8.13100	48.1	2.9753
0.12292	48.2	341.69	8.13500	48.2	2.9736
0.12285	48.3	341.88	8.14000	48.3	2.9719
0.12278	48.4	342.07	8.14500	48.4	2.9703
0.12271	48.5	342.26	8.14900	48.5	2.9686

0.12265	48.6	342.45	8.15400	48.6	2.9670
0.12258	48.7	342.64	8.15800	48.7	2.9653
0.12251	48.8	342.83	8.16300	48.8	2.9637
0.12244	48.9	343.02	8.16700	48.9	2.9620
0.12237	49.0	343.21	8.17200	49.0	2.9604
0.12231	49.1	343.40	8.17600	49.1	2.9588
0.12224	49.2	343.59	8.18100	49.2	2.9571
0.12217	49.3	343.78	8.18500	49.3	2.9555
0.12210	49.4	343.97	8.19000	49.4	2.9538
0.12203	49.5	344.16	8.19400	49.5	2.9522
0.12197	49.6	344.36	8.19900	49.6	2.9506
0.12190	49.7	344.55	8.20300	49.7	2.9489
0.12183	49.8	344.74	8.20800	49.8	2.9473
0.12177	49.9	344.93	8.21300	49.9	2.9457
0.12170	50.0	345.12	8.21700	50.0	2.9441
0.12163	50.1	345.31	8.22200	50.1	2.9424
0.12156	50.2	345.50	8.22600	50.2	2.9408
0.12150	50.3	345.69	8.23100	50.3	2.9392
0.12143	50.4	345.88	8.23500	50.4	2.9376
0.12136	50.5	346.07	8.24000	50.5	2.9360
0.12130	50.6	346.26	8.24400	50.6	2.9343
0.12123	50.7	346.45	8.24900	50.7	2.9327
0.12116	50.8	346.64	8.25300	50.8	2.9311
0.12110	50.9	346.83	8.25800	50.9	2.9295
0.12103	51.0	347.02	8.26200	51.0	2.9279
0.12096	51.1	347.21	8.26700	51.1	2.9263
0.12090	51.2	347.40	8.27100	51.2	2.9247
0.12083	51.3	347.59	8.27600	51.3	2.9231
0.12076	51.4	347.78	8.28100	51.4	2.9215
0.12070	51.5	347.97	8.28500	51.5	2.9199
0.12063	51.6	348.16	8.29000	51.6	2.9183
0.12057	51.7	348.35	8.29400	51.7	2.9167
0.12050	51.8	348.55	8.29900	51.8	2.9151
0.12044	51.9	348.74	8.30300	51.9	2.9135
0.12037	52.0	348.93	8.30800	52.0	2.9119
0.12030	52.1	349.12	8.31200	52.1	2.9103
0.12024	52.2	349.31	8.31700	52.2	2.9088
0.12017	52.3	349.50	8.32100	52.3	2.9072
0.12011	52.4	349.69	8.32600	52.4	2.9056
0.12004	52.5	349.88	8.33000	52.5	2.9040
0.11998	52.6	350.07	8.33500	52.6	2.9024
0.11991	52.7	350.26	8.34000	52.7	2.9008
0.11985	52.8	350.45	8.34400	52.8	2.8993
0.11978	52.9	350.64	8.34900	52.9	2.8977
0.11972	53.0	350.83	8.35300	53.0	2.8961
0.11965	53.1	351.02	8.35800	53.1	2.8945
0.11959	53.2	351.21	8.36200	53.2	2.8930
0.11952	53.3	351.40	8.36700	53.3	2.8914
0.11946	53.4	351.59	8.37100	53.4	2.8898
0.11939	53.5	351.78	8.37600	53.5	2.8883
0.11933	53.6	351.97	8.38000	53.6	2.8867
0.11926	53.7	352.16	8.38500	53.7	2.8852
0.11920	53.8	352.35	8.38900	53.8	2.8836
0.11913	53.9	352.54	8.39400	53.9	2.8820
0.11907	54.0	352.74	8.39800	54.0	2.8805
0.11901	54.1	352.93	8.40300	54.1	2.8789

0.11894	54.2	353.12	8.40800	54.2	2.8774
0.11888	54.3	353.31	8.41200	54.3	2.8758
0.11881	54.4	353.50	8.41700	54.4	2.8743
0.11875	54.5	353.69	8.42100	54.5	2.8727
0.11869	54.6	353.88	8.42600	54.6	2.8712
0.11862	54.7	354.07	8.43000	54.7	2.8696
0.11856	54.8	354.26	8.43500	54.8	2.8681
0.11849	54.9	354.45	8.43900	54.9	2.8666
0.11843	55.0	354.64	8.44400	55.0	2.8650
0.11837	55.1	354.83	8.44800	55.1	2.8635
0.11830	55.2	355.02	8.45300	55.2	2.8619
0.11824	55.3	355.21	8.45700	55.3	2.8604
0.11818	55.4	355.40	8.46200	55.4	2.8589
0.11811	55.5	355.59	8.46600	55.5	2.8573
0.11805	55.6	355.78	8.47100	55.6	2.8558
0.11799	55.7	355.97	8.47600	55.7	2.8543
0.11792	55.8	356.16	8.48000	55.8	2.8528
0.11786	55.9	356.35	8.48500	55.9	2.8512
0.11780	56.0	356.54	8.48900	56.0	2.8497
0.11773	56.1	356.73	8.49400	56.1	2.8482
0.11767	56.2	356.93	8.49800	56.2	2.8467
0.11761	56.3	357.12	8.50300	56.3	2.8451
0.11755	56.4	357.31	8.50700	56.4	2.8436
0.11748	56.5	357.50	8.51200	56.5	2.8421
0.11742	56.6	357.69	8.51600	56.6	2.8406
0.11736	56.7	357.88	8.52100	56.7	2.8391
0.11730	56.8	358.07	8.52500	56.8	2.8376
0.11723	56.9	358.26	8.53000	56.9	2.8361
0.11717	57.0	358.45	8.53400	57.0	2.8346
0.11711	57.1	358.64	8.53900	57.1	2.8331
0.11705	57.2	358.83	8.54400	57.2	2.8316
0.11699	57.3	359.02	8.54800	57.3	2.8301
0.11692	57.4	359.21	8.55300	57.4	2.8286
0.11686	57.5	359.40	8.55700	57.5	2.8271
0.11680	57.6	359.59	8.56200	57.6	2.8256
0.11674	57.7	359.78	8.56600	57.7	2.8241
0.11668	57.8	359.97	8.57100	57.8	2.8226
0.11661	57.9	360.16	8.57500	57.9	2.8211
0.11655	58.0	360.35	8.58000	58.0	2.8196
0.11649	58.1	360.54	8.58400	58.1	2.8181
0.11643	58.2	360.73	8.58900	58.2	2.8166
0.11637	58.3	360.93	8.59300	58.3	2.8151
0.11631	58.4	361.12	8.59800	58.4	2.8136
0.11624	58.5	361.31	8.60300	58.5	2.8122
0.11618	58.6	361.50	8.60700	58.6	2.8107
0.11612	58.7	361.69	8.61200	58.7	2.8092
0.11606	58.8	361.88	8.61600	58.8	2.8077
0.11600	58.9	362.07	8.62100	58.9	2.8062
0.11594	59.0	362.26	8.62500	59.0	2.8048
0.11588	59.1	362.45	8.63000	59.1	2.8033
0.11582	59.2	362.64	8.63400	59.2	2.8018
0.11576	59.3	362.83	8.63900	59.3	2.8003
0.11570	59.4	363.02	8.64300	59.4	2.7988
0.11564	59.5	363.21	8.64800	59.5	2.7974
0.11557	59.6	363.40	8.65200	59.6	2.7959
0.11551	59.7	363.59	8.65700	59.7	2.7945

0.11545	59.8	363.78	8.66100	59.8	2.7930
0.11539	59.9	363.97	8.66600	59.9	2.7915
0.11533	60.0	364.16	8.67100	60.0	2.7901
0.11527	60.1	364.35	8.67500	60.1	2.7886
0.11521	60.2	364.54	8.68000	60.2	2.7872
0.11515	60.3	364.73	8.68400	60.3	2.7857
0.11509	60.4	364.93	8.68900	60.4	2.7843
0.11503	60.5	365.12	8.69300	60.5	2.7828
0.11497	60.6	365.31	8.69800	60.6	2.7814
0.11491	60.7	365.50	8.70200	60.7	2.7799
0.11485	60.8	365.69	8.70700	60.8	2.7785
0.11479	60.9	365.88	8.71100	60.9	2.7770
0.11473	61.0	366.07	8.71600	61.0	2.7756
0.11467	61.1	366.26	8.72000	61.1	2.7741
0.11461	61.2	366.45	8.72500	61.2	2.7727
0.11455	61.3	366.64	8.73000	61.3	2.7712
0.11449	61.4	366.83	8.73400	61.4	2.7698
0.11444	61.5	367.02	8.73900	61.5	2.7684
0.11438	61.6	367.21	8.74300	61.6	2.7669
0.11432	61.7	367.40	8.74800	61.7	2.7655
0.11426	61.8	367.59	8.75200	61.8	2.7641
0.11420	61.9	367.78	8.75700	61.9	2.7626
0.11414	62.0	367.97	8.76100	62.0	2.7612
0.11408	62.1	368.16	8.76600	62.1	2.7598
0.11402	62.2	368.35	8.77000	62.2	2.7583
0.11396	62.3	368.54	8.77500	62.3	2.7569
0.11390	62.4	368.73	8.77900	62.4	2.7555
0.11384	62.5	368.93	8.78400	62.5	2.7541
0.11379	62.6	369.12	8.78800	62.6	2.7527
0.11373	62.7	369.31	8.79300	62.7	2.7512
0.11367	62.8	369.50	8.79800	62.8	2.7498
0.11361	62.9	369.69	8.80200	62.9	2.7484
0.11355	63.0	369.88	8.80700	63.0	2.7470
0.11349	63.1	370.07	8.81100	63.1	2.7456
0.11343	63.2	370.26	8.81600	63.2	2.7442
0.11338	63.3	370.45	8.82000	63.3	2.7427
0.11332	63.4	370.64	8.82500	63.4	2.7413
0.11326	63.5	370.83	8.82900	63.5	2.7399
0.11320	63.6	371.02	8.83400	63.6	2.7385
0.11314	63.7	371.21	8.83800	63.7	2.7371
0.11309	63.8	371.40	8.84300	63.8	2.7357
0.11303	63.9	371.59	8.84700	63.9	2.7343
0.11297	64.0	371.78	8.85200	64.0	2.7329
0.11291	64.1	371.97	8.85600	64.1	2.7315
0.11285	64.2	372.16	8.86100	64.2	2.7301
0.11280	64.3	372.35	8.86600	64.3	2.7287
0.11274	64.4	372.54	8.87000	64.4	2.7273
0.11268	64.5	372.73	8.87500	64.5	2.7259
0.11262	64.6	372.93	8.87900	64.6	2.7245
0.11257	64.7	373.12	8.88400	64.7	2.7231
0.11251	64.8	373.31	8.88800	64.8	2.7218
0.11245	64.9	373.50	8.89300	64.9	2.7204
0.11239	65.0	373.69	8.89700	65.0	2.7190
0.11234	65.1	373.88	8.90200	65.1	2.7176
0.11228	65.2	374.07	8.90600	65.2	2.7162
0.11222	65.3	374.26	8.91100	65.3	2.7148

0.11216	65.4	374.45	8.91500	65.4	2.7134
0.11211	65.5	374.64	8.92000	65.5	2.7121
0.11205	65.6	374.83	8.92500	65.6	2.7107
0.11199	65.7	375.02	8.92900	65.7	2.7093
0.11194	65.8	375.21	8.93400	65.8	2.7079
0.11188	65.9	375.40	8.93800	65.9	2.7066
0.11182	66.0	375.59	8.94300	66.0	2.7052
0.11177	66.1	375.78	8.94700	66.1	2.7038
0.11171	66.2	375.97	8.95200	66.2	2.7024
0.11165	66.3	376.16	8.95600	66.3	2.7011
0.11160	66.4	376.35	8.96100	66.4	2.6997
0.11154	66.5	376.54	8.96500	66.5	2.6983
0.11148	66.6	376.74	8.97000	66.6	2.6970
0.11143	66.7	376.93	8.97400	66.7	2.6956
0.11137	66.8	377.12	8.97900	66.8	2.6943
0.11132	66.9	377.31	8.98300	66.9	2.6929
0.11126	67.0	377.50	8.98800	67.0	2.6915
0.11120	67.1	377.69	8.99300	67.1	2.6902
0.11115	67.2	377.88	8.99700	67.2	2.6888
0.11109	67.3	378.07	9.00200	67.3	2.6875
0.11103	67.4	378.26	9.00600	67.4	2.6861
0.11098	67.5	378.45	9.01100	67.5	2.6848
0.11092	67.6	378.64	9.01500	67.6	2.6834
0.11087	67.7	378.83	9.02000	67.7	2.6821
0.11081	67.8	379.02	9.02400	67.8	2.6807
0.11076	67.9	379.21	9.02900	67.9	2.6794
0.11070	68.0	379.40	9.03300	68.0	2.6780
0.11064	68.1	379.59	9.03800	68.1	2.6767
0.11059	68.2	379.78	9.04200	68.2	2.6753
0.11053	68.3	379.97	9.04700	68.3	2.6740
0.11048	68.4	380.16	9.05200	68.4	2.6727
0.11042	68.5	380.35	9.05600	68.5	2.6713
0.11037	68.6	380.55	9.06100	68.6	2.6700
0.11031	68.7	380.74	9.06500	68.7	2.6686
0.11026	68.8	380.93	9.07000	68.8	2.6673
0.11020	68.9	381.12	9.07400	68.9	2.6660
0.11015	69.0	381.31	9.07900	69.0	2.6646
0.11009	69.1	381.50	9.08300	69.1	2.6633
0.11004	69.2	381.69	9.08800	69.2	2.6620
0.10998	69.3	381.88	9.09200	69.3	2.6607
0.10993	69.4	382.07	9.09700	69.4	2.6593
0.10987	69.5	382.26	9.10100	69.5	2.6580
0.10982	69.6	382.45	9.10600	69.6	2.6567
0.10976	69.7	382.64	9.11000	69.7	2.6554
0.10971	69.8	382.83	9.11500	69.8	2.6540
0.10965	69.9	383.02	9.12000	69.9	2.6527
0.10960	70.0	383.21	9.12400	70.0	2.6514
0.10955	70.1	383.40	9.12900	70.1	2.6501
0.10949	70.2	383.59	9.13300	70.2	2.6488
0.10944	70.3	383.78	9.13800	70.3	2.6474
0.10938	70.4	383.97	9.14200	70.4	2.6461
0.10933	70.5	384.17	9.14700	70.5	2.6448
0.10927	70.6	384.36	9.15100	70.6	2.6435
0.10922	70.7	384.55	9.15600	70.7	2.6422
0.10917	70.8	384.74	9.16000	70.8	2.6409
0.10911	70.9	384.93	9.16500	70.9	2.6396

0.10906	71.0	385.12	9.16900	71.0	2.6383
0.10900	71.1	385.31	9.17400	71.1	2.6370
0.10895	71.2	385.50	9.17900	71.2	2.6357
0.10890	71.3	385.69	9.18300	71.3	2.6344
0.10884	71.4	385.88	9.18800	71.4	2.6331
0.10879	71.5	386.07	9.19200	71.5	2.6318
0.10873	71.6	386.26	9.19700	71.6	2.6305
0.10868	71.7	386.45	9.20100	71.7	2.6292
0.10863	71.8	386.64	9.20600	71.8	2.6279
0.10857	71.9	386.83	9.21000	71.9	2.6266
0.10852	72.0	387.02	9.21500	72.0	2.6253
0.10847	72.1	387.21	9.21900	72.1	2.6240
0.10841	72.2	387.40	9.22400	72.2	2.6227
0.10836	72.3	387.59	9.22800	72.3	2.6214
0.10831	72.4	387.78	9.23300	72.4	2.6201
0.10825	72.5	387.98	9.23800	72.5	2.6188
0.10820	72.6	388.17	9.24200	72.6	2.6176
0.10815	72.7	388.36	9.24700	72.7	2.6163
0.10810	72.8	388.55	9.25100	72.8	2.6150
0.10804	72.9	388.74	9.25600	72.9	2.6137
0.10799	73.0	388.93	9.26000	73.0	2.6124
0.10794	73.1	389.12	9.26500	73.1	2.6112
0.10788	73.2	389.31	9.26900	73.2	2.6099
0.10783	73.3	389.50	9.27400	73.3	2.6086
0.10778	73.4	389.69	9.27800	73.4	2.6073
0.10773	73.5	389.88	9.28300	73.5	2.6060
0.10767	73.6	390.07	9.28700	73.6	2.6048
0.10762	73.7	390.26	9.29200	73.7	2.6035
0.10757	73.8	390.45	9.29600	73.8	2.6022
0.10752	73.9	390.64	9.30100	73.9	2.6010
0.10746	74.0	390.83	9.30600	74.0	2.5997
0.10741	74.1	391.02	9.31000	74.1	2.5984
0.10736	74.2	391.21	9.31500	74.2	2.5972
0.10731	74.3	391.40	9.31900	74.3	2.5959
0.10725	74.4	391.60	9.32400	74.4	2.5946
0.10720	74.5	391.79	9.32800	74.5	2.5934
0.10715	74.6	391.98	9.33300	74.6	2.5921
0.10710	74.7	392.17	9.33700	74.7	2.5909
0.10705	74.8	392.36	9.34200	74.8	2.5896
0.10699	74.9	392.55	9.34600	74.9	2.5883
0.10694	75.0	392.74	9.35100	75.0	2.5871
0.10689	75.1	392.93	9.35500	75.1	2.5858
0.10684	75.2	393.12	9.36000	75.2	2.5846
0.10679	75.3	393.31	9.36500	75.3	2.5833
0.10673	75.4	393.50	9.36900	75.4	2.5821
0.10668	75.5	393.69	9.37400	75.5	2.5808
0.10663	75.6	393.88	9.37800	75.6	2.5796
0.10658	75.7	394.07	9.38300	75.7	2.5783
0.10653	75.8	394.26	9.38700	75.8	2.5771
0.10648	75.9	394.45	9.39200	75.9	2.5758
0.10643	76.0	394.64	9.39600	76.0	2.5746
0.10637	76.1	394.83	9.40100	76.1	2.5734
0.10632	76.2	395.02	9.40500	76.2	2.5721
0.10627	76.3	395.22	9.41000	76.3	2.5709
0.10622	76.4	395.41	9.41400	76.4	2.5696
0.10617	76.5	395.60	9.41900	76.5	2.5684

0.10612	76.6	395.79	9.42300	76.6	2.5672
0.10607	76.7	395.98	9.42800	76.7	2.5659
0.10602	76.8	396.17	9.43300	76.8	2.5647
0.10596	76.9	396.36	9.43700	76.9	2.5635
0.10591	77.0	396.55	9.44200	77.0	2.5622
0.10586	77.1	396.74	9.44600	77.1	2.5610
0.10581	77.2	396.93	9.45100	77.2	2.5598
0.10576	77.3	397.12	9.45500	77.3	2.5585
0.10571	77.4	397.31	9.46000	77.4	2.5573
0.10566	77.5	397.50	9.46400	77.5	2.5561
0.10561	77.6	397.69	9.46900	77.6	2.5549
0.10556	77.7	397.88	9.47300	77.7	2.5536
0.10551	77.8	398.07	9.47800	77.8	2.5524
0.10546	77.9	398.26	9.48200	77.9	2.5512
0.10541	78.0	398.45	9.48700	78.0	2.5500
0.10536	78.1	398.64	9.49200	78.1	2.5488
0.10531	78.2	398.84	9.49600	78.2	2.5475
0.10526	78.3	399.03	9.50100	78.3	2.5463
0.10521	78.4	399.22	9.50500	78.4	2.5451
0.10516	78.5	399.41	9.51000	78.5	2.5439
0.10511	78.6	399.60	9.51400	78.6	2.5427
0.10506	78.7	399.79	9.51900	78.7	2.5415
0.10501	78.8	399.98	9.52300	78.8	2.5403
0.10496	78.9	400.17	9.52800	78.9	2.5390
0.10491	79.0	400.36	9.53200	79.0	2.5378
0.10486	79.1	400.55	9.53700	79.1	2.5366
0.10481	79.2	400.74	9.54100	79.2	2.5354
0.10476	79.3	400.93	9.54600	79.3	2.5342
0.10471	79.4	401.12	9.55100	79.4	2.5330
0.10466	79.5	401.31	9.55500	79.5	2.5318
0.10461	79.6	401.50	9.56000	79.6	2.5306
0.10456	79.7	401.69	9.56400	79.7	2.5294
0.10451	79.8	401.88	9.56900	79.8	2.5282
0.10446	79.9	402.07	9.57300	79.9	2.5270
0.10441	80.0	402.27	9.57800	80.0	2.5258
0.10436	80.1	402.46	9.58200	80.1	2.5246
0.10431	80.2	402.65	9.58700	80.2	2.5234
0.10426	80.3	402.84	9.59100	80.3	2.5222
0.10421	80.4	403.03	9.59600	80.4	2.5210
0.10416	80.5	403.22	9.60000	80.5	2.5198
0.10411	80.6	403.41	9.60500	80.6	2.5187
0.10406	80.7	403.60	9.60900	80.7	2.5175
0.10401	80.8	403.79	9.61400	80.8	2.5163
0.10397	80.9	403.98	9.61900	80.9	2.5151
0.10392	81.0	404.17	9.62300	81.0	2.5139
0.10387	81.1	404.36	9.62800	81.1	2.5127
0.10382	81.2	404.55	9.63200	81.2	2.5115
0.10377	81.3	404.74	9.63700	81.3	2.5104
0.10372	81.4	404.93	9.64100	81.4	2.5092
0.10367	81.5	405.12	9.64600	81.5	2.5080
0.10362	81.6	405.31	9.65000	81.6	2.5068
0.10357	81.7	405.50	9.65500	81.7	2.5056
0.10353	81.8	405.70	9.65900	81.8	2.5045
0.10348	81.9	405.89	9.66400	81.9	2.5033
0.10343	82.0	406.08	9.66800	82.0	2.5021
0.10338	82.1	406.27	9.67300	82.1	2.5009

0.10333	82.2	406.46	9.67800	82.2	2.4998
0.10328	82.3	406.65	9.68200	82.3	2.4986
0.10324	82.4	406.84	9.68700	82.4	2.4974
0.10319	82.5	407.03	9.69100	82.5	2.4963
0.10314	82.6	407.22	9.69600	82.6	2.4951
0.10309	82.7	407.41	9.70000	82.7	2.4939
0.10304	82.8	407.60	9.70500	82.8	2.4928
0.10299	82.9	407.79	9.70900	82.9	2.4916
0.10295	83.0	407.98	9.71400	83.0	2.4904
0.10290	83.1	408.17	9.71800	83.1	2.4893
0.10285	83.2	408.36	9.72300	83.2	2.4881
0.10280	83.3	408.55	9.72700	83.3	2.4869
0.10275	83.4	408.74	9.73200	83.4	2.4858
0.10271	83.5	408.93	9.73700	83.5	2.4846
0.10266	83.6	409.12	9.74100	83.6	2.4835
0.10261	83.7	409.32	9.74600	83.7	2.4823
0.10256	83.8	409.51	9.75000	83.8	2.4812
0.10251	83.9	409.70	9.75500	83.9	2.4800
0.10247	84.0	409.89	9.75900	84.0	2.4788
0.10242	84.1	410.08	9.76400	84.1	2.4777
0.10237	84.2	410.27	9.76800	84.2	2.4765
0.10232	84.3	410.46	9.77300	84.3	2.4754
0.10228	84.4	410.65	9.77700	84.4	2.4742
0.10223	84.5	410.84	9.78200	84.5	2.4731
0.10218	84.6	411.03	9.78600	84.6	2.4720
0.10213	84.7	411.22	9.79100	84.7	2.4708
0.10209	84.8	411.41	9.79600	84.8	2.4697
0.10204	84.9	411.60	9.80000	84.9	2.4685
0.10199	85.0	411.79	9.80500	85.0	2.4674

Tonnes per Barrel (60°F)	ASTM Table 14 API Gravity (60°F)	Cubic Mtrs per Short Ton (15°C)	Cubic Mtrs per Long Ton (15°C)	Relative Density (60/60°F)
0.14162	27	1.0180	1.14010	0.83
0.14158	**27.05**	**1.0183**	**1.14050**	**0.8305**
0.14153	27.1	1.0186	1.14090	0.831

Tonnes per Barrel (60°F)	ASTM Table 14 API Gravity (60°F)	Cubic Mtrs per Short Ton (15°C)	Cubic Mtrs per Long Ton (15°C)	Relative Density (60/60°F)
0.17074	0.0	0.8445	0.94580	0.650
0.17061	0.1	0.8451	0.94650	0.651
0.17048	0.2	0.8457	0.94720	0.652
0.17035	0.3	0.8464	0.94790	0.653
0.17022	0.4	0.8470	0.94870	0.654
0.17009	0.5	0.8477	0.94940	0.655
0.16996	0.6	0.8483	0.95010	0.656
0.16983	0.7	0.8490	0.95080	0.657
0.16971	0.8	0.8496	0.95150	0.658
0.16958	0.9	0.8502	0.95230	0.659
0.16945	1.0	0.8509	0.95300	0.660
0.16932	1.1	0.8515	0.95370	0.661
0.16919	1.2	0.8522	0.95440	0.662
0.16907	1.3	0.8528	0.95510	0.663
0.16894	1.4	0.8534	0.95590	0.664
0.16881	1.5	0.8541	0.95660	0.665
0.16869	1.6	0.8547	0.95730	0.666
0.16856	1.7	0.8554	0.95800	0.667
0.16843	1.8	0.8560	0.95870	0.668
0.16831	1.9	0.8567	0.95950	0.669
0.16818	2.0	0.8573	0.96020	0.670
0.16805	2.1	0.8579	0.96090	0.671
0.16793	2.2	0.8586	0.96160	0.672
0.16780	2.3	0.8592	0.96230	0.673
0.16768	2.4	0.8599	0.96310	0.674
0.16755	2.5	0.8605	0.96380	0.675
0.16743	2.6	0.8612	0.96450	0.676
0.16730	2.7	0.8618	0.96520	0.677
0.16718	2.8	0.8624	0.96590	0.678
0.16705	2.9	0.8631	0.96670	0.679
0.16693	3.0	0.8637	0.96740	0.680
0.16680	3.1	0.8644	0.96810	0.681
0.16668	3.2	0.8650	0.96880	0.682
0.16656	3.3	0.8657	0.96950	0.683
0.16643	3.4	0.8663	0.97030	0.684
0.16631	3.5	0.8669	0.97100	0.685
0.16618	3.6	0.8676	0.97170	0.686
0.16606	3.7	0.8682	0.97240	0.687

0.16594	3.8	0.8689	0.97310		0.688
0.16582	3.9	0.8695	0.97390		0.689
0.16569	4.0	0.8702	0.97460		0.690
0.16557	4.1	0.8708	0.97530		0.691
0.16545	4.2	0.8714	0.97600		0.692
0.16533	4.3	0.8721	0.97670		0.693
0.16521	4.4	0.8727	0.97750		0.694
0.16508	4.5	0.8734	0.97820		0.695
0.16496	4.6	0.8740	0.97890		0.696
0.16484	4.7	0.8747	0.97960		0.697
0.16472	4.8	0.8753	0.98030		0.698
0.16460	4.9	0.8759	0.98110		0.699
0.16448	5.0	0.8766	0.98180		0.700
0.16436	5.1	0.8772	0.98250		0.701
0.16424	5.2	0.8779	0.98320		0.702
0.16412	5.3	0.8785	0.98390		0.703
0.16400	5.4	0.8792	0.98470		0.704
0.16388	5.5	0.8798	0.98540		0.705
0.16376	5.6	0.8804	0.98610		0.706
0.16364	5.7	0.8811	0.98680		0.707
0.16352	5.8	0.8817	0.98750		0.708
0.16340	5.9	0.8824	0.98830		0.709
0.16328	6.0	0.8830	0.98900		0.710
0.16316	6.1	0.8837	0.98970		0.711
0.16304	6.2	0.8843	0.99040		0.712
0.16293	6.3	0.8849	0.99110		0.713
0.16281	6.4	0.8856	0.99190		0.714
0.16269	6.5	0.8862	0.99260		0.715
0.16257	6.6	0.8869	0.99330		0.716
0.16245	6.7	0.8875	0.99400		0.717
0.16234	6.8	0.8882	0.99470		0.718
0.16222	6.9	0.8888	0.99550		0.719
0.16210	7.0	0.8894	0.99620		0.720
0.16198	7.1	0.8901	0.99690		0.721
0.16187	7.2	0.8907	0.99760		0.722
0.16175	7.3	0.8914	0.99830		0.723
0.16163	7.4	0.8920	0.99900		0.724
0.16152	7.5	0.8927	0.99980		0.725
0.16140	7.6	0.8933	1.00050		0.726
0.16128	7.7	0.8939	1.00120		0.727
0.16117	7.8	0.8946	1.00190		0.728
0.16105	7.9	0.8952	1.00260		0.729
0.16094	8.0	0.8959	1.00340		0.730
0.16082	8.1	0.8965	1.00410		0.731
0.16071	8.2	0.8971	1.00480		0.732
0.16059	8.3	0.8978	1.00550		0.733
0.16048	8.4	0.8984	1.00620		0.734
0.16036	8.5	0.8991	1.00700		0.735
0.16025	8.6	0.8997	1.00770		0.736
0.16013	8.7	0.9004	1.00840		0.737
0.16002	8.8	0.9010	1.00910		0.738
0.15990	8.9	0.9016	1.00980		0.739
0.15979	9.0	0.9023	1.01060		0.740
0.15968	9.1	0.9029	1.01130		0.741
0.15956	9.2	0.9036	1.01200		0.742
0.15945	9.3	0.9042	1.01270		0.743

0.15934	9.4	0.9049	1.01340		0.744
0.15922	9.5	0.9055	1.01420		0.745
0.15911	9.6	0.9061	1.01490		0.746
0.15900	9.7	0.9068	1.01560		0.747
0.15888	9.8	0.9074	1.01630		0.748
0.15877	9.9	0.9081	1.01700		0.749
0.15866	10.0	0.9087	1.01780		0.750
0.15855	10.1	0.9094	1.01850		0.751
0.15844	10.2	0.9100	1.01920		0.752
0.15832	10.3	0.9106	1.01990		0.753
0.15821	10.4	0.9113	1.02060		0.754
0.15810	10.5	0.9119	1.02140		0.755
0.15799	10.6	0.9126	1.02210		0.756
0.15788	10.7	0.9132	1.02280		0.757
0.15777	10.8	0.9139	1.02350		0.758
0.15766	10.9	0.9145	1.02420		0.759
0.15754	11.0	0.9151	1.02500		0.760
0.15743	11.1	0.9158	1.02570		0.761
0.15732	11.2	0.9164	1.02640		0.762
0.15721	11.3	0.9171	1.02710		0.763
0.15710	11.4	0.9177	1.02780		0.764
0.15699	11.5	0.9184	1.02860		0.765
0.15688	11.6	0.9190	1.02930		0.766
0.15677	11.7	0.9196	1.03000		0.767
0.15666	11.8	0.9203	1.03070		0.768
0.15655	11.9	0.9209	1.03140		0.769
0.15645	12.0	0.9216	1.03220		0.770
0.15634	12.1	0.9222	1.03290		0.771
0.15623	12.2	0.9229	1.03360		0.772
0.15612	12.3	0.9235	1.03430		0.773
0.15601	12.4	0.9241	1.03500		0.774
0.15590	12.5	0.9248	1.03580		0.775
0.15579	12.6	0.9254	1.03650		0.776
0.15569	12.7	0.9261	1.03720		0.777
0.15558	12.8	0.9267	1.03790		0.778
0.15547	12.9	0.9274	1.03860		0.779
0.15536	13.0	0.9280	1.03940		0.780
0.15525	13.1	0.9286	1.04010		0.781
0.15515	13.2	0.9293	1.04080		0.782
0.15504	13.3	0.9299	1.04150		0.783
0.15493	13.4	0.9306	1.04220		0.784
0.15483	13.5	0.9312	1.04300		0.785
0.15472	13.6	0.9319	1.04370		0.786
0.15461	13.7	0.9325	1.04440		0.787
0.15451	13.8	0.9331	1.04510		0.788
0.15440	13.9	0.9338	1.04580		0.789
0.15429	14.0	0.9344	1.04660		0.790
0.15419	14.1	0.9351	1.04730		0.791
0.15408	14.2	0.9357	1.04800		0.792
0.15397	14.3	0.9364	1.04870		0.793
0.15387	14.4	0.9370	1.04940		0.794
0.15376	14.5	0.9376	1.05020		0.795
0.15366	14.6	0.9383	1.05090		0.796
0.15355	14.7	0.9389	1.05160		0.797
0.15345	14.8	0.9396	1.05230		0.798
0.15334	14.9	0.9402	1.05300		0.799

0.15324	15.0	0.9409	1.05380	0.800	
0.15313	15.1	0.9415	1.05450	0.801	
0.15303	15.2	0.9421	1.05520	0.802	
0.15292	15.3	0.9428	1.05590	0.803	
0.15282	15.4	0.9434	1.05660	0.804	
0.15272	15.5	0.9441	1.05740	0.805	
0.15261	15.6	0.9447	1.05810	0.806	
0.15251	15.7	0.9454	1.05880	0.807	
0.15240	15.8	0.9460	1.05950	0.808	
0.15230	15.9	0.9466	1.06020	0.809	
0.15220	16.0	0.9473	1.06100	0.810	
0.15209	16.1	0.9479	1.06170	0.811	
0.15199	16.2	0.9486	1.06240	0.812	
0.15189	16.3	0.9492	1.06310	0.813	
0.15179	16.4	0.9499	1.06380	0.814	
0.15168	16.5	0.9505	1.06460	0.815	
0.15158	16.6	0.9511	1.06530	0.816	
0.15148	16.7	0.9518	1.06600	0.817	
0.15138	16.8	0.9524	1.06670	0.818	
0.15127	16.9	0.9531	1.06740	0.819	
0.15117	17.0	0.9537	1.06820	0.820	
0.15107	17.1	0.9543	1.06890	0.821	
0.15097	17.2	0.9550	1.06960	0.822	
0.15087	17.3	0.9556	1.07030	0.823	
0.15077	17.4	0.9563	1.07100	0.824	
0.15066	17.5	0.9569	1.07180	0.825	
0.15056	17.6	0.9576	1.07250	0.826	
0.15046	17.7	0.9582	1.07320	0.827	
0.15036	17.8	0.9588	1.07390	0.828	
0.15026	17.9	0.9595	1.07460	0.829	
0.15016	18.0	0.9601	1.07530	0.830	
0.15006	18.1	0.9608	1.07610	0.831	
0.14996	18.2	0.9614	1.07680	0.832	
0.14986	18.3	0.9621	1.07750	0.833	
0.14976	18.4	0.9627	1.07820	0.834	
0.14966	18.5	0.9633	1.07890	0.835	
0.14956	18.6	0.9640	1.07970	0.836	
0.14946	18.7	0.9646	1.08040	0.837	
0.14936	18.8	0.9653	1.08110	0.838	
0.14926	18.9	0.9659	1.08180	0.839	
0.14916	19.0	0.9666	1.08250	0.840	
0.14906	19.1	0.9672	1.08330	0.841	
0.14896	19.2	0.9678	1.08400	0.842	
0.14886	19.3	0.9685	1.08470	0.843	
0.14876	19.4	0.9691	1.08540	0.844	
0.14867	19.5	0.9698	1.08610	0.845	
0.14857	19.6	0.9704	1.08690	0.846	
0.14847	19.7	0.9711	1.08760	0.847	
0.14837	19.8	0.9717	1.08830	0.848	
0.14827	19.9	0.9723	1.08900	0.849	
0.14817	20.0	0.9730	1.08970	0.850	
0.14808	20.1	0.9736	1.09050	0.851	
0.14798	20.2	0.9743	1.09120	0.852	
0.14788	20.3	0.9749	1.09190	0.853	
0.14778	20.4	0.9756	1.09260	0.854	
0.14769	20.5	0.9762	1.09330	0.855	

0.14759	20.6	0.9768	1.09410		0.856
0.14749	20.7	0.9775	1.09480		0.857
0.14740	20.8	0.9781	1.09550		0.858
0.14730	20.9	0.9788	1.09620		0.859
0.14720	21.0	0.9794	1.09690		0.860
0.14710	21.1	0.9801	1.09770		0.861
0.14701	21.2	0.9807	1.09840		0.862
0.14691	21.3	0.9813	1.09910		0.863
0.14682	21.4	0.9820	1.09980		0.864
0.14672	21.5	0.9826	1.10050		0.865
0.14662	21.6	0.9833	1.10130		0.866
0.14653	21.7	0.9839	1.10200		0.867
0.14643	21.8	0.9846	1.10270		0.868
0.14634	21.9	0.9852	1.10340		0.869
0.14624	22.0	0.9858	1.10410		0.870
0.14615	22.1	0.9865	1.10490		0.871
0.14605	22.2	0.9871	1.10560		0.872
0.14596	22.3	0.9878	1.10630		0.873
0.14586	22.4	0.9884	1.10700		0.874
0.14577	22.5	0.9891	1.10770		0.875
0.14567	22.6	0.9897	1.10850		0.876
0.14558	22.7	0.9903	1.10920		0.877
0.14548	22.8	0.9910	1.10990		0.878
0.14539	22.9	0.9916	1.11060		0.879
0.14529	23.0	0.9923	1.11130		0.880
0.14520	23.1	0.9929	1.11210		0.881
0.14511	23.2	0.9936	1.11280		0.882
0.14501	23.3	0.9942	1.11350		0.883
0.14492	23.4	0.9948	1.11420		0.884
0.14482	23.5	0.9955	1.11490		0.885
0.14473	23.6	0.9961	1.11570		0.886
0.14464	23.7	0.9968	1.11640		0.887
0.14454	23.8	0.9974	1.11710		0.888
0.14445	23.9	0.9981	1.11780		0.889
0.14436	24.0	0.9987	1.11850		0.890
0.14426	24.1	0.9993	1.11930		0.891
0.14417	24.2	1.0000	1.12000		0.892
0.14408	24.3	1.0006	1.12070		0.893
0.14399	24.4	1.0013	1.12140		0.894
0.14389	24.5	1.0019	1.12210		0.895
0.14380	24.6	1.0026	1.12290		0.896
0.14371	24.7	1.0032	1.12360		0.897
0.14362	24.8	1.0038	1.12430		0.898
0.14353	24.9	1.0045	1.12500		0.899
0.14343	25.0	1.0051	1.12570		0.900
0.14334	25.1	1.0058	1.12650		0.901
0.14325	25.2	1.0064	1.12720		0.902
0.14316	25.3	1.0071	1.12790		0.903
0.14307	25.4	1.0077	1.12860		0.904
0.14298	25.5	1.0083	1.12930		0.905
0.14289	25.6	1.0090	1.13010		0.906
0.14279	25.7	1.0096	1.13080		0.907
0.14270	25.8	1.0103	1.13150		0.908
0.14261	25.9	1.0109	1.13220		0.909
0.14252	26.0	1.0116	1.13290		0.910
0.14243	26.1	1.0122	1.13370		0.911

0.14234	26.2	1.0128	1.13440		0.912
0.14225	26.3	1.0135	1.13510		0.913
0.14216	26.4	1.0141	1.13580		0.914
0.14207	26.5	1.0148	1.13650		0.915
0.14198	26.6	1.0154	1.13730		0.916
0.14189	26.7	1.0161	1.13800		0.917
0.14180	26.8	1.0167	1.13870		0.918
0.14171	26.9	1.0173	1.13940		0.919
0.14162	27.0	1.0180	1.14010		0.920
0.14153	27.1	1.0186	1.14090		0.921
0.14144	27.2	1.0193	1.14160		0.922
0.14135	27.3	1.0199	1.14230		0.923
0.14126	27.4	1.0206	1.14300		0.924
0.14118	27.5	1.0212	1.14370		0.925
0.14109	27.6	1.0218	1.14450		0.926
0.14100	27.7	1.0225	1.14520		0.927
0.14091	27.8	1.0231	1.14590		0.928
0.14082	27.9	1.0238	1.14660		0.929
0.14073	28.0	1.0244	1.14730		0.930
0.14064	28.1	1.0251	1.14810		0.931
0.14056	28.2	1.0257	1.14880		0.932
0.14047	28.3	1.0263	1.14950		0.933
0.14038	28.4	1.0270	1.15020		0.934
0.14029	28.5	1.0276	1.15090		0.935
0.14020	28.6	1.0283	1.15170		0.936
0.14012	28.7	1.0289	1.15240		0.937
0.14003	28.8	1.0296	1.15310		0.938
0.13994	28.9	1.0302	1.15380		0.939
0.13985	29.0	1.0308	1.15450		0.940
0.13977	29.1	1.0315	1.15530		0.941
0.13968	29.2	1.0321	1.15600		0.942
0.13959	29.3	1.0328	1.15670		0.943
0.13951	29.4	1.0334	1.15740		0.944
0.13942	29.5	1.0341	1.15810		0.945
0.13933	29.6	1.0347	1.15890		0.946
0.13925	29.7	1.0353	1.15960		0.947
0.13916	29.8	1.0360	1.16030		0.948
0.13907	29.9	1.0366	1.16100		0.949
0.13899	30.0	1.0373	1.16170		0.950
0.13890	30.1	1.0379	1.16250		0.951
0.13882	30.2	1.0386	1.16320		0.952
0.13873	30.3	1.0392	1.16390		0.953
0.13864	30.4	1.0398	1.16460		0.954
0.13856	30.5	1.0405	1.16530		0.955
0.13847	30.6	1.0411	1.16610		0.956
0.13839	30.7	1.0418	1.16680		0.957
0.13830	30.8	1.0424	1.16750		0.958
0.13822	30.9	1.0430	1.16820		0.959
0.13813	31.0	1.0437	1.16890		0.960
0.13805	31.1	1.0443	1.16970		0.961
0.13796	31.2	1.0450	1.17040		0.962
0.13788	31.3	1.0456	1.17110		0.963
0.13779	31.4	1.0463	1.17180		0.964
0.13771	31.5	1.0469	1.17250		0.965
0.13762	31.6	1.0475	1.17330		0.966
0.13754	31.7	1.0482	1.17400		0.967

0.13745	31.8	1.0488	1.17470		0.968
0.13737	31.9	1.0495	1.17540		0.969
0.13728	32.0	1.0501	1.17610		0.970
0.13720	32.1	1.0508	1.17690		0.971
0.13712	32.2	1.0514	1.17760		0.972
0.13703	32.3	1.0520	1.17830		0.973
0.13695	32.4	1.0527	1.17900		0.974
0.13687	32.5	1.0533	1.17970		0.975
0.13678	32.6	1.0540	1.18050		0.976
0.13670	32.7	1.0546	1.18120		0.977
0.13662	32.8	1.0553	1.18190		0.978
0.13653	32.9	1.0559	1.18260		0.979
0.13645	33.0	1.0565	1.18330		0.980
0.13637	33.1	1.0572	1.18410		0.981
0.13628	33.2	1.0578	1.18480		0.982
0.13620	33.3	1.0585	1.18550		0.983
0.13612	33.4	1.0591	1.18620		0.984
0.13604	33.5	1.0598	1.18690		0.985
0.13595	33.6	1.0604	1.18770		0.986
0.13587	33.7	1.0610	1.18840		0.987
0.13579	33.8	1.0617	1.18910		0.988
0.13571	33.9	1.0623	1.18980		0.989
0.13562	34.0	1.0630	1.19050		0.990
0.13554	34.1	1.0636	1.19130		0.991
0.13546	34.2	1.0643	1.19200		0.992
0.13538	34.3	1.0649	1.19270		0.993
0.13530	34.4	1.0655	1.19340		0.994
0.13521	34.5	1.0662	1.19410		0.995
0.13513	34.6	1.0668	1.19490		0.996
0.13505	34.7	1.0675	1.19560		0.997
0.13497	34.8	1.0681	1.19630		0.998
0.13489	34.9	1.0688	1.19700		0.999
0.13481	35.0	1.0694	1.19770		1.000
0.13473	35.1	1.0700	1.19850		1.001
0.13465	35.2	1.0707	1.19920		1.002
0.13457	35.3	1.0713	1.19990		1.003
0.13448	35.4	1.0720	1.20060		1.004
0.13440	35.5	1.0726	1.20130		1.005
0.13432	35.6	1.0733	1.20210		1.006
0.13424	35.7	1.0739	1.20280		1.007
0.13416	35.8	1.0745	1.20350		1.008
0.13408	35.9	1.0752	1.20420		1.009
0.13400	36.0	1.0758	1.20490		1.010
0.13392	36.1	1.0765	1.20570		1.011
0.13384	36.2	1.0771	1.20640		1.012
0.13376	36.3	1.0778	1.20710		1.013
0.13368	36.4	1.0784	1.20780		1.014
0.13360	36.5	1.0790	1.20850		1.015
0.13352	36.6	1.0797	1.20930		1.016
0.13344	36.7	1.0803	1.21000		1.017
0.13336	36.8	1.0810	1.21070		1.018
0.13328	36.9	1.0816	1.21140		1.019
0.13321	37.0	1.0823	1.21210		1.020
0.13313	37.1	1.0829	1.21290		1.021
0.13305	37.2	1.0835	1.21360		1.022
0.13297	37.3	1.0842	1.21430		1.023

0.13289	37.4	1.0848	1.21500	1.024
0.13281	37.5	1.0855	1.21570	1.025
0.13273	37.6	1.0861	1.21650	1.026
0.13265	37.7	1.0868	1.21720	1.027
0.13258	37.8	1.0874	1.21790	1.028
0.13250	37.9	1.0880	1.21860	1.029
0.13242	38.0	1.0887	1.21930	1.030
0.13234	38.1	1.0893	1.22010	1.031
0.13226	38.2	1.0900	1.22080	1.032
0.13218	38.3	1.0906	1.22150	1.033
0.13211	38.4	1.0913	1.22220	1.034
0.13203	38.5	1.0919	1.22290	1.035
0.13195	38.6	1.0925	1.22360	1.036
0.13187	38.7	1.0932	1.22440	1.037
0.13180	38.8	1.0938	1.22510	1.038
0.13172	38.9	1.0945	1.22580	1.039
0.13164	39.0	1.0951	1.22650	1.040
0.13156	39.1	1.0958	1.22720	1.041
0.13149	39.2	1.0964	1.22800	1.042
0.13141	39.3	1.0970	1.22870	1.043
0.13133	39.4	1.0977	1.22940	1.044
0.13126	39.5	1.0983	1.23010	1.045
0.13118	39.6	1.0990	1.23080	1.046
0.13110	39.7	1.0996	1.23160	1.047
0.13103	39.8	1.1003	1.23230	1.048
0.13095	39.9	1.1009	1.23300	1.049
0.13087	40.0	1.1015	1.23370	1.050
0.13080	40.1	1.1022	1.23440	1.051
0.13072	40.2	1.1028	1.23520	1.052
0.13064	40.3	1.1035	1.23590	1.053
0.13057	40.4	1.1041	1.23660	1.054
0.13049	40.5	1.1048	1.23730	1.055
0.13042	40.6	1.1054	1.23800	1.056
0.13034	40.7	1.1060	1.23880	1.057
0.13026	40.8	1.1067	1.23950	1.058
0.13019	40.9	1.1073	1.24020	1.059
0.13011	41.0	1.1080	1.24090	1.060
0.13004	41.1	1.1086	1.24160	1.061
0.12996	41.2	1.1093	1.24240	1.062
0.12989	41.3	1.1099	1.24310	1.063
0.12981	41.4	1.1105	1.24380	1.064
0.12974	41.5	1.1112	1.24450	1.065
0.12966	41.6	1.1118	1.24520	1.066
0.12959	41.7	1.1125	1.24600	1.067
0.12951	41.8	1.1131	1.24670	1.068
0.12944	41.9	1.1138	1.24740	1.069
0.12936	42.0	1.1144	1.24810	1.070
0.12929	42.1	1.1150	1.24880	1.071
0.12921	42.2	1.1157	1.24960	1.072
0.12914	42.3	1.1163	1.25030	1.073
0.12906	42.4	1.1170	1.25100	1.074
0.12899	42.5	1.1176	1.25170	1.075
0.12891	42.6	1.1182	1.25240	
0.12884	42.7	1.1189	1.25320	
0.12877	42.8	1.1195	1.25390	
0.12869	42.9	1.1202	1.25460	

0.12862	43.0	1.1208	1.25530
0.12854	43.1	1.1215	1.25600
0.12847	43.2	1.1221	1.25680
0.12840	43.3	1.1227	1.25750
0.12832	43.4	1.1234	1.25820
0.12825	43.5	1.1240	1.25890
0.12818	43.6	1.1247	1.25960
0.12810	43.7	1.1253	1.26040
0.12803	43.8	1.1260	1.26110
0.12796	43.9	1.1266	1.26180
0.12788	44.0	1.1272	1.26250
0.12781	44.1	1.1279	1.26320
0.12774	44.2	1.1285	1.26400
0.12767	44.3	1.1292	1.26470
0.12759	44.4	1.1298	1.26540
0.12752	44.5	1.1305	1.26610
0.12745	44.6	1.1311	1.26680
0.12738	44.7	1.1317	1.26760
0.12730	44.8	1.1324	1.26830
0.12723	44.9	1.1330	1.26900
0.12716	45.0	1.1337	1.26970
0.12709	45.1	1.1343	1.27040
0.12701	45.2	1.1350	1.27120
0.12694	45.3	1.1356	1.27190
0.12687	45.4	1.1362	1.27260
0.12680	45.5	1.1369	1.27330
0.12673	45.6	1.1375	1.27400
0.12666	45.7	1.1382	1.27480
0.12658	45.8	1.1388	1.27550
0.12651	45.9	1.1395	1.27620
0.12644	46.0	1.1401	1.27690
0.12637	46.1	1.1407	1.27760
0.12630	46.2	1.1414	1.27830
0.12623	46.3	1.1420	1.27910
0.12616	46.4	1.1427	1.27980
0.12609	46.5	1.1433	1.28050
0.12601	46.6	1.1440	1.28120
0.12594	46.7	1.1446	1.28190
0.12587	46.8	1.1452	1.28270
0.12580	46.9	1.1459	1.28340
0.12573	47.0	1.1465	1.28410
0.12566	47.1	1.1472	1.28480
0.12559	47.2	1.1478	1.28550
0.12552	47.3	1.1485	1.28630
0.12545	47.4	1.1491	1.28700
0.12538	47.5	1.1497	1.28770
0.12531	47.6	1.1504	1.28840
0.12524	47.7	1.1510	1.28910
0.12517	47.8	1.1517	1.28990
0.12510	47.9	1.1523	1.29060
0.12503	48.0	1.1530	1.29130
0.12496	48.1	1.1536	1.29200
0.12489	48.2	1.1542	1.29270
0.12482	48.3	1.1549	1.29350
0.12475	48.4	1.1555	1.29420
0.12468	48.5	1.1562	1.29490

0.12461	48.6	1.1568	1.29560
0.12454	48.7	1.1574	1.29630
0.12448	48.8	1.1581	1.29700
0.12441	48.9	1.1587	1.29780
0.12434	49.0	1.1594	1.29850
0.12427	49.1	1.1600	1.29920
0.12420	49.2	1.1606	1.29990
0.12413	49.3	1.1613	1.30060
0.12406	49.4	1.1619	1.30130
0.12399	49.5	1.1626	1.30210
0.12392	49.6	1.1632	1.30280
0.12386	49.7	1.1638	1.30350
0.12379	49.8	1.1645	1.30420
0.12372	49.9	1.1651	1.30490
0.12365	50.0	1.1658	1.30560
0.12358	50.1	1.1664	1.30640
0.12351	50.2	1.1670	1.30710
0.12345	50.3	1.1677	1.30780
0.12338	50.4	1.1683	1.30850
0.12331	50.5	1.1690	1.30920
0.12324	50.6	1.1696	1.30990
0.12317	50.7	1.1702	1.31070
0.12311	50.8	1.1709	1.31140
0.12304	50.9	1.1715	1.31210
0.12297	51.0	1.1722	1.31280
0.12290	51.1	1.1728	1.31350
0.12284	51.2	1.1734	1.31420
0.12277	51.3	1.1741	1.31500
0.12270	51.4	1.1747	1.31570
0.12264	51.5	1.1754	1.31640
0.12257	51.6	1.1760	1.31710
0.12250	51.7	1.1766	1.31780
0.12243	51.8	1.1773	1.31850
0.12237	51.9	1.1779	1.31930
0.12230	52.0	1.1786	1.32000
0.12223	52.1	1.1792	1.32070
0.12217	52.2	1.1798	1.32140
0.12210	52.3	1.1805	1.32210
0.12203	52.4	1.1811	1.32290
0.12197	52.5	1.1818	1.32360
0.12190	52.6	1.1824	1.32430
0.12184	52.7	1.1831	1.32500
0.12177	52.8	1.1837	1.32570
0.12170	52.9	1.1843	1.32650
0.12164	53.0	1.1850	1.32720
0.12157	53.1	1.1856	1.32790
0.12151	53.2	1.1863	1.32860
0.12144	53.3	1.1869	1.32930
0.12137	53.4	1.1876	1.33010
0.12131	53.5	1.1882	1.33080
0.12124	53.6	1.1888	1.33150
0.12118	53.7	1.1895	1.33220
0.12111	53.8	1.1901	1.33290
0.12105	53.9	1.1908	1.33370
0.12098	54.0	1.1914	1.33440
0.12091	54.1	1.1921	1.33510

0.12085	54.2	1.1927	1.33580
0.12078	54.3	1.1933	1.33650
0.12072	54.4	1.1940	1.33730
0.12065	54.5	1.1946	1.33800
0.12059	54.6	1.1953	1.33870
0.12052	54.7	1.1959	1.33940
0.12046	54.8	1.1966	1.34010
0.12040	54.9	1.1972	1.34090
0.12033	55.0	1.1978	1.34160
0.12027	55.1	1.1985	1.34230
0.12020	55.2	1.1991	1.34300
0.12014	55.3	1.1998	1.34370
0.12007	55.4	1.2004	1.34450
0.12001	55.5	1.2010	1.34520
0.11994	55.6	1.2017	1.34590
0.11988	55.7	1.2023	1.34660
0.11982	55.8	1.2030	1.34730
0.11975	55.9	1.2036	1.34810
0.11969	56.0	1.2043	1.34880
0.11962	56.1	1.2049	1.34950
0.11956	56.2	1.2055	1.35020
0.11950	56.3	1.2062	1.35090
0.11943	56.4	1.2068	1.35170
0.11937	56.5	1.2075	1.35240
0.11931	56.6	1.2081	1.35310
0.11924	56.7	1.2088	1.35380
0.11918	56.8	1.2094	1.35450
0.11912	56.9	1.2100	1.35530
0.11905	57.0	1.2107	1.35600
0.11899	57.1	1.2113	1.35670
0.11893	57.2	1.2120	1.35740
0.11886	57.3	1.2126	1.35810
0.11880	57.4	1.2133	1.35890
0.11874	57.5	1.2139	1.35960
0.11867	57.6	1.2145	1.36030
0.11861	57.7	1.2152	1.36100
0.11855	57.8	1.2158	1.36170
0.11849	57.9	1.2165	1.36250
0.11842	58.0	1.2171	1.36320
0.11836	58.1	1.2178	1.36390
0.11830	58.2	1.2184	1.36460
0.11824	58.3	1.2190	1.36530
0.11817	58.4	1.2197	1.36600
0.11811	58.5	1.2203	1.36680
0.11805	58.6	1.2210	1.36750
0.11799	58.7	1.2216	1.36820
0.11792	58.8	1.2223	1.36890
0.11786	58.9	1.2229	1.36960
0.11780	59.0	1.2235	1.37040
0.11774	59.1	1.2242	1.37110
0.11768	59.2	1.2248	1.37180
0.11761	59.3	1.2255	1.37250
0.11755	59.4	1.2261	1.37320
0.11749	59.5	1.2268	1.37400
0.11743	59.6	1.2274	1.37470
0.11737	59.7	1.2280	1.37540

0.11731	59.8	1.2286	1.37610
0.11725	59.9	1.2293	1.37680
0.11718	60.0	1.2300	1.37760
0.11712	60.1	1.2306	1.37830
0.11706	60.2	1.2313	1.37900
0.11700	60.3	1.2319	1.37970
0.11694	60.4	1.2325	1.38040
0.11688	60.5	1.2332	1.38120
0.11682	60.6	1.2338	1.38190
0.11676	60.7	1.2345	1.38260
0.11670	60.8	1.2351	1.38330
0.11663	60.9	1.2358	1.38400
0.11657	61.0	1.2364	1.38480
0.11651	61.1	1.2370	1.38550
0.11645	61.2	1.2377	1.38620
0.11639	61.3	1.2383	1.38690
0.11633	61.4	1.2390	1.38760
0.11627	61.5	1.2396	1.38840
0.11621	61.6	1.2403	1.38910
0.11615	61.7	1.2409	1.38980
0.11609	61.8	1.2415	1.39050
0.11603	61.9	1.2422	1.39120
0.11597	62.0	1.2428	1.39200
0.11591	62.1	1.2435	1.39270
0.11585	62.2	1.2441	1.39340
0.11579	62.3	1.2448	1.39410
0.11573	62.4	1.2454	1.39480
0.11567	62.5	1.2460	1.39560
0.11561	62.6	1.2467	1.39630
0.11555	62.7	1.2473	1.39700
0.11549	62.8	1.2480	1.39770
0.11543	62.9	1.2486	1.39840
0.11537	63.0	1.2493	1.39920
0.11531	63.1	1.2499	1.39990
0.11525	63.2	1.2505	1.40060
0.11520	63.3	1.2512	1.40130
0.11514	63.4	1.2518	1.40200
0.11508	63.5	1.2525	1.40280
0.11502	63.6	1.2531	1.40350
0.11496	63.7	1.2537	1.40420
0.11490	63.8	1.2544	1.40490
0.11484	63.9	1.2550	1.40560
0.11478	64.0	1.2557	1.40640
0.11472	64.1	1.2563	1.40710
0.11466	64.2	1.2570	1.40780
0.11461	64.3	1.2576	1.40850
0.11455	64.4	1.2582	1.40920
0.11449	64.5	1.2589	1.41000
0.11443	64.6	1.2595	1.41070
0.11437	64.7	1.2602	1.41140
0.11431	64.8	1.2608	1.41210
0.11426	64.9	1.2615	1.41280
0.11420	65.0	1.2621	1.41360
0.11414	65.1	1.2627	1.41430
0.11408	65.2	1.2634	1.41500
0.11402	65.3	1.2640	1.41570

0.11396	65.4	1.2647	1.41640
0.11391	65.5	1.2653	1.41720
0.11385	65.6	1.2660	1.41790
0.11379	65.7	1.2666	1.41860
0.11373	65.8	1.2672	1.41930
0.11368	65.9	1.2679	1.42000
0.11362	66.0	1.2685	1.42080
0.11356	66.1	1.2692	1.42150
0.11350	66.2	1.2698	1.42220
0.11345	66.3	1.2705	1.42290
0.11339	66.4	1.2711	1.42360
0.11333	66.5	1.2717	1.42440
0.11327	66.6	1.2724	1.42510
0.11322	66.7	1.2730	1.42580
0.11316	66.8	1.2737	1.42650
0.11310	66.9	1.2743	1.42720
0.11304	67.0	1.2750	1.42800
0.11299	67.1	1.2756	1.42870
0.11293	67.2	1.2762	1.42940
0.11287	67.3	1.2769	1.43010
0.11282	67.4	1.2775	1.43080
0.11276	67.5	1.2782	1.43160
0.11270	67.6	1.2788	1.43230
0.11265	67.7	1.2795	1.43300
0.11259	67.8	1.2801	1.43370
0.11253	67.9	1.2807	1.43440
0.11248	68.0	1.2814	1.43520
0.11242	68.1	1.2820	1.43590
0.11236	68.2	1.2827	1.43660
0.11231	68.3	1.2833	1.43730
0.11225	68.4	1.2840	1.43800
0.11220	68.5	1.2846	1.43870
0.11214	68.6	1.2852	1.43950
0.11208	68.7	1.2859	1.44020
0.11203	68.8	1.2865	1.44090
0.11197	68.9	1.2872	1.44160
0.11191	69.0	1.2878	1.44230
0.11186	69.1	1.2885	1.44310
0.11180	69.2	1.2891	1.44380
0.11175	69.3	1.2897	1.44450
0.11169	69.4	1.2904	1.44520
0.11164	69.5	1.2910	1.44590
0.11158	69.6	1.2917	1.44670
0.11152	69.7	1.2923	1.44740
0.11147	69.8	1.2930	1.44810
0.11141	69.9	1.2936	1.44880
0.11136	70.0	1.2942	1.44950
0.11130	70.1	1.2949	1.45030
0.11125	70.2	1.2955	1.45100
0.11119	70.3	1.2962	1.45170
0.11114	70.4	1.2968	1.45240
0.11108	70.5	1.2975	1.45310
0.11103	70.6	1.2981	1.45390
0.11097	70.7	1.2987	1.45460
0.11092	70.8	1.2994	1.45530
0.11086	70.9	1.3000	1.45600

0.11081	71.0	1.3007	1.45670
0.11075	71.1	1.3013	1.45750
0.11070	71.2	1.3020	1.45820
0.11064	71.3	1.3026	1.45890
0.11059	71.4	1.3032	1.45960
0.11053	71.5	1.3039	1.46030
0.11048	71.6	1.3045	1.46110
0.11043	71.7	1.3052	1.46180
0.11037	71.8	1.3058	1.46250
0.11032	71.9	1.3064	1.46320
0.11026	72.0	1.3071	1.46390
0.11021	72.1	1.3077	1.46470
0.11015	72.2	1.3084	1.46540
0.11010	72.3	1.3090	1.46610
0.11005	72.4	1.3097	1.46680
0.10999	72.5	1.3103	1.46750
0.10994	72.6	1.3109	1.46830
0.10988	72.7	1.3116	1.46900
0.10983	72.8	1.3122	1.46970
0.10978	72.9	1.3129	1.47040
0.10972	73.0	1.3135	1.47110
0.10967	73.1	1.3142	1.47190
0.10961	73.2	1.3148	1.47260
0.10956	73.3	1.3154	1.47330
0.10951	73.4	1.3161	1.47400
0.10945	73.5	1.3167	1.47470
0.10940	73.6	1.3174	1.47550
0.10935	73.7	1.3180	1.47620
0.10929	73.8	1.3187	1.47690
0.10924	73.9	1.3193	1.47760
0.10919	74.0	1.3199	1.47830
0.10913	74.1	1.3205	1.47910
0.10908	74.2	1.3212	1.47980
0.10903	74.3	1.3219	1.48050
0.10897	74.4	1.3225	1.48120
0.10892	74.5	1.3232	1.48190
0.10887	74.6	1.3238	1.48270
0.10882	74.7	1.3244	1.48340
0.10876	74.8	1.3251	1.48410
0.10871	74.9	1.3257	1.48480
0.10866	75.0	1.3264	1.48550
0.10860	75.1	1.3270	1.48630
0.10855	75.2	1.3277	1.48700
0.10850	75.3	1.3283	1.48770
0.10845	75.4	1.3289	1.48840
0.10839	75.5	1.3296	1.48910
0.10834	75.6	1.3302	1.48990
0.10829	75.7	1.3309	1.49060
0.10824	75.8	1.3315	1.49130
0.10819	75.9	1.3322	1.49200
0.10813	76.0	1.3328	1.49270
0.10808	76.1	1.3334	1.49350
0.10803	76.2	1.3341	1.49420
0.10798	76.3	1.3347	1.49490
0.10792	76.4	1.3354	1.49560
0.10787	76.5	1.3360	1.49630

0.10782	76.6	1.3367	1.49710
0.10777	76.7	1.3373	1.49780
0.10772	76.8	1.3379	1.49850
0.10767	76.9	1.3386	1.49920
0.10761	77.0	1.3392	1.49990
0.10756	77.1	1.3399	1.50070
0.10751	77.2	1.3405	1.50140
0.10746	77.3	1.3412	1.50210
0.10741	77.4	1.3418	1.50280
0.10736	77.5	1.3424	1.50350
0.10730	77.6	1.3431	1.50430
0.10725	77.7	1.3437	1.50500
0.10720	77.8	1.3444	1.50570
0.10715	77.9	1.3450	1.50640
0.10710	78.0	1.3457	1.50710
0.10705	78.1	1.3463	1.50790
0.10700	78.2	1.3469	1.50860
0.10695	78.3	1.3476	1.50930
0.10689	78.4	1.3482	1.51000
0.10684	78.5	1.3489	1.51070
0.10679	78.6	1.3495	1.51150
0.10674	78.7	1.3502	1.51220
0.10669	78.8	1.3508	1.51290
0.10664	78.9	1.3514	1.51360
0.10659	79.0	1.3521	1.51430
0.10654	79.1	1.3527	1.51510
0.10649	79.2	1.3534	1.51580
0.10644	79.3	1.3540	1.51650
0.10639	79.4	1.3547	1.51720
0.10634	79.5	1.3553	1.51790
0.10629	79.6	1.3559	1.51860
0.10624	79.7	1.3566	1.51940
0.10618	79.8	1.3572	1.52010
0.10613	79.9	1.3579	1.52080
0.10608	80.0	1.3585	1.52150
0.10603	80.1	1.3592	1.52220
0.10598	80.2	1.3598	1.52300
0.10593	80.3	1.3604	1.52370
0.10588	80.4	1.3611	1.52440
0.10583	80.5	1.3617	1.52510
0.10578	80.6	1.3624	1.52580
0.10573	80.7	1.3630	1.52660
0.10568	80.8	1.3636	1.52730
0.10563	80.9	1.3643	1.52800
0.10558	81.0	1.3649	1.52870
0.10553	81.1	1.3656	1.52940
0.10548	81.2	1.3662	1.53020
0.10543	81.3	1.3669	1.53090
0.10539	81.4	1.3675	1.53160
0.10534	81.5	1.3681	1.53230
0.10529	81.6	1.3688	1.53300
0.10524	81.7	1.3694	1.53380
0.10519	81.8	1.3701	1.53450
0.10514	81.9	1.3707	1.53520
0.10509	82.0	1.3714	1.53590
0.10504	82.1	1.3720	1.53660

0.10499	82.2	1.3726	1.53740
0.10494	82.3	1.3733	1.53810
0.10489	82.4	1.3739	1.53880
0.10484	82.5	1.3746	1.53950
0.10479	82.6	1.3752	1.54020
0.10474	82.7	1.3759	1.54100
0.10470	82.8	1.3765	1.54170
0.10465	82.9	1.3771	1.54240
0.10460	83.0	1.3778	1.54310
0.10455	83.1	1.3784	1.54380
0.10450	83.2	1.3791	1.54460
0.10445	83.3	1.3797	1.54530
0.10440	83.4	1.3804	1.54600
0.10435	83.5	1.3810	1.54670
0.10431	83.6	1.3816	1.54740
0.10426	83.7	1.3823	1.54820
0.10421	83.8	1.3829	1.54890
0.10416	83.9	1.3836	1.54960
0.10411	84.0	1.3842	1.55030
0.10406	84.1	1.3849	1.55100
0.10401	84.2	1.3855	1.55180
0.10397	84.3	1.3861	1.55250
0.10392	84.4	1.3868	1.55320
0.10387	84.5	1.3874	1.55390
0.10382	84.6	1.3881	1.55460
0.10377	84.7	1.3887	1.55540
0.10373	84.8	1.3894	1.55610
0.10368	84.9	1.3900	1.55680
0.10363	85.0	1.3906	1.55750

ASTM Table 21	
API Gravity (60°F)	Density (15°C)
38.98	829.6
38.88	**830.1**
38.78	830.6

ASTM Table 22		
Relative Density (60/60°F)	Litres @15°C per US Gallon @60°F	Relative Density (60/60°F)
0.821	3.7836	0.8
0.8305	**3.7836**	**0.8305**
0.844	3.7836	0.859

ASTM Table 21	
API Gravity (60°F)	**Density** (15°C)
84.86	653.9
84.53	654.9
84.20	655.9
83.87	656.9
83.55	657.9
83.22	658.9
82.89	659.9
82.57	660.9
82.25	661.9
81.92	662.9
81.60	663.9
81.28	664.9
80.96	665.9
80.64	666.9
80.33	667.9
80.01	668.9
79.69	669.9
79.38	670.9
79.07	671.9
78.75	672.9
78.44	673.9
78.13	674.9
77.82	675.9
77.51	676.9
77.20	677.9
76.89	678.9
76.59	679.9
76.28	680.9
75.98	681.9
75.67	682.9
75.37	683.8
75.07	684.8
74.77	685.8
74.47	686.8

ASTM Table 22		
Relative Density (60/60°F)	**Litres @15°C per US Gallon @60°F**	**Relative Density** (60/60°F)
0.654	3.7823	0.656
0.661	3.7823	0.683
0.662	3.7824	0.684
0.675	3.7824	0.722
0.676	3.7825	0.723
0.691	3.7825	0.768
0.692	3.7826	0.769
0.707	3.7826	0.780
0.708	3.7827	0.781
0.724	3.7827	0.799
0.725	3.7828	0.800
0.743	3.7828	0.859
0.744	3.7829	0.860
0.763	3.7829	0.864
0.764	3.7830	0.865
0.773	3.7830	1.075
0.774	3.7831	
0.777	3.7831	
0.778	3.7832	
0.781	3.7832	
0.782	3.7833	
0.786	3.7833	
0.787	3.7834	
0.798	3.7834	
0.799	3.7835	
0.820	3.7835	
0.821	3.7836	
0.844	3.7836	
0.845	3.7837	
0.883	3.7837	
0.884	3.7838	
0.926	3.7838	
0.927	3.7839	
0.975	3.7839	
0.976	3.7840	
1.031	3.7840	
1.032	3.7841	
1.075	3.7841	

74.17	687.8
73.87	688.8
73.57	689.8
73.28	690.8
72.98	691.8
72.68	692.8
72.39	693.8
72.10	694.8
71.80	695.8
71.51	696.8
71.22	697.8
70.93	698.8
70.64	699.8
70.35	700.8
70.07	701.8
69.78	702.8
69.49	703.8
69.21	704.8
68.92	705.8
68.64	706.8
68.36	707.8
68.08	708.8
67.80	709.8
67.52	710.8
67.24	711.8
66.96	712.8
66.68	713.8
66.40	714.8
66.13	715.8
65.85	716.8
65.58	717.8
65.30	718.8
65.03	719.8
64.76	720.8
64.48	721.8
64.21	722.8
63.94	723.8
63.67	724.8
63.40	725.8
63.14	726.8
62.87	727.8
62.60	728.8
62.34	729.8
62.07	730.8
61.81	731.8
61.54	732.8
61.28	733.8
61.02	734.8
60.76	735.8
60.49	736.8
60.23	737.8
59.97	738.8
59.72	739.8
59.46	740.8
59.20	741.8
58.94	742.8

58.69	743.8
58.43	744.8
58.18	745.8
57.92	746.8
57.67	747.8
57.42	748.8
57.17	749.8
56.92	750.8
56.66	751.8
56.42	752.8
56.17	753.8
55.92	754.8
55.67	755.8
55.42	756.8
55.18	757.7
54.93	758.7
54.68	759.7
54.44	760.7
54.20	761.7
53.95	762.7
53.71	763.7
53.47	764.7
53.23	765.7
52.99	766.7
52.74	767.7
52.51	768.7
52.27	769.7
52.03	770.7
51.79	771.7
51.55	772.7
51.32	773.7
51.08	774.7
50.85	775.7
50.61	776.7
50.38	777.7
50.14	778.7
49.91	779.7
49.68	780.7
49.45	781.7
49.22	782.7
48.98	783.7
48.75	784.7
48.53	785.7
48.30	786.6
48.07	787.6
47.84	788.6
47.61	789.6
47.39	790.6
47.16	791.6
46.94	792.6
46.71	793.6
46.49	794.6
46.26	795.6
46.04	796.6
45.82	797.6
45.60	798.6

45.38	799.6
45.15	800.6
44.93	801.6
44.71	802.6
44.50	803.6
44.28	804.6
44.06	805.6
43.84	806.6
43.62	807.6
43.41	808.6
43.19	809.6
42.98	810.6
42.76	811.6
42.55	812.6
42.33	813.6
42.12	814.6
41.91	815.6
41.69	816.6
41.48	817.6
41.27	818.6
41.06	819.6
40.85	820.6
40.64	821.6
40.43	822.6
40.22	823.6
40.02	824.6
39.81	825.6
39.60	826.6
39.39	827.6
39.19	828.6
38.98	829.6
38.78	830.6
38.57	831.6
38.37	832.6
38.16	833.6
37.96	834.6
37.76	835.6
37.56	836.6
37.35	837.6
37.15	838.6
36.95	839.6
36.75	840.6
36.55	841.6
36.35	842.6
36.15	843.6
35.96	844.6
35.76	845.6
35.56	846.6
35.36	847.6
35.17	848.6
34.97	849.6
34.77	850.6
34.58	851.6
34.39	852.5
34.19	853.5
34.00	854.5

33.80	855.5
33.61	856.5
33.42	857.5
33.23	858.5
33.03	859.5
32.84	860.5
32.65	861.5
32.46	862.5
32.27	863.5
32.08	864.5
31.89	865.5
31.71	866.5
31.52	867.5
31.33	868.5
31.14	869.5
30.96	870.5
30.77	871.5
30.58	872.5
30.40	873.5
30.21	874.5
30.03	875.5
29.85	876.5
29.66	877.5
29.48	878.5
29.30	879.5
29.11	880.5
28.93	881.5
28.75	882.5
28.57	883.5
28.39	884.5
28.21	885.5
28.03	886.5
27.85	887.5
27.67	888.5
27.49	889.5
27.31	890.5
27.13	891.5
26.95	892.5
26.78	893.5
26.60	894.5
26.42	895.5
26.25	896.5
26.07	897.5
25.90	898.5
25.72	899.5
25.55	900.5
25.37	901.5
25.20	902.5
25.03	903.5
24.85	904.5
24.68	905.5
24.51	906.5
24.34	907.5
24.17	908.5
23.99	909.5
23.82	910.5

23.65	911.5
23.48	912.5
23.31	913.5
23.14	914.5
22.98	915.5
22.81	916.5
22.64	917.5
22.47	918.5
22.30	919.5
22.14	920.5
21.97	921.5
21.80	922.5
21.64	923.5
21.47	924.5
21.31	925.5
21.14	926.5
20.98	927.5
20.81	928.5
20.65	929.5
20.49	930.5
20.32	931.5
20.16	932.5
20.00	933.5
19.84	934.5
19.68	935.5
19.51	936.5
19.35	937.5
19.19	938.5
19.03	939.5
18.87	940.5
18.71	941.4
18.55	942.4
18.39	943.4
18.24	944.4
18.08	945.4
17.92	946.4
17.76	947.4
17.60	948.4
17.45	949.4
17.29	950.4
17.13	951.4
16.98	952.4
16.82	953.4
16.67	954.4
16.51	955.4
16.36	956.4
16.20	957.4
16.05	958.4
15.90	959.4
15.74	960.4
15.59	961.4
15.44	962.4
15.28	963.4
15.13	964.4
14.98	965.4
14.83	966.4

14.68	967.4
14.53	968.4
14.38	969.4
14.23	970.4
14.08	971.4
13.93	972.4
13.78	973.4
13.63	974.4
13.48	975.4
13.33	976.4
13.18	977.4
13.04	978.4
12.89	979.4
12.74	980.4
12.59	981.4
12.45	982.4
12.30	983.4
12.15	984.4
12.01	985.4
11.86	986.4
11.72	987.4
11.57	988.4
11.43	989.4
11.29	990.4
11.14	991.4
11.00	992.4
10.85	993.4
10.71	994.4
10.57	995.4
10.43	996.4
10.28	997.4
10.14	998.4
10.00	999.4
9.86	1000.4
9.72	1001.4
9.58	1002.4
9.44	1003.4
9.30	1004.4
9.16	1005.4
9.02	1006.4
8.88	1007.4
8.74	1008.4
8.60	1009.4
8.46	1010.4
8.32	1011.4
8.18	1012.4
8.05	1013.4
7.91	1014.4
7.77	1015.4
7.63	1016.4
7.50	1017.4
7.36	1018.4
7.23	1019.4
7.09	1020.4
6.95	1021.4
6.82	1022.4

6.68	1023.4
6.55	1024.4
6.41	1025.4
6.28	1026.4
6.15	1027.4
6.01	1028.4
5.88	1029.4
5.75	1030.4
5.61	1031.4
5.48	1032.4
5.35	1033.3
5.21	1034.3
5.08	1035.3
4.95	1036.3
4.82	1037.3
4.69	1038.3
4.56	1039.3
4.43	1040.3
4.30	1041.3
4.17	1042.3
4.04	1043.3
3.91	1044.3
3.78	1045.3
3.65	1046.3
3.52	1047.3
3.39	1048.3
3.26	1049.3
3.13	1050.3
3.01	1051.3
2.88	1052.3
2.75	1053.3
2.62	1054.3
2.50	1055.3
2.37	1056.3
2.24	1057.3
2.12	1058.3
1.99	1059.3
1.86	1060.3
1.74	1061.3
1.61	1062.3
1.49	1063.3
1.36	1064.3
1.24	1065.3
1.11	1066.3
0.99	1067.3
0.87	1068.3
0.74	1069.3
0.62	1070.3
0.50	1071.3
0.37	1072.3
0.25	1073.3
0.13	1074.3

Cubic Mtrs @15°C per Barrel @60°F	ASTM Table 26 Relative Density (60/60°F)	Pounds per US Gallon	US Gallons per Pound	Relative Density (60/60°F)
0.15891	0.83	6.9107	0.14470	0.83
0.15891	**0.8305**	**6.9149**	**0.14462**	**0.8305**
0.15891	0.831	6.9190	0.14453	0.831

Cubic Mtrs @15°C per Barrel @60°F	**ASTM Table 26 Relative Density (60/60°F)**	**Pounds per US Gallon**	**US Gallons per Pound**	**Relative Density (60/60°F)**
0.15886	0.650			0.650
0.15886	0.651			0.651
0.15887	0.652			0.652
0.15887	0.653			0.653
0.15888	0.654	5.4431	0.18372	0.654
0.15888	0.655	5.4515	0.18344	0.655
0.15889	0.656	5.4598	0.18316	0.656
0.15889	0.657	5.4681	0.18288	0.657
0.15890	0.658	5.4765	0.1826	0.658
0.15890	0.659	5.4848	0.18232	0.659
0.15891	0.660	5.4932	0.18204	0.660
0.15891	0.661	5.5015	0.18177	0.661
0.15892	0.662	5.5098	0.18149	0.662
0.15892	0.663	5.5182	0.18122	0.663
0.15893	0.664	5.5265	0.18095	0.664
0.15893	0.665	5.5349	0.18067	0.665
	0.666	5.5432	0.1804	0.666
	0.667	5.5515	0.18013	0.667
	0.668	5.5599	0.17986	0.668
	0.669	5.5682	0.17959	0.669
	0.670	5.5765	0.17932	0.670
	0.671	5.5849	0.17905	0.671
	0.672	5.5932	0.17879	0.672
	0.673	5.6016	0.17852	0.673
	0.674	5.6099	0.17826	0.674
	0.675	5.6182	0.17799	0.675
	0.676	5.6266	0.17773	0.676
	0.677	5.6349	0.17746	0.677
	0.678	5.6433	0.1772	0.678
	0.679	5.6516	0.17694	0.679
	0.680	5.6599	0.17668	0.680
	0.681	5.6683	0.17642	0.681
	0.682	5.6766	0.17616	0.682
	0.683	5.6849	0.1759	0.683
	0.684	5.6933	0.17565	0.684
	0.685	5.7016	0.17539	0.685
	0.686	5.71	0.17513	0.686
	0.687	5.7183	0.17488	0.687

0.688	5.7266	0.17462	0.688
0.689	5.735	0.17437	0.689
0.690	5.7433	0.17412	0.690
0.691	5.7517	0.17386	0.691
0.692	5.76	0.17361	0.692
0.693	5.7683	0.17336	0.693
0.694	5.7767	0.17311	0.694
0.695	5.785	0.17286	0.695
0.696	5.7933	0.17261	0.696
0.697	5.8017	0.17236	0.697
0.698	5.81	0.17212	0.698
0.699	5.8184	0.17187	0.699
0.700	5.8267	0.17162	0.700
0.701	5.835	0.17138	0.701
0.702	5.8434	0.17113	0.702
0.703	5.8517	0.17089	0.703
0.704	5.8601	0.17065	0.704
0.705	5.8684	0.1704	0.705
0.706	5.8767	0.17016	0.706
0.707	5.8851	0.16992	0.707
0.708	5.8934	0.16968	0.708
0.709	5.9017	0.16944	0.709
0.710	5.9101	0.1692	0.710
0.711	5.9184	0.16896	0.711
0.712	5.9268	0.16873	0.712
0.713	5.9351	0.16849	0.713
0.714	5.9434	0.16825	0.714
0.715	5.9518	0.16802	0.715
0.716	5.9601	0.16778	0.716
0.717	5.9685	0.16755	0.717
0.718	5.9768	0.16731	0.718
0.719	5.9851	0.16708	0.719
0.720	5.9935	0.16685	0.720
0.721	6.0018	0.16662	0.721
0.722	6.0101	0.16639	0.722
0.723	6.0185	0.16615	0.723
0.724	6.0268	0.16592	0.724
0.725	6.0352	0.1657	0.725
0.726	6.0435	0.16547	0.726
0.727	6.0518	0.16524	0.727
0.728	6.0602	0.16501	0.728
0.729	6.0685	0.16479	0.729
0.730	6.0769	0.16456	0.730
0.731	6.0852	0.16433	0.731
0.732	6.0935	0.16411	0.732
0.733	6.1019	0.16388	0.733
0.734	6.1102	0.16366	0.734
0.735	6.1185	0.16344	0.735
0.736	6.1269	0.16322	0.736
0.737	6.1352	0.16299	0.737
0.738	6.1436	0.16277	0.738
0.739	6.1519	0.16255	0.739
0.740	6.1602	0.16233	0.740
0.741	6.1686	0.16211	0.741
0.742	6.1769	0.16189	0.742
0.743	6.1852	0.16167	0.743

0.744	6.1936	0.16146	0.744
0.745	6.2019	0.16124	0.745
0.746	6.2103	0.16102	0.746
0.747	6.2186	0.16081	0.747
0.748	6.2269	0.16059	0.748
0.749	6.2353	0.16038	0.749
0.750	6.2436	0.16016	0.750
0.751	6.252	0.15995	0.751
0.752	6.2603	0.15974	0.752
0.753	6.2686	0.15952	0.753
0.754	6.277	0.15931	0.754
0.755	6.2853	0.1591	0.755
0.756	6.2936	0.15889	0.756
0.757	6.302	0.15868	0.757
0.758	6.3103	0.15847	0.758
0.759	6.3187	0.15826	0.759
0.760	6.327	0.15805	0.760
0.761	6.3353	0.15784	0.761
0.762	6.3437	0.15764	0.762
0.763	6.352	0.15743	0.763
0.764	6.3604	0.15722	0.764
0.765	6.3687	0.15702	0.765
0.766	6.377	0.15681	0.766
0.767	6.3854	0.15661	0.767
0.768	6.3937	0.1564	0.768
0.769	6.402	0.1562	0.769
0.770	6.4104	0.156	0.770
0.771	6.4187	0.15579	0.771
0.772	6.4271	0.15559	0.772
0.773	6.4354	0.15539	0.773
0.774	6.4437	0.15519	0.774
0.775	6.4521	0.15499	0.775
0.776	6.4604	0.15479	0.776
0.777	6.4688	0.15459	0.777
0.778	6.4771	0.15439	0.778
0.779	6.4854	0.15419	0.779
0.780	6.4938	0.15399	0.780
0.781	6.5021	0.1538	0.781
0.782	6.5104	0.1536	0.782
0.783	6.5188	0.1534	0.783
0.784	6.5271	0.15321	0.784
0.785	6.5355	0.15301	0.785
0.786	6.5438	0.15282	0.786
0.787	6.5521	0.15262	0.787
0.788	6.5605	0.15243	0.788
0.789	6.5688	0.15223	0.789
0.790	6.5772	0.15204	0.790
0.791	6.5855	0.15185	0.791
0.792	6.5938	0.15166	0.792
0.793	6.6022	0.15147	0.793
0.794	6.6105	0.15127	0.794
0.795	6.6188	0.15108	0.795
0.796	6.6272	0.15089	0.796
0.797	6.6355	0.1507	0.797
0.798	6.6439	0.15051	0.798
0.799	6.6522	0.15033	0.799

0.800	6.6605	0.15014	0.800
0.801	6.6689	0.14995	0.801
0.802	6.6772	0.14976	0.802
0.803	6.6856	0.14958	0.803
0.804	6.6939	0.14939	0.804
0.805	6.7022	0.1492	0.805
0.806	6.7106	0.14902	0.806
0.807	6.7189	0.14883	0.807
0.808	6.7272	0.14865	0.808
0.809	6.7356	0.14847	0.809
0.810	6.7439	0.14828	0.810
0.811	6.7523	0.1481	0.811
0.812	6.7606	0.14792	0.812
0.813	6.7689	0.14773	0.813
0.814	6.7773	0.14755	0.814
0.815	6.7856	0.14737	0.815
0.816	6.7939	0.14719	0.816
0.817	6.8023	0.14701	0.817
0.818	6.8106	0.14683	0.818
0.819	6.819	0.14665	0.819
0.820	6.8273	0.14647	0.820
0.821	6.8356	0.14629	0.821
0.822	6.844	0.14611	0.822
0.823	6.8523	0.14594	0.823
0.824	6.8607	0.14576	0.824
0.825	6.869	0.14558	0.825
0.826	6.8773	0.14541	0.826
0.827	6.8857	0.14523	0.827
0.828	6.894	0.14505	0.828
0.829	6.9023	0.14488	0.829
0.830	6.9107	0.1447	0.830
0.831	6.919	0.14453	0.831
0.832	6.9274	0.14436	0.832
0.833	6.9357	0.14418	0.833
0.834	6.944	0.14401	0.834
0.835	6.9524	0.14384	0.835
0.836	6.9607	0.14366	0.836
0.837	6.9691	0.14349	0.837
0.838	6.9774	0.14332	0.838
0.839	6.9857	0.14315	0.839
0.840	6.9941	0.14298	0.840
0.841	7.0024	0.14281	0.841
0.842	7.0107	0.14264	0.842
0.843	7.0191	0.14247	0.843
0.844	7.0274	0.1423	0.844
0.845	7.0358	0.14213	0.845
0.846	7.0441	0.14196	0.846
0.847	7.0524	0.14179	0.847
0.848	7.0608	0.14163	0.848
0.849	7.0691	0.14146	0.849
0.850	7.0775	0.14129	0.850
0.851	7.0858	0.14113	0.851
0.852	7.0941	0.14096	0.852
0.853	7.1025	0.1408	0.853
0.854	7.1108	0.14063	0.854
0.855	7.1191	0.14047	0.855

0.856	7.1275	0.1403	0.856
0.857	7.1358	0.14014	0.857
0.858	7.1442	0.13997	0.858
0.859	7.1525	0.13981	0.859
0.860	7.1608	0.13965	0.860
0.861	7.1692	0.13949	0.861
0.862	7.1775	0.13932	0.862
0.863	7.1859	0.13916	0.863
0.864	7.1942	0.139	0.864
0.865	7.2025	0.13884	0.865
0.866	7.2109	0.13868	0.866
0.867	7.2192	0.13852	0.867
0.868	7.2275	0.13836	0.868
0.869	7.2359	0.1382	0.869
0.870	7.2442	0.13804	0.870
0.871	7.2526	0.13788	0.871
0.872	7.2609	0.13772	0.872
0.873	7.2692	0.13757	0.873
0.874	7.2776	0.13741	0.874
0.875	7.2859	0.13725	0.875
0.876	7.2943	0.13709	0.876
0.877	7.3026	0.13694	0.877
0.878	7.3109	0.13678	0.878
0.879	7.3193	0.13663	0.879
0.880	7.3276	0.13647	0.880
0.881	7.3359	0.13632	0.881
0.882	7.3443	0.13616	0.882
0.883	7.3526	0.13601	0.883
0.884	7.361	0.13585	0.884
0.885	7.3693	0.1357	0.885
0.886	7.3776	0.13554	0.886
0.887	7.386	0.13539	0.887
0.888	7.3943	0.13524	0.888
0.889	7.4027	0.13509	0.889
0.890	7.411	0.13493	0.890
0.891	7.4193	0.13478	0.891
0.892	7.4277	0.13463	0.892
0.893	7.436	0.13448	0.893
0.894	7.4443	0.13433	0.894
0.895	7.4527	0.13418	0.895
0.896	7.461	0.13403	0.896
0.897	7.4694	0.13388	0.897
0.898	7.4777	0.13373	0.898
0.899	7.486	0.13358	0.899
0.900	7.4944	0.13343	0.900
0.901	7.5027	0.13329	0.901
0.902	7.511	0.13314	0.902
0.903	7.5194	0.13299	0.903
0.904	7.5277	0.13284	0.904
0.905	7.5361	0.1327	0.905
0.906	7.5444	0.13255	0.906
0.907	7.5527	0.1324	0.907
0.908	7.5611	0.13226	0.908
0.909	7.5694	0.13211	0.909
0.910	7.5778	0.13197	0.910
0.911	7.5861	0.13182	0.911

0.912	7.5944	0.13168	0.912
0.913	7.6028	0.13153	0.913
0.914	7.6111	0.13139	0.914
0.915	7.6194	0.13124	0.915
0.916	7.6278	0.1311	0.916
0.917	7.6361	0.13096	0.917
0.918	7.6445	0.13081	0.918
0.919	7.6528	0.13067	0.919
0.920	7.6611	0.13053	0.920
0.921	7.6695	0.13039	0.921
0.922	7.6778	0.13025	0.922
0.923	7.6862	0.1301	0.923
0.924	7.6945	0.12996	0.924
0.925	7.7028	0.12982	0.925
0.926	7.7112	0.12968	0.926
0.927	7.7195	0.12954	0.927
0.928	7.7278	0.1294	0.928
0.929	7.7362	0.12926	0.929
0.930	7.7445	0.12912	0.930
0.931	7.7529	0.12898	0.931
0.932	7.7612	0.12885	0.932
0.933	7.7695	0.12871	0.933
0.934	7.7779	0.12857	0.934
0.935	7.7862	0.12843	0.935
0.936	7.7946	0.12829	0.936
0.937	7.8029	0.12816	0.937
0.938	7.8112	0.12802	0.938
0.939	7.8196	0.12788	0.939
0.940	7.8279	0.12775	0.940
0.941	7.8362	0.12761	0.941
0.942	7.8446	0.12748	0.942
0.943	7.8529	0.12734	0.943
0.944	7.8613	0.12721	0.944
0.945	7.8696	0.12707	0.945
0.946	7.8779	0.12694	0.946
0.947	7.8863	0.1268	0.947
0.948	7.8946	0.12667	0.948
0.949	7.903	0.12653	0.949
0.950	7.9113	0.1264	0.950
0.951	7.9196	0.12627	0.951
0.952	7.928	0.12614	0.952
0.953	7.9363	0.126	0.953
0.954	7.9446	0.12587	0.954
0.955	7.953	0.12574	0.955
0.956	7.9613	0.12561	0.956
0.957	7.9697	0.12548	0.957
0.958	7.978	0.12534	0.958
0.959	7.9863	0.12521	0.959
0.960	7.9947	0.12508	0.960
0.961	8.003	0.12495	0.961
0.962	8.0114	0.12482	0.962
0.963	8.0197	0.12469	0.963
0.964	8.028	0.12456	0.964
0.965	8.0364	0.12443	0.965
0.966	8.0447	0.12431	0.966
0.967	8.053	0.12418	0.967

0.968	8.0614	0.12405	0.968
0.969	8.0697	0.12392	0.969
0.970	8.0781	0.12379	0.970
0.971	8.0864	0.12366	0.971
0.972	8.0947	0.12354	0.972
0.973	8.1031	0.12341	0.973
0.974	8.1114	0.12328	0.974
0.975	8.1198	0.12316	0.975
0.976	8.1281	0.12303	0.976
0.977	8.1364	0.1229	0.977
0.978	8.1448	0.12278	0.978
0.979	8.1531	0.12265	0.979
0.980	8.1614	0.12253	0.980
0.981	8.1698	0.1224	0.981
0.982	8.1781	0.12228	0.982
0.983	8.1865	0.12215	0.983
0.984	8.1948	0.12203	0.984
0.985	8.2031	0.1219	0.985
0.986	8.2115	0.12178	0.986
0.987	8.2198	0.12166	0.987
0.988	8.2281	0.12153	0.988
0.989	8.2365	0.12141	0.989
0.990	8.2448	0.12129	0.990
0.991	8.2532	0.12117	0.991
0.992	8.2615	0.12104	0.992
0.993	8.2698	0.12092	0.993
0.994	8.2782	0.1208	0.994
0.995	8.2865	0.12068	0.995
0.996	8.2949	0.12056	0.996
0.997	8.3032	0.12044	0.997
0.998	8.3115	0.12031	0.998
0.999	8.3199	0.12019	0.999
1.000	8.3282	0.12007	1.000
1.001	8.3365	0.11995	1.001
1.002	8.3449	0.11983	1.002
1.003	8.3532	0.11971	1.003
1.004	8.3616	0.11959	1.004
1.005	8.3699	0.11948	1.005
1.006	8.3782	0.11936	1.006
1.007	8.3866	0.11924	1.007
1.008	8.3949	0.11912	1.008
1.009	8.4033	0.119	1.009
1.010	8.4116	0.11888	1.010
1.011	8.4199	0.11877	1.011
1.012	8.4283	0.11865	1.012
1.013	8.4366	0.11853	1.013
1.014	8.4449	0.11841	1.014
1.015	8.4533	0.1183	1.015
1.016	8.4616	0.11818	1.016
1.017	8.47	0.11806	1.017
1.018	8.4783	0.11795	1.018
1.019	8.4866	0.11783	1.019
1.020	8.495	0.11772	1.020
1.021	8.5033	0.1176	1.021
1.022	8.5117	0.11749	1.022
1.023	8.52	0.11737	1.023

1.024	8.5283	0.11726	1.024
1.025	8.5367	0.11714	1.025
1.026	8.545	0.11703	1.026
1.027	8.5533	0.11691	1.027
1.028	8.5617	0.1168	1.028
1.029	8.57	0.11669	1.029
1.030	8.5784	0.11657	1.030
1.031	8.5867	0.11646	1.031
1.032	8.595	0.11635	1.032
1.033	8.6034	0.11623	1.033
1.034	8.6117	0.11612	1.034
1.035	8.6201	0.11601	1.035
1.036	8.6284	0.1159	1.036
1.037	8.6367	0.11578	1.037
1.038	8.6451	0.11567	1.038
1.039	8.6534	0.11556	1.039
1.040	8.6617	0.11545	1.040
1.041	8.6701	0.11534	1.041
1.042	8.6784	0.11523	1.042
1.043	8.6868	0.11512	1.043
1.044	8.6951	0.11501	1.044
1.045	8.7034	0.1149	1.045
1.046	8.7118	0.11479	1.046
1.047	8.7201	0.11468	1.047
1.048	8.7285	0.11457	1.048
1.049	8.7368	0.11446	1.049
1.050	8.7451	0.11435	1.050
1.051	8.7535	0.11424	1.051
1.052	8.7618	0.11413	1.052
1.053	8.7701	0.11402	1.053
1.054	8.7785	0.11391	1.054
1.055	8.7868	0.11381	1.055
1.056	8.7952	0.1137	1.056
1.057	8.8035	0.11359	1.057
1.058	8.8118	0.11348	1.058
1.059	8.8202	0.11338	1.059
1.060	8.8285	0.11327	1.060
1.061	8.8368	0.11316	1.061
1.062	8.8452	0.11306	1.062
1.063	8.8535	0.11295	1.063
1.064	8.8619	0.11284	1.064
1.065	8.8702	0.11274	1.065
1.066	8.8785	0.11263	1.066
1.067	8.8869	0.11253	1.067
1.068	8.8952	0.11242	1.068
1.069	8.9036	0.11231	1.069
1.070	8.9119	0.11221	1.070
1.071	8.9202	0.1121	1.071
1.072	8.9286	0.112	1.072
1.073	8.9369	0.1119	1.073
1.074	8.9452	0.11179	1.074
1.075	8.9536	0.11169	1.075

ASTM Table 27	
Short Tons per 1000 US Gallons (60°F)	Short Tons per Barrel (60°F)
3.4553	0.14512
3.4574	**0.14521**
3.4595	0.14530

ASTM Table 28		
Relative Density (60/60°F)	US Gallons per Short Ton (60°F)	Barrels per Short Ton (60°F)
0.83	289.41	6.891
0.8305	**289.24**	**6.887**
0.831	289.06	6.882

ASTM Table 27	
Short Tons per 1000 US Gallons (60°F)	**Short Tons per Barrel** (60°F)
2.7216	0.11431
2.7257	0.11448
2.7299	0.11466
2.7341	0.11483
2.7382	0.11501
2.7424	0.11518
2.7466	0.11536
2.7508	0.11553
2.7549	0.11571
2.7591	0.11588
2.7633	0.11606
2.7674	0.11623
2.7716	0.11641
2.7758	0.11658
2.7799	0.11676
2.7841	0.11693
2.7883	0.11711
2.7924	0.11728
2.7966	0.11746
2.8008	0.11763
2.805	0.11781
2.8091	0.11798
2.8133	0.11816
2.8175	0.11833
2.8216	0.11851
2.8258	0.11868
2.83	0.11886
2.8341	0.11903
2.8383	0.11921
2.8425	0.11938
2.8466	0.11956
2.8508	0.11973
2.855	0.11991
2.8592	0.12008

ASTM Table 28		
Relative Density (60/60°F)	**US Gallons per Short Ton** (60°F)	**Barrels per Short Ton** (60°F)
0.650		
0.651		
0.652		
0.653		
0.654	367.44	8.748
0.655	366.87	8.735
0.656	366.31	8.722
0.657	365.75	8.708
0.658	365.2	8.695
0.659	364.64	8.682
0.660	364.09	8.669
0.661	363.54	8.656
0.662	362.99	8.643
0.663	362.44	8.629
0.664	361.89	8.616
0.665	361.35	8.603
0.666	360.8	8.591
0.667	360.26	8.578
0.668	359.72	8.565
0.669	359.18	8.552
0.670	358.64	8.539
0.671	358.11	8.526
0.672	357.58	8.514
0.673	357.04	8.501
0.674	356.51	8.488
0.675	355.98	8.476
0.676	355.46	8.463
0.677	354.93	8.451
0.678	354.41	8.438
0.679	353.88	8.426
0.680	353.36	8.413
0.681	352.84	8.401
0.682	352.32	8.389
0.683	351.81	8.376
0.684	351.29	8.364
0.685	350.78	8.352
0.686	350.27	8.34
0.687	349.75	8.327

2.8633	0.12026	0.688	349.25	8.315
2.8675	0.12043	0.689	348.74	8.303
2.8717	0.12061	0.690	348.23	8.291
2.8758	0.12078	0.691	347.73	8.279
2.88	0.12096	0.692	347.22	8.267
2.8842	0.12113	0.693	346.72	8.255
2.8883	0.12131	0.694	346.22	8.243
2.8925	0.12149	0.695	345.72	8.231
2.8967	0.12166	0.696	345.22	8.22
2.9008	0.12184	0.697	344.73	8.208
2.905	0.12201	0.698	344.23	8.196
2.9092	0.12219	0.699	343.74	8.184
2.9133	0.12236	0.700	343.25	8.173
2.9175	0.12254	0.701	342.76	8.161
2.9217	0.12271	0.702	342.27	8.149
2.9259	0.12289	0.703	341.78	8.138
2.93	0.12306	0.704	341.29	8.126
2.9342	0.12324	0.705	340.81	8.114
2.9384	0.12341	0.706	340.33	8.103
2.9425	0.12359	0.707	339.84	8.092
2.9467	0.12376	0.708	339.36	8.08
2.9509	0.12394	0.709	338.88	8.069
2.955	0.12411	0.710	338.4	8.057
2.9592	0.12429	0.711	337.93	8.046
2.9634	0.12446	0.712	337.45	8.035
2.9675	0.12464	0.713	336.98	8.023
2.9717	0.12481	0.714	336.51	8.012
2.9759	0.12499	0.715	336.03	8.001
2.9801	0.12516	0.716	335.56	7.99
2.9842	0.12534	0.717	335.1	7.978
2.9884	0.12551	0.718	334.63	7.967
2.9926	0.12569	0.719	334.16	7.956
2.9967	0.12586	0.720	333.7	7.945
3.0009	0.12604	0.721	333.23	7.934
3.0051	0.12621	0.722	332.77	7.923
3.0092	0.12639	0.723	332.31	7.912
3.0134	0.12656	0.724	331.85	7.901
3.0176	0.12674	0.725	331.39	7.89
3.0217	0.12691	0.726	330.93	7.879
3.0259	0.12709	0.727	330.48	7.869
3.0301	0.12726	0.728	330.02	7.858
3.0343	0.12744	0.729	329.57	7.847
3.0384	0.12761	0.730	329.12	7.836
3.0426	0.12779	0.731	328.67	7.825
3.0468	0.12796	0.732	328.22	7.815
3.0509	0.12814	0.733	327.77	7.804
3.0551	0.12831	0.734	327.32	7.793
3.0593	0.12849	0.735	326.88	7.783
3.0634	0.12866	0.736	326.43	7.772
3.0676	0.12884	0.737	325.99	7.762
3.0718	0.12901	0.738	325.54	7.751
3.0759	0.12919	0.739	325.1	7.741
3.0801	0.12936	0.740	324.66	7.73
3.0843	0.12954	0.741	324.22	7.72
3.0885	0.12972	0.742	323.79	7.709
3.0926	0.12989	0.743	323.35	7.699

3.0968	0.13007	0.744	322.91	7.688
3.101	0.13024	0.745	322.48	7.678
3.1051	0.13042	0.746	322.05	7.668
3.1093	0.13059	0.747	321.62	7.658
3.1135	0.13077	0.748	321.19	7.647
3.1176	0.13094	0.749	320.76	7.637
3.1218	0.13112	0.750	320.33	7.627
3.126	0.13129	0.751	319.9	7.617
3.1301	0.13147	0.752	319.47	7.607
3.1343	0.13164	0.753	319.05	7.596
3.1385	0.13182	0.754	318.63	7.586
3.1427	0.13199	0.755	318.2	7.576
3.1468	0.13217	0.756	317.78	7.566
3.151	0.13234	0.757	317.36	7.556
3.1552	0.13252	0.758	316.94	7.546
3.1593	0.13269	0.759	316.52	7.536
3.1635	0.13287	0.760	316.11	7.526
3.1677	0.13304	0.761	315.69	7.516
3.1718	0.13322	0.762	315.27	7.507
3.176	0.13339	0.763	314.86	7.497
3.1802	0.13357	0.764	314.45	7.487
3.1843	0.13374	0.765	314.04	7.477
3.1885	0.13392	0.766	313.63	7.467
3.1927	0.13409	0.767	313.22	7.458
3.1969	0.13427	0.768	312.81	7.448
3.201	0.13444	0.769	312.4	7.438
3.2052	0.13462	0.770	311.99	7.428
3.2094	0.13479	0.771	311.59	7.419
3.2135	0.13497	0.772	311.18	7.409
3.2177	0.13514	0.773	310.78	7.4
3.2219	0.13532	0.774	310.38	7.39
3.226	0.13549	0.775	309.98	7.38
3.2302	0.13567	0.776	309.58	7.371
3.2344	0.13584	0.777	309.18	7.361
3.2385	0.13602	0.778	308.78	7.352
3.2427	0.13619	0.779	308.38	7.342
3.2469	0.13637	0.780	307.99	7.333
3.2511	0.13654	0.781	307.59	7.324
3.2552	0.13672	0.782	307.2	7.314
3.2594	0.13689	0.783	306.81	7.305
3.2636	0.13707	0.784	306.41	7.296
3.2677	0.13724	0.785	306.02	7.286
3.2719	0.13742	0.786	305.63	7.277
3.2761	0.13759	0.787	305.24	7.268
3.2802	0.13777	0.788	304.86	7.258
3.2844	0.13795	0.789	304.47	7.249
3.2886	0.13812	0.790	304.08	7.24
3.2927	0.1383	0.791	303.7	7.231
3.2969	0.13847	0.792	303.31	7.222
3.3011	0.13865	0.793	302.93	7.213
3.3053	0.13882	0.794	302.55	7.204
3.3094	0.139	0.795	302.17	7.194
3.3136	0.13917	0.796	301.79	7.185
3.3178	0.13935	0.797	301.41	7.176
3.3219	0.13952	0.798	301.03	7.167
3.3261	0.1397	0.799	300.65	7.158

3.3303	0.13987	0.800	300.28	7.149
3.3344	0.14005	0.801	299.9	7.14
3.3386	0.14022	0.802	299.53	7.132
3.3428	0.1404	0.803	299.15	7.123
3.3469	0.14057	0.804	298.78	7.114
3.3511	0.14075	0.805	298.41	7.105
3.3553	0.14092	0.806	298.04	7.096
3.3595	0.1411	0.807	297.67	7.087
3.3636	0.14127	0.808	297.3	7.079
3.3678	0.14145	0.809	296.93	7.07
3.372	0.14162	0.810	296.56	7.061
3.3761	0.1418	0.811	296.2	7.052
3.3803	0.14197	0.812	295.83	7.044
3.3845	0.14215	0.813	295.47	7.035
3.3886	0.14232	0.814	295.1	7.026
3.3928	0.1425	0.815	294.74	7.018
3.397	0.14267	0.816	294.38	7.009
3.4011	0.14285	0.817	294.02	7
3.4053	0.14302	0.818	293.66	6.992
3.4095	0.1432	0.819	293.3	6.983
3.4137	0.14337	0.820	292.94	6.975
3.4178	0.14355	0.821	292.58	6.966
3.422	0.14372	0.822	292.23	6.958
3.4262	0.1439	0.823	291.87	6.949
3.4303	0.14407	0.824	291.52	6.941
3.4345	0.14425	0.825	291.16	6.932
3.4387	0.14442	0.826	290.81	6.924
3.4428	0.1446	0.827	290.46	6.916
3.447	0.14477	0.828	290.11	6.907
3.4512	0.14495	0.829	289.76	6.899
3.4553	0.14512	0.830	289.41	6.891
3.4595	0.1453	0.831	289.06	6.882
3.4637	0.14547	0.832	288.71	6.874
3.4679	0.14565	0.833	288.36	6.866
3.472	0.14582	0.834	288.02	6.858
3.4762	0.146	0.835	287.67	6.849
3.4804	0.14618	0.836	287.33	6.841
3.4845	0.14635	0.837	286.98	6.833
3.4887	0.14653	0.838	286.64	6.825
3.4929	0.1467	0.839	286.3	6.817
3.497	0.14688	0.840	285.96	6.808
3.5012	0.14705	0.841	285.62	6.8
3.5054	0.14723	0.842	285.28	6.792
3.5095	0.1474	0.843	284.94	6.784
3.5137	0.14758	0.844	284.6	6.776
3.5179	0.14775	0.845	284.26	6.768
3.5221	0.14793	0.846	283.93	6.76
3.5262	0.1481	0.847	283.59	6.752
3.5304	0.14828	0.848	283.25	6.744
3.5346	0.14845	0.849	282.92	6.736
3.5387	0.14863	0.850	282.59	6.728
3.5429	0.1488	0.851	282.25	6.72
3.5471	0.14898	0.852	281.92	6.712
3.5512	0.14915	0.853	281.59	6.705
3.5554	0.14933	0.854	281.26	6.697
3.5596	0.1495	0.855	280.93	6.689

3.5637	0.14968	0.856	280.6	6.681
3.5679	0.14985	0.857	280.28	6.673
3.5721	0.15003	0.858	279.95	6.665
3.5762	0.1502	0.859	279.62	6.658
3.5804	0.15038	0.860	279.3	6.65
3.5846	0.15055	0.861	278.97	6.642
3.5888	0.15073	0.862	278.65	6.634
3.5929	0.1509	0.863	278.32	6.627
3.5971	0.15108	0.864	278	6.619
3.6013	0.15125	0.865	277.68	6.611
3.6054	0.15143	0.866	277.36	6.604
3.6096	0.1516	0.867	277.04	6.596
3.6138	0.15178	0.868	276.72	6.589
3.6179	0.15195	0.869	276.4	6.581
3.6221	0.15213	0.870	276.08	6.573
3.6263	0.1523	0.871	275.76	6.566
3.6304	0.15248	0.872	275.45	6.558
3.6346	0.15265	0.873	275.13	6.551
3.6388	0.15283	0.874	274.82	6.543
3.643	0.153	0.875	274.5	6.536
3.6471	0.15318	0.876	274.19	6.528
3.6513	0.15335	0.877	273.88	6.521
3.6555	0.15353	0.878	273.56	6.513
3.6596	0.1537	0.879	273.25	6.506
3.6638	0.15388	0.880	272.94	6.499
3.668	0.15405	0.881	272.63	6.491
3.6721	0.15423	0.882	272.32	6.484
3.6763	0.15441	0.883	272.01	6.476
3.6805	0.15458	0.884	271.7	6.469
3.6846	0.15476	0.885	271.4	6.462
3.6888	0.15493	0.886	271.09	6.455
3.693	0.15511	0.887	270.78	6.447
3.6972	0.15528	0.888	270.48	6.44
3.7013	0.15546	0.889	270.17	6.433
3.7055	0.15563	0.890	269.87	6.425
3.7097	0.15581	0.891	269.57	6.418
3.7138	0.15598	0.892	269.26	6.411
3.718	0.15616	0.893	268.96	6.404
3.7222	0.15633	0.894	268.66	6.397
3.7263	0.15651	0.895	268.36	6.39
3.7305	0.15668	0.896	268.06	6.382
3.7347	0.15686	0.897	267.76	6.375
3.7388	0.15703	0.898	267.46	6.368
3.743	0.15721	0.899	267.16	6.361
3.7472	0.15738	0.900	266.87	6.354
3.7514	0.15756	0.901	266.57	6.347
3.7555	0.15773	0.902	266.27	6.34
3.7597	0.15791	0.903	265.98	6.333
3.7639	0.15808	0.904	265.68	6.326
3.768	0.15826	0.905	265.39	6.319
3.7722	0.15843	0.906	265.1	6.312
3.7764	0.15861	0.907	264.8	6.305
3.7805	0.15878	0.908	264.51	6.298
3.7847	0.15896	0.909	264.22	6.291
3.7889	0.15913	0.910	263.93	6.284
3.793	0.15931	0.911	263.64	6.277

3.7972	0.15948	0.912	263.35	6.27
3.8014	0.15966	0.913	263.06	6.263
3.8056	0.15983	0.914	262.77	6.257
3.8097	0.16001	0.915	262.49	6.25
3.8139	0.16018	0.916	262.2	6.243
3.8181	0.16036	0.917	261.91	6.236
3.8222	0.16053	0.918	261.63	6.229
3.8264	0.16071	0.919	261.34	6.222
3.8306	0.16088	0.920	261.06	6.216
3.8347	0.16106	0.921	260.77	6.209
3.8389	0.16123	0.922	260.49	6.202
3.8431	0.16141	0.923	260.21	6.195
3.8472	0.16158	0.924	259.93	6.189
3.8514	0.16176	0.925	259.64	6.182
3.8556	0.16193	0.926	259.36	6.175
3.8598	0.16211	0.927	259.08	6.169
3.8639	0.16228	0.928	258.8	6.162
3.8681	0.16246	0.929	258.53	6.155
3.8723	0.16263	0.930	258.25	6.149
3.8764	0.16281	0.931	257.97	6.142
3.8806	0.16299	0.932	257.69	6.136
3.8848	0.16316	0.933	257.42	6.129
3.8889	0.16334	0.934	257.14	6.122
3.8931	0.16351	0.935	256.86	6.116
3.8973	0.16369	0.936	256.59	6.109
3.9014	0.16386	0.937	256.32	6.103
3.9056	0.16404	0.938	256.04	6.096
3.9098	0.16421	0.939	255.77	6.09
3.914	0.16439	0.940	255.5	6.083
3.9181	0.16456	0.941	255.22	6.077
3.9223	0.16474	0.942	254.95	6.07
3.9265	0.16491	0.943	254.68	6.064
3.9306	0.16509	0.944	254.41	6.057
3.9348	0.16526	0.945	254.14	6.051
3.939	0.16544	0.946	253.87	6.045
3.9431	0.16561	0.947	253.61	6.038
3.9473	0.16579	0.948	253.34	6.032
3.9515	0.16596	0.949	253.07	6.025
3.9556	0.16614	0.950	252.8	6.019
3.9598	0.16631	0.951	252.54	6.013
3.964	0.16649	0.952	252.27	6.006
3.9682	0.16666	0.953	252.01	6
3.9723	0.16684	0.954	251.74	5.994
3.9765	0.16701	0.955	251.48	5.988
3.9807	0.16719	0.956	251.21	5.981
3.9848	0.16736	0.957	250.95	5.975
3.989	0.16754	0.958	250.69	5.969
3.9932	0.16771	0.959	250.43	5.963
3.9973	0.16789	0.960	250.17	5.956
4.0015	0.16806	0.961	249.91	5.95
4.0057	0.16824	0.962	249.65	5.944
4.0098	0.16841	0.963	249.39	5.938
4.014	0.16859	0.964	249.13	5.932
4.0182	0.16876	0.965	248.87	5.925
4.0224	0.16894	0.966	248.61	5.919
4.0265	0.16911	0.967	248.35	5.913

4.0307	0.16929	0.968	248.1	5.907
4.0349	0.16946	0.969	247.84	5.901
4.039	0.16964	0.970	247.58	5.895
4.0432	0.16981	0.971	247.33	5.889
4.0474	0.16999	0.972	247.07	5.883
4.0515	0.17016	0.973	246.82	5.877
4.0557	0.17034	0.974	246.57	5.871
4.0599	0.17051	0.975	246.31	5.865
4.064	0.17069	0.976	246.06	5.859
4.0682	0.17086	0.977	245.81	5.853
4.0724	0.17104	0.978	245.56	5.847
4.0766	0.17122	0.979	245.31	5.841
4.0807	0.17139	0.980	245.05	5.835
4.0849	0.17157	0.981	244.8	5.829
4.0891	0.17174	0.982	244.56	5.823
4.0932	0.17192	0.983	244.31	5.817
4.0974	0.17209	0.984	244.06	5.811
4.1016	0.17227	0.985	243.81	5.805
4.1057	0.17244	0.986	243.56	5.799
4.1099	0.17262	0.987	243.31	5.793
4.1141	0.17279	0.988	243.07	5.787
4.1182	0.17297	0.989	242.82	5.781
4.1224	0.17314	0.990	242.58	5.776
4.1266	0.17332	0.991	242.33	5.77
4.1308	0.17349	0.992	242.09	5.764
4.1349	0.17367	0.993	241.84	5.758
4.1391	0.17384	0.994	241.6	5.752
4.1433	0.17402	0.995	241.36	5.747
4.1474	0.17419	0.996	241.11	5.741
4.1516	0.17437	0.997	240.87	5.735
4.1558	0.17454	0.998	240.63	5.729
4.1599	0.17472	0.999	240.39	5.724
4.1641	0.17489	1.000	240.15	5.718
4.1683	0.17507	1.001	239.91	5.712
4.1724	0.17524	1.002	239.67	5.706
4.1766	0.17542	1.003	239.43	5.701
4.1808	0.17559	1.004	239.19	5.695
4.185	0.17577	1.005	238.95	5.689
4.1891	0.17594	1.006	238.71	5.684
4.1933	0.17612	1.007	238.48	5.678
4.1975	0.17629	1.008	238.24	5.672
4.2016	0.17647	1.009	238	5.667
4.2058	0.17664	1.010	237.77	5.661
4.21	0.17682	1.011	237.53	5.656
4.2141	0.17699	1.012	237.3	5.65
4.2183	0.17717	1.013	237.06	5.644
4.2225	0.17734	1.014	236.83	5.639
4.2266	0.17752	1.015	236.59	5.633
4.2308	0.17769	1.016	236.36	5.628
4.235	0.17787	1.017	236.13	5.622
4.2391	0.17804	1.018	235.9	5.617
4.2433	0.17822	1.019	235.66	5.611
4.2475	0.17839	1.020	235.43	5.606
4.2517	0.17857	1.021	235.2	5.6
4.2558	0.17874	1.022	234.97	5.595
4.26	0.17892	1.023	234.74	5.589

4.2642	0.17909	1.024	234.51	5.584
4.2683	0.17927	1.025	234.28	5.578
4.2725	0.17945	1.026	234.05	5.573
4.2767	0.17962	1.027	233.83	5.567
4.2808	0.1798	1.028	233.6	5.562
4.285	0.17997	1.029	233.37	5.556
4.2892	0.18015	1.030	233.14	5.551
4.2933	0.18032	1.031	232.92	5.546
4.2975	0.1805	1.032	232.69	5.54
4.3017	0.18067	1.033	232.47	5.535
4.3059	0.18085	1.034	232.24	5.53
4.31	0.18102	1.035	232.02	5.524
4.3142	0.1812	1.036	231.79	5.519
4.3184	0.18137	1.037	231.57	5.514
4.3225	0.18155	1.038	231.35	5.508
4.3267	0.18172	1.039	231.12	5.503
4.3309	0.1819	1.040	230.9	5.498
4.335	0.18207	1.041	230.68	5.492
4.3392	0.18225	1.042	230.46	5.487
4.3434	0.18242	1.043	230.24	5.482
4.3475	0.1826	1.044	230.01	5.477
4.3517	0.18277	1.045	229.79	5.471
4.3559	0.18295	1.046	229.57	5.466
4.3601	0.18312	1.047	229.35	5.461
4.3642	0.1833	1.048	229.14	5.456
4.3684	0.18347	1.049	228.92	5.45
4.3726	0.18365	1.050	228.7	5.445
4.3767	0.18382	1.051	228.48	5.44
4.3809	0.184	1.052	228.26	5.435
4.3851	0.18417	1.053	228.05	5.43
4.3892	0.18435	1.054	227.83	5.425
4.3934	0.18452	1.055	227.61	5.419
4.3976	0.1847	1.056	227.4	5.414
4.4017	0.18487	1.057	227.18	5.409
4.4059	0.18505	1.058	226.97	5.404
4.4101	0.18522	1.059	226.75	5.399
4.4143	0.1854	1.060	226.54	5.394
4.4184	0.18557	1.061	226.32	5.389
4.4226	0.18575	1.062	226.11	5.384
4.4268	0.18592	1.063	225.9	5.379
4.4309	0.1861	1.064	225.69	5.373
4.4351	0.18627	1.065	225.47	5.368
4.4393	0.18645	1.066	225.26	5.363
4.4434	0.18662	1.067	225.05	5.358
4.4476	0.1868	1.068	224.84	5.353
4.4518	0.18697	1.069	224.63	5.348
4.4559	0.18715	1.070	224.42	5.343
4.4601	0.18732	1.071	224.21	5.338
4.4643	0.1875	1.072	224	5.333
4.4685	0.18768	1.073	223.79	5.328
4.4726	0.18785	1.074	223.58	5.323
4.4768	0.18803	1.075	223.37	5.318

ASTM Table 29		
Relative Density (60/60°F)	Long Tons per 1000 US Gallons (60°F)	Long Tons per Barrel (60°F)
0.83	3.0851	0.12958
0.8305	**3.0870**	**0.12966**
0.831	3.0889	0.12973

ASTM Table 30	
Relative Density (60/60°F)	US Gallons per Long Ton (60°F)
0.83	324.14
0.8305	**323.95**
0.831	323.75

ASTM Table 29		
Relative Density (60/60°F)	**Long Tons per 1000 US Gallons** (60°F)	**Long Tons per Barrel** (60°F)
0.650		
0.651		
0.652		
0.653		
0.654	2.43	0.10206
0.655	2.4337	0.10222
0.656	2.4374	0.10237
0.657	2.4411	0.10253
0.658	2.4449	0.10268
0.659	2.4486	0.10284
0.660	2.4523	0.103
0.661	2.456	0.10315
0.662	2.4598	0.10331
0.663	2.4635	0.10347
0.664	2.4672	0.10362
0.665	2.4709	0.10378
0.666	2.4746	0.10393
0.667	2.4784	0.10409
0.668	2.4821	0.10425
0.669	2.4858	0.1044
0.670	2.4895	0.10456
0.671	2.4933	0.10472
0.672	2.497	0.10487
0.673	2.5007	0.10503
0.674	2.5044	0.10519
0.675	2.5081	0.10534
0.676	2.5119	0.1055
0.677	2.5156	0.10565
0.678	2.5193	0.10581
0.679	2.523	0.10597
0.680	2.5268	0.10612
0.681	2.5305	0.10628
0.682	2.5342	0.10644
0.683	2.5379	0.10659
0.684	2.5416	0.10675
0.685	2.5454	0.10691
0.686	2.5491	0.10706
0.687	2.5528	0.10722

ASTM Table 30	
Relative Density (60/60°F)	**US Gallons per Long Ton** (60°F)
0.650	
0.651	
0.652	
0.653	
0.654	411.53
0.655	410.90
0.656	410.27
0.657	409.64
0.658	409.02
0.659	408.40
0.660	407.78
0.661	407.16
0.662	406.55
0.663	405.93
0.664	405.32
0.665	404.71
0.666	404.10
0.667	403.49
0.668	402.89
0.669	402.28
0.670	401.68
0.671	401.08
0.672	400.48
0.673	399.89
0.674	399.29
0.675	398.70
0.676	398.11
0.677	397.52
0.678	396.93
0.679	396.35
0.680	395.76
0.681	395.18
0.682	394.60
0.683	394.02
0.684	393.45
0.685	392.87
0.686	392.30
0.687	391.72

0.688	2.5565	0.10737	0.688	391.15
0.689	2.5603	0.10753	0.689	390.59
0.690	2.564	0.10769	0.690	390.02
0.691	2.5677	0.10784	0.691	389.45
0.692	2.5714	0.108	0.692	388.89
0.693	2.5751	0.10816	0.693	388.33
0.694	2.5789	0.10831	0.694	387.77
0.695	2.5826	0.10847	0.695	387.21
0.696	2.5863	0.10863	0.696	386.65
0.697	2.59	0.10878	0.697	386.09
0.698	2.5938	0.10894	0.698	385.54
0.699	2.5975	0.10909	0.699	384.99
0.700	2.6012	0.10925	0.700	384.44
0.701	2.6049	0.10941	0.701	383.89
0.702	2.6086	0.10956	0.702	383.34
0.703	2.6124	0.10972	0.703	382.79
0.704	2.6161	0.10988	0.704	382.25
0.705	2.6198	0.11003	0.705	381.71
0.706	2.6235	0.11019	0.706	381.16
0.707	2.6273	0.11035	0.707	380.62
0.708	2.631	0.1105	0.708	380.09
0.709	2.6347	0.11066	0.709	379.55
0.710	2.6384	0.11081	0.710	379.01
0.711	2.6422	0.11097	0.711	378.48
0.712	2.6459	0.11113	0.712	377.95
0.713	2.6496	0.11128	0.713	377.42
0.714	2.6533	0.11144	0.714	376.89
0.715	2.657	0.1116	0.715	376.36
0.716	2.6608	0.11175	0.716	375.83
0.717	2.6645	0.11191	0.717	375.31
0.718	2.6682	0.11206	0.718	374.78
0.719	2.6719	0.11222	0.719	374.26
0.720	2.6757	0.11238	0.720	373.74
0.721	2.6794	0.11253	0.721	373.22
0.722	2.6831	0.11269	0.722	372.70
0.723	2.6868	0.11285	0.723	372.19
0.724	2.6905	0.113	0.724	371.67
0.725	2.6943	0.11316	0.725	371.16
0.726	2.698	0.11332	0.726	370.65
0.727	2.7017	0.11347	0.727	370.14
0.728	2.7054	0.11363	0.728	369.63
0.729	2.7092	0.11378	0.729	369.12
0.730	2.7129	0.11394	0.730	368.61
0.731	2.7166	0.1141	0.731	368.10
0.732	2.7203	0.11425	0.732	367.60
0.733	2.724	0.11441	0.733	367.10
0.734	2.7278	0.11457	0.734	366.60
0.735	2.7315	0.11472	0.735	366.10
0.736	2.7352	0.11488	0.736	365.60
0.737	2.7389	0.11504	0.737	365.11
0.738	2.7427	0.11519	0.738	364.61
0.739	2.7464	0.11535	0.739	364.12
0.740	2.7501	0.1155	0.740	363.62
0.741	2.7538	0.11566	0.741	363.13
0.742	2.7575	0.11582	0.742	362.64
0.743	2.7613	0.11597	0.743	362.15

0.744	2.765	0.11613	0.744	361.66
0.745	2.7687	0.11629	0.745	361.18
0.746	2.7724	0.11644	0.746	360.69
0.747	2.7762	0.1166	0.747	360.21
0.748	2.7799	0.11676	0.748	359.73
0.749	2.7836	0.11691	0.749	359.25
0.750	2.7873	0.11707	0.750	358.77
0.751	2.7911	0.11722	0.751	358.29
0.752	2.7948	0.11738	0.752	357.81
0.753	2.7985	0.11754	0.753	357.33
0.754	2.8022	0.11769	0.754	356.86
0.755	2.8059	0.11785	0.755	356.39
0.756	2.8097	0.11801	0.756	355.91
0.757	2.8134	0.11816	0.757	355.44
0.758	2.8171	0.11832	0.758	354.97
0.759	2.8208	0.11847	0.759	354.51
0.760	2.8246	0.11863	0.760	354.04
0.761	2.8283	0.11879	0.761	353.57
0.762	2.832	0.11894	0.762	353.11
0.763	2.8357	0.1191	0.763	352.64
0.764	2.8394	0.11926	0.764	352.18
0.765	2.8432	0.11941	0.765	351.72
0.766	2.8469	0.11957	0.766	351.26
0.767	2.8506	0.11973	0.767	350.80
0.768	2.8543	0.11988	0.768	350.34
0.769	2.8581	0.12004	0.769	349.89
0.770	2.8618	0.12019	0.770	349.43
0.771	2.8655	0.12035	0.771	348.98
0.772	2.8692	0.12051	0.772	348.53
0.773	2.8729	0.12066	0.773	348.07
0.774	2.8767	0.12082	0.774	347.62
0.775	2.8804	0.12098	0.775	347.18
0.776	2.8841	0.12113	0.776	346.73
0.777	2.8878	0.12129	0.777	346.28
0.778	2.8916	0.12145	0.778	345.83
0.779	2.8953	0.1216	0.779	345.39
0.780	2.899	0.12176	0.780	344.95
0.781	2.9027	0.12191	0.781	344.50
0.782	2.9064	0.12207	0.782	344.06
0.783	2.9102	0.12223	0.783	343.62
0.784	2.9139	0.12238	0.784	343.18
0.785	2.9176	0.12254	0.785	342.75
0.786	2.9213	0.1227	0.786	342.31
0.787	2.9251	0.12285	0.787	341.87
0.788	2.9288	0.12301	0.788	341.44
0.789	2.9325	0.12317	0.789	341.01
0.790	2.9362	0.12332	0.790	340.57
0.791	2.94	0.12348	0.791	340.14
0.792	2.9437	0.12363	0.792	339.71
0.793	2.9474	0.12379	0.793	339.28
0.794	2.9511	0.12395	0.794	338.85
0.795	2.9548	0.1241	0.795	338.43
0.796	2.9586	0.12426	0.796	338.00
0.797	2.9623	0.12442	0.797	337.58
0.798	2.966	0.12457	0.798	337.15
0.799	2.9697	0.12473	0.799	336.73

0.800	2.9735	0.12489	0.800	336.31
0.801	2.9772	0.12504	0.801	335.89
0.802	2.9809	0.1252	0.802	335.47
0.803	2.9846	0.12535	0.803	335.05
0.804	2.9883	0.12551	0.804	334.63
0.805	2.9921	0.12567	0.805	334.22
0.806	2.9958	0.12582	0.806	333.80
0.807	2.9995	0.12598	0.807	333.39
0.808	3.0032	0.12614	0.808	332.97
0.809	3.007	0.12629	0.809	332.56
0.810	3.0107	0.12645	0.810	332.15
0.811	3.0144	0.1266	0.811	331.74
0.812	3.0181	0.12676	0.812	331.33
0.813	3.0218	0.12692	0.813	330.92
0.814	3.0256	0.12707	0.814	330.52
0.815	3.0293	0.12723	0.815	330.11
0.816	3.033	0.12739	0.816	329.71
0.817	3.0367	0.12754	0.817	329.30
0.818	3.0405	0.1277	0.818	328.90
0.819	3.0442	0.12786	0.819	328.50
0.820	3.0479	0.12801	0.820	328.09
0.821	3.0516	0.12817	0.821	327.69
0.822	3.0553	0.12832	0.822	327.29
0.823	3.0591	0.12848	0.823	326.90
0.824	3.0628	0.12864	0.824	326.50
0.825	3.0665	0.12879	0.825	326.10
0.826	3.0702	0.12895	0.826	325.71
0.827	3.074	0.12911	0.827	325.31
0.828	3.0777	0.12926	0.828	324.92
0.829	3.0814	0.12942	0.829	324.53
0.830	3.0851	0.12958	0.830	324.14
0.831	3.0889	0.12973	0.831	323.75
0.832	3.0926	0.12989	0.832	323.36
0.833	3.0963	0.13004	0.833	322.97
0.834	3.1	0.1302	0.834	322.58
0.835	3.1037	0.13036	0.835	322.19
0.836	3.1075	0.13051	0.836	321.81
0.837	3.1112	0.13067	0.837	321.42
0.838	3.1149	0.13083	0.838	321.04
0.839	3.1186	0.13098	0.839	320.65
0.840	3.1224	0.13114	0.840	320.27
0.841	3.1261	0.1313	0.841	319.89
0.842	3.1298	0.13145	0.842	319.51
0.843	3.1335	0.13161	0.843	319.13
0.844	3.1372	0.13176	0.844	318.75
0.845	3.141	0.13192	0.845	318.37
0.846	3.1447	0.13208	0.846	318.00
0.847	3.1484	0.13223	0.847	317.62
0.848	3.1521	0.13239	0.848	317.25
0.849	3.1559	0.13255	0.849	316.87
0.850	3.1596	0.1327	0.850	316.50
0.851	3.1633	0.13286	0.851	316.13
0.852	3.167	0.13301	0.852	315.75
0.853	3.1707	0.13317	0.853	315.38
0.854	3.1745	0.13333	0.854	315.01
0.855	3.1782	0.13348	0.855	314.64

0.856	3.1819	0.13364	0.856	314.28
0.857	3.1856	0.1338	0.857	313.91
0.858	3.1894	0.13395	0.858	313.54
0.859	3.1931	0.13411	0.859	313.18
0.860	3.1968	0.13427	0.860	312.81
0.861	3.2005	0.13442	0.861	312.45
0.862	3.2042	0.13458	0.862	312.09
0.863	3.208	0.13473	0.863	311.72
0.864	3.2117	0.13489	0.864	311.36
0.865	3.2154	0.13505	0.865	311.00
0.866	3.2191	0.1352	0.866	310.64
0.867	3.2229	0.13536	0.867	310.28
0.868	3.2266	0.13552	0.868	309.93
0.869	3.2303	0.13567	0.869	309.57
0.870	3.234	0.13583	0.870	309.21
0.871	3.2377	0.13599	0.871	308.86
0.872	3.2415	0.13614	0.872	308.50
0.873	3.2452	0.1363	0.873	308.15
0.874	3.2489	0.13645	0.874	307.79
0.875	3.2526	0.13661	0.875	307.44
0.876	3.2564	0.13677	0.876	307.09
0.877	3.2601	0.13692	0.877	306.74
0.878	3.2638	0.13708	0.878	306.39
0.879	3.2675	0.13724	0.879	306.04
0.880	3.2713	0.13739	0.880	305.69
0.881	3.275	0.13755	0.881	305.35
0.882	3.2787	0.13771	0.882	305.00
0.883	3.2824	0.13786	0.883	304.65
0.884	3.2861	0.13802	0.884	304.31
0.885	3.2899	0.13817	0.885	303.96
0.886	3.2936	0.13833	0.886	303.62
0.887	3.2973	0.13849	0.887	303.28
0.888	3.301	0.13864	0.888	302.94
0.889	3.3048	0.1388	0.889	302.59
0.890	3.3085	0.13896	0.890	302.25
0.891	3.3122	0.13911	0.891	301.91
0.892	3.3159	0.13927	0.892	301.58
0.893	3.3196	0.13943	0.893	301.24
0.894	3.3234	0.13958	0.894	300.90
0.895	3.3271	0.13974	0.895	300.56
0.896	3.3308	0.13989	0.896	300.23
0.897	3.3345	0.14005	0.897	299.89
0.898	3.3383	0.14021	0.898	299.56
0.899	3.342	0.14036	0.899	299.22
0.900	3.3457	0.14052	0.900	298.89
0.901	3.3494	0.14068	0.901	298.56
0.902	3.3531	0.14083	0.902	298.23
0.903	3.3569	0.14099	0.903	297.90
0.904	3.3606	0.14114	0.904	297.57
0.905	3.3643	0.1413	0.905	297.24
0.906	3.368	0.14146	0.906	296.91
0.907	3.3718	0.14161	0.907	296.58
0.908	3.3755	0.14177	0.908	296.25
0.909	3.3792	0.14193	0.909	295.93
0.910	3.3829	0.14208	0.910	295.60
0.911	3.3866	0.14224	0.911	295.28

0.912	3.3904	0.1424	0.912	294.95
0.913	3.3941	0.14255	0.913	294.63
0.914	3.3978	0.14271	0.914	294.31
0.915	3.4015	0.14286	0.915	293.98
0.916	3.4053	0.14302	0.916	293.66
0.917	3.409	0.14318	0.917	293.34
0.918	3.4127	0.14333	0.918	293.02
0.919	3.4164	0.14349	0.919	292.70
0.920	3.4202	0.14365	0.920	292.38
0.921	3.4239	0.1438	0.921	292.07
0.922	3.4276	0.14396	0.922	291.75
0.923	3.4313	0.14412	0.923	291.43
0.924	3.435	0.14427	0.924	291.12
0.925	3.4388	0.14443	0.925	290.80
0.926	3.4425	0.14458	0.926	290.49
0.927	3.4462	0.14474	0.927	290.17
0.928	3.4499	0.1449	0.928	289.86
0.929	3.4537	0.14505	0.929	289.55
0.930	3.4574	0.14521	0.930	289.24
0.931	3.4611	0.14537	0.931	288.93
0.932	3.4648	0.14552	0.932	288.62
0.933	3.4685	0.14568	0.933	288.31
0.934	3.4723	0.14584	0.934	288.00
0.935	3.476	0.14599	0.935	287.69
0.936	3.4797	0.14615	0.936	287.38
0.937	3.4834	0.1463	0.937	287.07
0.938	3.4872	0.14646	0.938	286.77
0.939	3.4909	0.14662	0.939	286.46
0.940	3.4946	0.14677	0.940	286.16
0.941	3.4983	0.14693	0.941	285.85
0.942	3.502	0.14709	0.942	285.55
0.943	3.5058	0.14724	0.943	285.24
0.944	3.5095	0.1474	0.944	284.94
0.945	3.5132	0.14755	0.945	284.64
0.946	3.5169	0.14771	0.946	284.34
0.947	3.5207	0.14787	0.947	284.04
0.948	3.5244	0.14802	0.948	283.74
0.949	3.5281	0.14818	0.949	283.44
0.950	3.5318	0.14834	0.950	283.14
0.951	3.5355	0.14849	0.951	282.84
0.952	3.5393	0.14865	0.952	282.54
0.953	3.543	0.14881	0.953	282.25
0.954	3.5467	0.14896	0.954	281.95
0.955	3.5504	0.14912	0.955	281.66
0.956	3.5542	0.14927	0.956	281.36
0.957	3.5579	0.14943	0.957	281.07
0.958	3.5616	0.14959	0.958	280.77
0.959	3.5653	0.14974	0.959	280.48
0.960	3.5691	0.1499	0.960	280.19
0.961	3.5728	0.15006	0.961	279.89
0.962	3.5765	0.15021	0.962	279.60
0.963	3.5802	0.15037	0.963	279.31
0.964	3.5839	0.15053	0.964	279.02
0.965	3.5877	0.15068	0.965	278.73
0.966	3.5914	0.15084	0.966	278.44
0.967	3.5951	0.15099	0.967	278.16

0.968	3.5988	0.15115	0.968	277.87
0.969	3.6026	0.15131	0.969	277.58
0.970	3.6063	0.15146	0.970	277.29
0.971	3.61	0.15162	0.971	277.01
0.972	3.6137	0.15178	0.972	276.72
0.973	3.6174	0.15193	0.973	276.44
0.974	3.6212	0.15209	0.974	276.15
0.975	3.6249	0.15225	0.975	275.87
0.976	3.6286	0.1524	0.976	275.59
0.977	3.6323	0.15256	0.977	275.31
0.978	3.6361	0.15271	0.978	275.02
0.979	3.6398	0.15287	0.979	274.74
0.980	3.6435	0.15303	0.980	274.46
0.981	3.6472	0.15318	0.981	274.18
0.982	3.6509	0.15334	0.982	273.90
0.983	3.6547	0.1535	0.983	273.62
0.984	3.6584	0.15365	0.984	273.34
0.985	3.6621	0.15381	0.985	273.07
0.986	3.6658	0.15397	0.986	272.79
0.987	3.6696	0.15412	0.987	272.51
0.988	3.6733	0.15428	0.988	272.24
0.989	3.677	0.15443	0.989	271.96
0.990	3.6807	0.15459	0.990	271.69
0.991	3.6844	0.15475	0.991	271.41
0.992	3.6882	0.1549	0.992	271.14
0.993	3.6919	0.15506	0.993	270.86
0.994	3.6956	0.15522	0.994	270.59
0.995	3.6993	0.15537	0.995	270.32
0.996	3.7031	0.15553	0.996	270.05
0.997	3.7068	0.15568	0.997	269.78
0.998	3.7105	0.15584	0.998	269.51
0.999	3.7142	0.156	0.999	269.23
1.000	3.718	0.15615	1.000	268.97
1.001	3.7217	0.15631	1.001	268.70
1.002	3.7254	0.15647	1.002	268.43
1.003	3.7291	0.15662	1.003	268.16
1.004	3.7328	0.15678	1.004	267.89
1.005	3.7366	0.15694	1.005	267.63
1.006	3.7403	0.15709	1.006	267.36
1.007	3.744	0.15725	1.007	267.09
1.008	3.7477	0.1574	1.008	266.83
1.009	3.7515	0.15756	1.009	266.56
1.010	3.7552	0.15772	1.010	266.30
1.011	3.7589	0.15787	1.011	266.04
1.012	3.7626	0.15803	1.012	265.77
1.013	3.7663	0.15819	1.013	265.51
1.014	3.7701	0.15834	1.014	265.25
1.015	3.7738	0.1585	1.015	264.99
1.016	3.7775	0.15866	1.016	264.72
1.017	3.7812	0.15881	1.017	264.46
1.018	3.785	0.15897	1.018	264.20
1.019	3.7887	0.15912	1.019	263.94
1.020	3.7924	0.15928	1.020	263.69
1.021	3.7961	0.15944	1.021	263.43
1.022	3.7998	0.15959	1.022	263.17
1.023	3.8036	0.15975	1.023	262.91

1.024	3.8073	0.15991	1.024	262.65
1.025	3.811	0.16006	1.025	262.40
1.026	3.8147	0.16022	1.026	262.14
1.027	3.8185	0.16038	1.027	261.89
1.028	3.8222	0.16053	1.028	261.63
1.029	3.8259	0.16069	1.029	261.38
1.030	3.8296	0.16084	1.030	261.12
1.031	3.8333	0.161	1.031	260.87
1.032	3.8371	0.16116	1.032	260.62
1.033	3.8408	0.16131	1.033	260.36
1.034	3.8445	0.16147	1.034	260.11
1.035	3.8482	0.16163	1.035	259.86
1.036	3.852	0.16178	1.036	259.61
1.037	3.8557	0.16194	1.037	259.36
1.038	3.8594	0.1621	1.038	259.11
1.039	3.8631	0.16225	1.039	258.86
1.040	3.8668	0.16241	1.040	258.61
1.041	3.8706	0.16256	1.041	258.36
1.042	3.8743	0.16272	1.042	258.11
1.043	3.878	0.16288	1.043	257.86
1.044	3.8817	0.16303	1.044	257.62
1.045	3.8855	0.16319	1.045	257.37
1.046	3.8892	0.16335	1.046	257.12
1.047	3.8929	0.1635	1.047	256.88
1.048	3.8966	0.16366	1.048	256.63
1.049	3.9004	0.16381	1.049	256.39
1.050	3.9041	0.16397	1.050	256.14
1.051	3.9078	0.16413	1.051	255.90
1.052	3.9115	0.16428	1.052	255.66
1.053	3.9152	0.16444	1.053	255.41
1.054	3.919	0.1646	1.054	255.17
1.055	3.9227	0.16475	1.055	254.93
1.056	3.9264	0.16491	1.056	254.69
1.057	3.9301	0.16507	1.057	254.44
1.058	3.9339	0.16522	1.058	254.20
1.059	3.9376	0.16538	1.059	253.96
1.060	3.9413	0.16553	1.060	253.72
1.061	3.945	0.16569	1.061	253.48
1.062	3.9487	0.16585	1.062	253.25
1.063	3.9525	0.166	1.063	253.01
1.064	3.9562	0.16616	1.064	252.77
1.065	3.9599	0.16632	1.065	252.53
1.066	3.9636	0.16647	1.066	252.29
1.067	3.9674	0.16663	1.067	252.06
1.068	3.9711	0.16679	1.068	251.82
1.069	3.9748	0.16694	1.069	251.58
1.070	3.9785	0.1671	1.070	251.35
1.071	3.9822	0.16725	1.071	251.11
1.072	3.986	0.16741	1.072	250.88
1.073	3.9897	0.16757	1.073	250.65
1.074	3.9934	0.16772	1.074	250.41
1.075	3.9971	0.16788	1.075	250.18

	ASTM Table 31			ASTM Table 51	
Barrels per Long Ton (60°F)	Relative Density (60/60°F)	Cubic Mtrs per Short Ton	Cubic Mtrs per Long Ton	Density (15°C)	Relative Density (60/60°F)
7.718	0.83	1.0950	1.2264	830	0.8304
7.713	**0.8305**	**1.0944**	**1.2257**	**830.5**	**0.8309**
7.708	0.831	1.0937	1.2249	831	0.8314

	ASTM Table 31			ASTM Table 51	
Barrels per Long Ton (60°F)	**Relative Density** (60/60°F)	**Cubic Mtrs per Short Ton**	**Cubic Mtrs per Long Ton**	**Density** (15°C)	**Relative Density** (60/60°F)
	0.650			650	
	0.651			651	
	0.652			652	
	0.653			653	
9.798	0.654	1.3897	1.5565	654	0.6541
9.783	0.655	1.3876	1.5541	655	0.6551
9.768	0.656	1.3855	1.5518	656	0.6561
9.753	0.657	1.3834	1.5494	657	0.6571
9.739	0.658	1.3813	1.5471	658	0.6581
9.724	0.659	1.3792	1.5447	659	0.6591
9.709	0.660	1.3771	1.5424	660	0.6601
9.694	0.661	1.3750	1.5400	661	0.6611
9.68	0.662	1.3729	1.5377	662	0.6621
9.665	0.663	1.3709	1.5354	663	0.6631
9.65	0.664	1.3688	1.5331	664	0.6641
9.636	0.665	1.3667	1.5308	665	0.6651
9.621	0.666	1.3647	1.5285	666	0.6661
9.607	0.667	1.3626	1.5262	667	0.6671
9.593	0.668	1.3606	1.5239	668	0.6681
9.578	0.669	1.3586	1.5216	669	0.6691
9.564	0.670	1.3565	1.5193	670	0.6701
9.55	0.671	1.3545	1.5171	671	0.6711
9.535	0.672	1.3525	1.5148	672	0.6721
9.521	0.673	1.3505	1.5125	673	0.6731
9.507	0.674	1.3485	1.5103	674	0.6741
9.493	0.675	1.3465	1.5081	675	0.6751
9.479	0.676	1.3445	1.5058	676	0.6761
9.465	0.677	1.3425	1.5036	677	0.6771
9.451	0.678	1.3405	1.5014	678	0.6781
9.437	0.679	1.3386	1.4992	679	0.6791
9.423	0.680	1.3366	1.4970	680	0.6801
9.409	0.681	1.3346	1.4948	681	0.6811
9.395	0.682	1.3327	1.4926	682	0.6821
9.382	0.683	1.3307	1.4904	683	0.6831
9.368	0.684	1.3288	1.4882	684	0.6842
9.354	0.685	1.3268	1.4860	685	0.6852
9.34	0.686	1.3249	1.4839	686	0.6862
9.327	0.687	1.3230	1.4817	687	0.6872

9.313	0.688	1.3210	1.4796	688	0.6882
9.3	0.689	1.3191	1.4774	689	0.6892
9.286	0.690	1.3172	1.4753	690	0.6902
9.273	0.691	1.3153	1.4731	691	0.6912
9.259	0.692	1.3134	1.4710	692	0.6922
9.246	0.693	1.3115	1.4689	693	0.6932
9.233	0.694	1.3096	1.4668	694	0.6942
9.219	0.695	1.3077	1.4646	695	0.6952
9.206	0.696	1.3058	1.4625	696	0.6962
9.193	0.697	1.3040	1.4604	697	0.6972
9.18	0.698	1.3021	1.4583	698	0.6982
9.166	0.699	1.3002	1.4563	699	0.6992
9.153	0.700	1.2984	1.4542	700	0.7002
9.14	0.701	1.2965	1.4521	701	0.7012
9.127	0.702	1.2947	1.4500	702	0.7022
9.114	0.703	1.2928	1.4480	703	0.7032
9.101	0.704	1.2910	1.4459	704	0.7042
9.088	0.705	1.2892	1.4439	705	0.7052
9.075	0.706	1.2873	1.4418	706	0.7062
9.062	0.707	1.2855	1.4398	707	0.7072
9.05	0.708	1.2837	1.4377	708	0.7082
9.037	0.709	1.2819	1.4357	709	0.7092
9.024	0.710	1.2801	1.4337	710	0.7102
9.011	0.711	1.2783	1.4317	711	0.7112
8.999	0.712	1.2765	1.4297	712	0.7122
8.986	0.713	1.2747	1.4276	713	0.7132
8.973	0.714	1.2729	1.4256	714	0.7142
8.961	0.715	1.2711	1.4236	715	0.7152
8.948	0.716	1.2693	1.4217	716	0.7162
8.936	0.717	1.2676	1.4197	717	0.7172
8.923	0.718	1.2658	1.4177	718	0.7182
8.911	0.719	1.2640	1.4157	719	0.7192
8.899	0.720	1.2623	1.4138	720	0.7202
8.886	0.721	1.2605	1.4118	721	0.7212
8.874	0.722	1.2588	1.4098	722	0.7222
8.862	0.723	1.2570	1.4079	723	0.7232
8.849	0.724	1.2553	1.4059	724	0.7242
8.837	0.725	1.2536	1.4040	725	0.7252
8.825	0.726	1.2518	1.4021	726	0.7262
8.813	0.727	1.2501	1.4001	727	0.7272
8.801	0.728	1.2484	1.3982	728	0.7282
8.789	0.729	1.2467	1.3963	729	0.7292
8.776	0.730	1.2450	1.3944	730	0.7302
8.764	0.731	1.2433	1.3925	731	0.7312
8.752	0.732	1.2416	1.3906	732	0.7322
8.74	0.733	1.2399	1.3887	733	0.7332
8.729	0.734	1.2382	1.3868	734	0.7342
8.717	0.735	1.2365	1.3849	735	0.7352
8.705	0.736	1.2348	1.3830	736	0.7362
8.693	0.737	1.2331	1.3811	737	0.7372
8.681	0.738	1.2315	1.3793	738	0.7382
8.669	0.739	1.2298	1.3774	739	0.7392
8.658	0.740	1.2281	1.3755	740	0.7402
8.646	0.741	1.2265	1.3737	741	0.7412
8.634	0.742	1.2248	1.3718	742	0.7422
8.623	0.743	1.2232	1.3700	743	0.7432

8.611	0.744	1.2215	1.3681	744	0.7442
8.599	0.745	1.2199	1.3663	745	0.7452
8.588	0.746	1.2183	1.3645	746	0.7462
8.576	0.747	1.2166	1.3626	747	0.7472
8.565	0.748	1.2150	1.3608	748	0.7482
8.553	0.749	1.2134	1.3590	749	0.7492
8.542	0.750	1.2118	1.3572	750	0.7502
8.531	0.751	1.2101	1.3554	751	0.7512
8.519	0.752	1.2085	1.3536	752	0.7522
8.508	0.753	1.2069	1.3518	753	0.7532
8.497	0.754	1.2053	1.3500	754	0.7542
8.485	0.755	1.2037	1.3482	755	0.7552
8.474	0.756	1.2021	1.3464	756	0.7562
8.463	0.757	1.2005	1.3446	757	0.7573
8.452	0.758	1.1990	1.3428	758	0.7583
8.441	0.759	1.1974	1.3411	759	0.7593
8.429	0.760	1.1958	1.3393	760	0.7603
8.418	0.761	1.1942	1.3375	761	0.7613
8.407	0.762	1.1927	1.3358	762	0.7623
8.396	0.763	1.1911	1.3340	763	0.7633
8.385	0.764	1.1895	1.3323	764	0.7643
8.374	0.765	1.1880	1.3305	765	0.7653
8.363	0.766	1.1864	1.3288	766	0.7663
8.352	0.767	1.1849	1.3271	767	0.7673
8.342	0.768	1.1833	1.3253	768	0.7683
8.331	0.769	1.1818	1.3236	769	0.7693
8.32	0.770	1.1803	1.3219	770	0.7703
8.309	0.771	1.1787	1.3202	771	0.7713
8.298	0.772	1.1772	1.3185	772	0.7723
8.287	0.773	1.1757	1.3168	773	0.7733
8.277	0.774	1.1742	1.3151	774	0.7743
8.266	0.775	1.1727	1.3134	775	0.7753
8.255	0.776	1.1712	1.3117	776	0.7763
8.245	0.777	1.1697	1.3100	777	0.7773
8.234	0.778	1.1682	1.3083	778	0.7783
8.224	0.779	1.1667	1.3067	779	0.7793
8.213	0.780	1.1652	1.3050	780	0.7803
8.202	0.781	1.1637	1.3033	781	0.7813
8.192	0.782	1.1622	1.3017	782	0.7823
8.181	0.783	1.1607	1.3000	783	0.7833
8.171	0.784	1.1593	1.2984	784	0.7843
8.161	0.785	1.1578	1.2967	785	0.7853
8.15	0.786	1.1563	1.2951	786	0.7864
8.14	0.787	1.1548	1.2934	787	0.7874
8.129	0.788	1.1534	1.2918	788	0.7884
8.119	0.789	1.1519	1.2902	789	0.7894
8.109	0.790	1.1505	1.2885	790	0.7904
8.099	0.791	1.1490	1.2869	791	0.7914
8.088	0.792	1.1476	1.2853	792	0.7924
8.078	0.793	1.1461	1.2836	793	0.7934
8.068	0.794	1.1447	1.2820	794	0.7944
8.058	0.795	1.1432	1.2804	795	0.7954
8.048	0.796	1.1418	1.2788	796	0.7964
8.038	0.797	1.1404	1.2772	797	0.7974
8.027	0.798	1.1389	1.2756	798	0.7984
8.017	0.799	1.1375	1.2740	799	0.7994

8.007	0.800	1.1361	1.2724	800	0.8004
7.997	0.801	1.1347	1.2708	801	0.8014
7.987	0.802	1.1332	1.2692	802	0.8024
7.977	0.803	1.1318	1.2677	803	0.8034
7.967	0.804	1.1304	1.2661	804	0.8044
7.958	0.805	1.1290	1.2645	805	0.8054
7.948	0.806	1.1276	1.2629	806	0.8064
7.938	0.807	1.1262	1.2614	807	0.8074
7.928	0.808	1.1248	1.2598	808	0.8084
7.918	0.809	1.1234	1.2582	809	0.8094
7.908	0.810	1.1220	1.2567	810	0.8104
7.899	0.811	1.1207	1.2551	811	0.8114
7.889	0.812	1.1193	1.2536	812	0.8124
7.879	0.813	1.1179	1.2521	813	0.8134
7.869	0.814	1.1165	1.2505	814	0.8144
7.86	0.815	1.1152	1.2490	815	0.8154
7.85	0.816	1.1138	1.2474	816	0.8164
7.84	0.817	1.1124	1.2459	817	0.8174
7.831	0.818	1.1111	1.2444	818	0.8184
7.821	0.819	1.1097	1.2429	819	0.8194
7.812	0.820	1.1084	1.2414	820	0.8204
7.802	0.821	1.1070	1.2398	821	0.8214
7.793	0.822	1.1057	1.2383	822	0.8224
7.783	0.823	1.1043	1.2368	823	0.8234
7.774	0.824	1.1030	1.2353	824	0.8244
7.764	0.825	1.1016	1.2338	825	0.8254
7.755	0.826	1.1003	1.2323	826	0.8264
7.746	0.827	1.0990	1.2308	827	0.8274
7.736	0.828	1.0976	1.2294	828	0.8284
7.727	0.829	1.0963	1.2279	829	0.8294
7.718	0.830	1.0950	1.2264	830	0.8304
7.708	0.831	1.0937	1.2249	831	0.8314
7.699	0.832	1.0924	1.2234	832	0.8324
7.69	0.833	1.0911	1.2220	833	0.8334
7.68	0.834	1.0897	1.2205	834	0.8344
7.671	0.835	1.0884	1.2191	835	0.8354
7.662	0.836	1.0871	1.2176	836	0.8364
7.653	0.837	1.0858	1.2161	837	0.8374
7.644	0.838	1.0845	1.2147	838	0.8384
7.635	0.839	1.0832	1.2132	839	0.8394
7.626	0.840	1.0820	1.2118	840	0.8404
7.616	0.841	1.0807	1.2103	841	0.8414
7.607	0.842	1.0794	1.2089	842	0.8424
7.598	0.843	1.0781	1.2075	843	0.8434
7.589	0.844	1.0768	1.2060	844	0.8444
7.58	0.845	1.0755	1.2046	845	0.8454
7.571	0.846	1.0743	1.2032	846	0.8464
7.562	0.847	1.0730	1.2018	847	0.8474
7.553	0.848	1.0717	1.2003	848	0.8484
7.545	0.849	1.0705	1.1989	849	0.8494
7.536	0.850	1.0692	1.1975	850	0.8504
7.527	0.851	1.0680	1.1961	851	0.8514
7.518	0.852	1.0667	1.1947	852	0.8525
7.509	0.853	1.0655	1.1933	853	0.8535
7.5	0.854	1.0642	1.1919	854	0.8545
7.492	0.855	1.0630	1.1905	855	0.8555

7.483	0.856	1.0617	1.1891	856	0.8565
7.474	0.857	1.0605	1.1877	857	0.8575
7.465	0.858	1.0592	1.1863	858	0.8585
7.457	0.859	1.0580	1.1850	859	0.8595
7.448	0.860	1.0568	1.1836	860	0.8605
7.439	0.861	1.0555	1.1822	861	0.8615
7.431	0.862	1.0543	1.1808	862	0.8625
7.422	0.863	1.0531	1.1795	863	0.8635
7.413	0.864	1.0519	1.1781	864	0.8645
7.405	0.865	1.0507	1.1767	865	0.8655
7.396	0.866	1.0494	1.1754	866	0.8665
7.388	0.867	1.0482	1.1740	867	0.8675
7.379	0.868	1.0470	1.1727	868	0.8685
7.371	0.869	1.0458	1.1713	869	0.8695
7.362	0.870	1.0446	1.1700	870	0.8705
7.354	0.871	1.0434	1.1686	871	0.8715
7.345	0.872	1.0422	1.1673	872	0.8725
7.337	0.873	1.0410	1.1659	873	0.8735
7.328	0.874	1.0398	1.1646	874	0.8745
7.32	0.875	1.0386	1.1633	875	0.8755
7.312	0.876	1.0375	1.1620	876	0.8765
7.303	0.877	1.0363	1.1606	877	0.8775
7.295	0.878	1.0351	1.1593	878	0.8785
7.287	0.879	1.0339	1.1580	879	0.8795
7.278	0.880	1.0327	1.1567	880	0.8805
7.27	0.881	1.0316	1.1554	881	0.8815
7.262	0.882	1.0304	1.1540	882	0.8825
7.254	0.883	1.0292	1.1527	883	0.8835
7.245	0.884	1.0281	1.1514	884	0.8845
7.237	0.885	1.0269	1.1501	885	0.8855
7.229	0.886	1.0257	1.1488	886	0.8865
7.221	0.887	1.0246	1.1475	887	0.8875
7.213	0.888	1.0234	1.1462	888	0.8885
7.205	0.889	1.0223	1.1449	889	0.8895
7.197	0.890	1.0211	1.1437	890	0.8905
7.188	0.891	1.0200	1.1424	891	0.8915
7.18	0.892	1.0188	1.1411	892	0.8925
7.172	0.893	1.0177	1.1398	893	0.8935
7.164	0.894	1.0166	1.1385	894	0.8945
7.156	0.895	1.0154	1.1373	895	0.8955
7.148	0.896	1.0143	1.1360	896	0.8965
7.14	0.897	1.0131	1.1347	897	0.8975
7.132	0.898	1.0120	1.1335	898	0.8985
7.124	0.899	1.0109	1.1322	899	0.8995
7.116	0.900	1.0098	1.1309	900	0.9005
7.109	0.901	1.0086	1.1297	901	0.9015
7.101	0.902	1.0075	1.1284	902	0.9025
7.093	0.903	1.0064	1.1272	903	0.9035
7.085	0.904	1.0053	1.1259	904	0.9045
7.077	0.905	1.0042	1.1247	905	0.9055
7.069	0.906	1.0031	1.1234	906	0.9065
7.061	0.907	1.0020	1.1222	907	0.9075
7.054	0.908	1.0009	1.1210	908	0.9085
7.046	0.909	0.9998	1.1197	909	0.9095
7.038	0.910	0.9987	1.1185	910	0.9105
7.03	0.911	0.9976	1.1173	911	0.9115

7.023	0.912	0.9965	1.1160	912	0.9125
7.015	0.913	0.9954	1.1148	913	0.9135
7.007	0.914	0.9943	1.1136	914	0.9145
7	0.915	0.9932	1.1124	915	0.9155
6.992	0.916	0.9921	1.1112	916	0.9165
6.984	0.917	0.9910	1.1100	917	0.9175
6.977	0.918	0.9900	1.1087	918	0.9185
6.969	0.919	0.9889	1.1075	919	0.9195
6.962	0.920	0.9878	1.1063	920	0.9205
6.954	0.921	0.9867	1.1051	921	0.9215
6.946	0.922	0.9857	1.1039	922	0.9225
6.939	0.923	0.9846	1.1027	923	0.9235
6.931	0.924	0.9835	1.1015	924	0.9245
6.924	0.925	0.9825	1.1004	925	0.9255
6.916	0.926	0.9814	1.0992	926	0.9265
6.909	0.927	0.9803	1.0980	927	0.9275
6.901	0.928	0.9793	1.0968	928	0.9285
6.894	0.929	0.9782	1.0956	929	0.9295
6.887	0.930	0.9772	1.0944	930	0.9305
6.879	0.931	0.9761	1.0933	931	0.9315
6.872	0.932	0.9751	1.0921	932	0.9325
6.864	0.933	0.9740	1.0909	933	0.9335
6.857	0.934	0.9730	1.0897	934	0.9345
6.85	0.935	0.9719	1.0886	935	0.9355
6.842	0.936	0.9709	1.0874	936	0.9365
6.835	0.937	0.9699	1.0862	937	0.9375
6.828	0.938	0.9688	1.0851	938	0.9385
6.82	0.939	0.9678	1.0839	939	0.9395
6.813	0.940	0.9668	1.0828	940	0.9405
6.806	0.941	0.9657	1.0816	941	0.9415
6.799	0.942	0.9647	1.0805	942	0.9426
6.792	0.943	0.9637	1.0793	943	0.9436
6.784	0.944	0.9627	1.0782	944	0.9446
6.777	0.945	0.9616	1.0770	945	0.9456
6.77	0.946	0.9606	1.0759	946	0.9466
6.763	0.947	0.9596	1.0748	947	0.9476
6.756	0.948	0.9586	1.0736	948	0.9486
6.749	0.949	0.9576	1.0725	949	0.9496
6.741	0.950	0.9566	1.0714	950	0.9506
6.734	0.951	0.9556	1.0702	951	0.9516
6.727	0.952	0.9546	1.0691	952	0.9526
6.72	0.953	0.9536	1.0680	953	0.9536
6.713	0.954	0.9526	1.0669	954	0.9546
6.706	0.955	0.9516	1.0658	955	0.9556
6.699	0.956	0.9506	1.0646	956	0.9566
6.692	0.957	0.9496	1.0635	957	0.9576
6.685	0.958	0.9486	1.0624	958	0.9586
6.678	0.959	0.9476	1.0613	959	0.9596
6.671	0.960	0.9466	1.0602	960	0.9606
6.664	0.961	0.9456	1.0591	961	0.9616
6.657	0.962	0.9446	1.0580	962	0.9626
6.65	0.963	0.9437	1.0569	963	0.9636
6.643	0.964	0.9427	1.0558	964	0.9646
6.636	0.965	0.9417	1.0547	965	0.9656
6.63	0.966	0.9407	1.0536	966	0.9666
6.623	0.967	0.9398	1.0525	967	0.9676

6.616	0.968	0.9388	1.0514	968	0.9686
6.609	0.969	0.9378	1.0503	969	0.9696
6.602	0.970	0.9368	1.0493	970	0.9706
6.595	0.971	0.9359	1.0482	971	0.9716
6.589	0.972	0.9349	1.0471	972	0.9726
6.582	0.973	0.9340	1.0460	973	0.9736
6.575	0.974	0.9330	1.0450	974	0.9746
6.568	0.975	0.9320	1.0439	975	0.9756
6.562	0.976	0.9311	1.0428	976	0.9766
6.555	0.977	0.9301	1.0417	977	0.9776
6.548	0.978	0.9292	1.0407	978	0.9786
6.541	0.979	0.9282	1.0396	979	0.9796
6.535	0.980	0.9273	1.0385	980	0.9806
6.528	0.981	0.9263	1.0375	981	0.9816
6.521	0.982	0.9254	1.0364	982	0.9826
6.515	0.983	0.9244	1.0354	983	0.9836
6.508	0.984	0.9235	1.0343	984	0.9846
6.502	0.985	0.9226	1.0333	985	0.9856
6.495	0.986	0.9216	1.0322	986	0.9866
6.488	0.987	0.9207	1.0312	987	0.9876
6.482	0.988	0.9198	1.0301	988	0.9886
6.475	0.989	0.9188	1.0291	989	0.9896
6.469	0.990	0.9179	1.0281	990	0.9906
6.462	0.991	0.9170	1.0270	991	0.9916
6.456	0.992	0.9161	1.0260	992	0.9926
6.449	0.993	0.9151	1.0249	993	0.9936
6.443	0.994	0.9142	1.0239	994	0.9946
6.436	0.995	0.9133	1.0229	995	0.9956
6.43	0.996	0.9124	1.0219	996	0.9966
6.423	0.997	0.9115	1.0208	997	0.9976
6.417	0.998	0.9105	1.0198	998	0.9986
6.41	0.999	0.9096	1.0188	999	0.9996
6.404	1.000	0.9087	1.0178	1000	1.0006
6.398	1.001	0.9078	1.0167	1001	1.0016
6.391	1.002	0.9069	1.0157	1002	1.0026
6.385	1.003	0.9060	1.0147	1003	1.0036
6.378	1.004	0.9051	1.0137	1004	1.0046
6.372	1.005	0.9042	1.0127	1005	1.0056
6.366	1.006	0.9033	1.0117	1006	1.0066
6.359	1.007	0.9024	1.0107	1007	1.0076
6.353	1.008	0.9015	1.0097	1008	1.0086
6.347	1.009	0.9006	1.0087	1009	1.0096
6.34	1.010	0.8997	1.0077	1010	1.0106
6.334	1.011	0.8988	1.0067	1011	1.0116
6.328	1.012	0.8979	1.0057	1012	1.0126
6.322	1.013	0.8970	1.0047	1013	1.0136
6.315	1.014	0.8962	1.0037	1014	1.0146
6.309	1.015	0.8953	1.0027	1015	1.0156
6.303	1.016	0.8944	1.0017	1016	1.0166
6.297	1.017	0.8935	1.0007	1017	1.0176
6.291	1.018	0.8926	0.9998	1018	1.0186
6.284	1.019	0.8918	0.9988	1019	1.0196
6.278	1.020	0.8909	0.9978	1020	1.0206
6.272	1.021	0.8900	0.9968	1021	1.0216
6.266	1.022	0.8891	0.9958	1022	1.0226
6.26	1.023	0.8883	0.9949	1023	1.0236

6.254	1.024	0.8874	0.9939	1024	1.0246
6.248	1.025	0.8865	0.9929	1025	1.0256
6.241	1.026	0.8857	0.9920	1026	1.0266
6.235	1.027	0.8848	0.9910	1027	1.0276
6.229	1.028	0.8839	0.9900	1028	1.0286
6.223	1.029	0.8831	0.9891	1029	1.0296
6.217	1.030	0.8822	0.9881	1030	1.0306
6.211	1.031	0.8814	0.9871	1031	1.0316
6.205	1.032	0.8805	0.9862	1032	1.0326
6.199	1.033	0.8797	0.9852	1033	1.0337
6.193	1.034	0.8788	0.9843	1034	1.0347
6.187	1.035	0.8780	0.9833	1035	1.0357
6.181	1.036	0.8771	0.9824	1036	1.0367
6.175	1.037	0.8763	0.9814	1037	1.0377
6.169	1.038	0.8754	0.9805	1038	1.0387
6.163	1.039	0.8746	0.9795	1039	1.0397
6.157	1.040	0.8737	0.9786	1040	1.0407
6.151	1.041	0.8729	0.9777	1041	1.0417
6.146	1.042	0.8721	0.9767	1042	1.0427
6.14	1.043	0.8712	0.9758	1043	1.0437
6.134	1.044	0.8704	0.9748	1044	1.0447
6.128	1.045	0.8696	0.9739	1045	1.0457
6.122	1.046	0.8687	0.9730	1046	1.0467
6.116	1.047	0.8679	0.9720	1047	1.0477
6.11	1.048	0.8671	0.9711	1048	1.0487
6.104	1.049	0.8662	0.9702	1049	1.0497
6.099	1.050	0.8654	0.9693	1050	1.0507
6.093	1.051	0.8646	0.9683	1051	1.0517
6.087	1.052	0.8638	0.9674	1052	1.0527
6.081	1.053	0.8629	0.9665	1053	1.0537
6.075	1.054	0.8621	0.9656	1054	1.0547
6.07	1.055	0.8613	0.9647	1055	1.0557
6.064	1.056	0.8605	0.9638	1056	1.0567
6.058	1.057	0.8597	0.9628	1057	1.0577
6.052	1.058	0.8589	0.9619	1058	1.0587
6.047	1.059	0.8581	0.9610	1059	1.0597
6.041	1.060	0.8572	0.9601	1060	1.0607
6.035	1.061	0.8564	0.9592	1061	1.0617
6.03	1.062	0.8556	0.9583	1062	1.0627
6.024	1.063	0.8548	0.9574	1063	1.0637
6.018	1.064	0.8540	0.9565	1064	1.0647
6.013	1.065	0.8532	0.9556	1065	1.0657
6.007	1.066	0.8524	0.9547	1066	1.0667
6.001	1.067	0.8516	0.9538	1067	1.0677
5.996	1.068	0.8508	0.9529	1068	1.0687
5.99	1.069	0.8500	0.9520	1069	1.0697
5.985	1.070	0.8492	0.9511	1070	1.0707
5.979	1.071	0.8484	0.9502	1071	1.0717
5.973	1.072	0.8476	0.9494	1072	1.0727
5.968	1.073	0.8469	0.9485	1073	1.0737
5.962	1.074	0.8461	0.9476	1074	1.0747
5.957	1.075	0.8453	0.9467	1075	1.0757

API Gravity (60°F)	ASTM Table 52 Density (15°C)	Cubic Mtrs @15°C per Barrel @60°F	Density (15°C)	Barrels @60°F per Cubic Mtr @15°C	DENSITY (kg/L) (15°C)
38.9000	799	0.1589	779	6.293	0.6256
38.7950	**830.5**	**0.1589**	**830.5**	**6.293**	**0.65000**
38.6900	859	0.1589	901	6.293	0.6593

API Gravity (60°F)	ASTM Table 52 Density (15°C)	Cubic Mtrs per Barrel @60°F	Density (15°C)	Barrels @60°F per Cubic Mtr @15°C	DENSITY (kg/L) (15°C)
	654	0.15886	654.0	6.295	0.5000
	683	0.15886	697.0	6.295	0.5191
	684	0.15887	698.0	6.294	0.5192
	722	0.15887	778.0	6.294	0.5421
84.83	723	0.15888	779.0	6.293	0.5422
84.49	768	0.15888	901.0	6.293	0.5673
84.16	769	0.15889	902.0	6.292	0.5674
83.84	779	0.15889	1074.0	6.292	0.5950
83.51	780	0.15890			0.5951
83.18	798	0.15890			0.6255
82.86	799	0.15891			0.6256
82.53	859	0.15891			0.6593
82.21	860	0.15892			0.6594
81.88	964	0.15892			0.6970
81.56	965	0.15893			0.6971
81.24	1074	0.15893			0.7392
80.92					0.7393
80.60					0.7869
80.29					0.7870
79.97					0.8411
79.65					0.8412
79.34					0.9034
79.02					0.9035
78.71					0.9756
78.40					0.9757
78.09					1.0604
77.78					1.0605
77.47					1.1000
77.16					
76.85					
76.54					
76.24					
75.93					
75.63					
75.33					
75.02					
74.72					
74.42					

74.12
73.82
73.53
73.23
72.93
72.64
72.34
72.05
71.76
71.46
71.17
70.88
70.59
70.30
70.02
69.73
69.44
69.16
68.87
68.59
68.31
68.02
67.74
67.46
67.18
66.90
66.63
66.35
66.07
65.80
65.52
65.25
64.97
64.70
64.43
64.16
63.89
63.62
63.35
63.08
62.81
62.54
62.28
62.01
61.75
61.48
61.22
60.96
60.70
60.44
60.18
59.92
59.66
59.40
59.14
58.88

58.63
58.37
58.12
57.86
57.61
57.36
57.11
56.85
56.60
56.35
56.10
55.86
55.61
55.36
55.11
54.87
54.62
54.38
54.13
53.89
53.65
53.40
53.16
52.92
52.68
52.44
52.20
51.96
51.72
51.49
51.25
51.01
50.78
50.54
50.30
50.07
49.84
49.60
49.37
49.14
48.91
48.68
48.45
48.22
47.99
47.76
47.53
47.31
47.08
46.85
46.63
46.40
46.18
45.96
45.74
45.51

45.29
45.07
44.85
44.63
44.41
44.19
43.97
43.76
43.54
43.32
43.11
42.89
42.68
42.46
42.25
42.03
41.82
41.61
41.40
41.19
40.98
40.76
40.56
40.35
40.14
39.93
39.72
39.51
39.31
39.10
38.90
38.69
38.49
38.28
38.08
37.87
37.67
37.47
37.27
37.07
36.86
36.66
36.46
36.27
36.07
35.87
35.67
35.47
35.28
35.08
34.88
34.69
34.49
34.30
34.10
33.91

33.72
33.52
33.33
33.14
32.95
32.76
32.57
32.38
32.19
32.00
31.81
31.62
31.43
31.24
31.06
30.87
30.68
30.50
30.31
30.13
29.94
29.76
29.57
29.39
29.21
29.02
28.84
28.66
28.48
28.30
28.12
27.94
27.76
27.58
27.40
27.22
27.04
26.87
26.69
26.51
26.34
26.16
25.98
25.81
25.63
25.46
25.29
25.11
24.94
24.77
24.59
24.42
24.25
24.08
23.91
23.74

23.57
23.40
23.23
23.06
22.89
22.72
22.55
22.38
22.22
22.05
21.88
21.72
21.55
21.39
21.22
21.06
20.89
20.73
20.56
20.40
20.24
20.07
19.91
19.75
19.59
19.43
19.27
19.10
18.94
18.78
18.62
18.47
18.31
18.15
17.99
17.83
17.67
17.52
17.36
17.20
17.05
16.89
16.74
16.58
16.42
16.27
16.12
15.96
15.81
15.65
15.50
15.35
15.20
15.04
14.89
14.74

14.59
14.44
14.29
14.14
13.99
13.84
13.69
13.54
13.39
13.24
13.10
12.95
12.80
12.65
12.51
12.36
12.21
12.07
11.92
11.78
11.63
11.49
11.34
11.20
11.05
10.91
10.77
10.62
10.48
10.34
10.20
10.05
9.91
9.77
9.63
9.49
9.35
9.21
9.07
8.93
8.79
8.65
8.51
8.37
8.24
8.10
7.96
7.82
7.69
7.55
7.41
7.28
7.14
7.00
6.87
6.73

6.60
6.46
6.33
6.19
6.06
5.93
5.79
5.66
5.53
5.39
5.26
5.13
5.00
4.87
4.73
4.60
4.47
4.34
4.21
4.08
3.95
3.82
3.69
3.56
3.43
3.30
3.18
3.05
2.92
2.79
2.66
2.54
2.41
2.28
2.16
2.03
1.91
1.78
1.65
1.53
1.40
1.28
1.15
1.03
0.91
0.78
0.66
0.53
0.41
0.29
0.17
0.04

STM Table 56
Factor for Converting Weight in Vacuo to Weight in Air
0.99825
0.99825
0.99825

ASTM Table 56	
DENSITY (kg/L) (15°C)	Factor for Converting Weight in Air to Weight in Vacuo
0.6266	1.00175
0.65000	**1.00175**
0.6603	1.00175

ASTM Table 56		
Density (15°C)	Kilograms per Cubic Mtr	Cubic Mtrs per Tonne
830	828.9	1.2064
830.5	**829.4**	**1.2057**
831	829.9	1.2050

STM Table 56
Factor for Converting Weight in Vacuo to Weight in Air
0.99775
0.99775
0.99785
0.99785
0.99795
0.99795
0.99805
0.99805
0.99815
0.99815
0.99825
0.99825
0.99835
0.99835
0.99845
0.99845
0.99855
0.99855
0.99865
0.99865
0.99875
0.99875
0.99885
0.99885
0.99895
0.99895
0.99905
0.99905

ASTM Table 56	
DENSITY (kg/L) (15°C)	Factor for Converting Weight in Air to Weight in Vacuo
0.5000	1.00225
0.5201	1.00225
0.5202	1.00215
0.5432	1.00215
0.5433	1.00205
0.5684	1.00205
0.5685	1.00195
0.5960	1.00195
0.5961	1.00185
0.6265	1.00185
0.6266	1.00175
0.6603	1.00175
0.6604	1.00165
0.6980	1.00165
0.6981	1.00155
0.7402	1.00155
0.7403	1.00145
0.7879	1.00145
0.7880	1.00135
0.8421	1.00135
0.8422	1.00125
0.9044	1.00125
0.9045	1.00115
0.9766	1.00115
0.9767	1.00105
1.0614	1.00105
1.0615	1.00095
1.1000	1.00095

ASTM Table 56		
Density (15°C)	**Kilograms per Cubic Mtr**	**Cubic Mtrs per Tonne**
650		
651		
652		
653		
654	652.9	1.5317
655	653.9	1.5293
656	654.9	1.5270
657	655.9	1.5247
658	656.9	1.5224
659	657.9	1.5200
660	658.9	1.5177
661	659.9	1.5154
662	660.9	1.5131
663	661.9	1.5108
664	662.9	1.5086
665	663.9	1.5063
666	664.9	1.5040
667	665.9	1.5018
668	666.9	1.4995
669	667.9	1.4973
670	668.9	1.4950
671	669.9	1.4928
672	670.9	1.4906
673	671.9	1.4884
674	672.9	1.4861
675	673.9	1.4839
676	674.9	1.4817
677	675.9	1.4795
678	676.9	1.4774
679	677.9	1.4752
680	678.9	1.4730
681	679.9	1.4708
682	680.9	1.4687
683	681.9	1.4665
684	682.9	1.4644
685	683.9	1.4622
686	684.9	1.4601
687	685.9	1.4580

688	686.9	1.4559
689	687.9	1.4537
690	688.9	1.4516
691	689.9	1.4495
692	690.9	1.4474
693	691.9	1.4453
694	692.9	1.4432
695	693.9	1.4412
696	694.9	1.4391
697	695.9	1.4370
698	696.9	1.4350
699	697.9	1.4329
700	698.9	1.4309
701	699.9	1.4288
702	700.9	1.4268
703	701.9	1.4247
704	702.9	1.4227
705	703.9	1.4207
706	704.9	1.4187
707	705.9	1.4167
708	706.9	1.4147
709	707.9	1.4127
710	708.9	1.4107
711	709.9	1.4087
712	710.9	1.4067
713	711.9	1.4047
714	712.9	1.4027
715	713.9	1.4008
716	714.9	1.3988
717	715.9	1.3969
718	716.9	1.3949
719	717.9	1.3930
720	718.9	1.3910
721	719.9	1.3891
722	720.9	1.3872
723	721.9	1.3853
724	722.9	1.3833
725	723.9	1.3814
726	724.9	1.3795
727	725.9	1.3776
728	726.9	1.3757
729	727.9	1.3738
730	728.9	1.3719
731	729.9	1.3701
732	730.9	1.3682
733	731.9	1.3663
734	732.9	1.3645
735	733.9	1.3626
736	734.9	1.3607
737	735.9	1.3589
738	736.9	1.3571
739	737.9	1.3552
740	738.9	1.3534
741	739.9	1.3515
742	740.9	1.3497
743	741.9	1.3479

744	742.9	1.3461
745	743.9	1.3443
746	744.9	1.3425
747	745.9	1.3407
748	746.9	1.3389
749	747.9	1.3371
750	748.9	1.3353
751	749.9	1.3335
752	750.9	1.3317
753	751.9	1.3300
754	752.9	1.3282
755	753.9	1.3264
756	754.9	1.3247
757	755.9	1.3229
758	756.9	1.3212
759	757.9	1.3194
760	758.9	1.3177
761	759.9	1.3160
762	760.9	1.3142
763	761.9	1.3125
764	762.9	1.3108
765	763.9	1.3091
766	764.9	1.3074
767	765.9	1.3057
768	766.9	1.3040
769	767.9	1.3023
770	768.9	1.3006
771	769.9	1.2989
772	770.9	1.2972
773	771.9	1.2955
774	772.9	1.2938
775	773.9	1.2922
776	774.9	1.2905
777	775.9	1.2888
778	776.9	1.2872
779	777.9	1.2855
780	778.9	1.2839
781	779.9	1.2822
782	780.9	1.2806
783	781.9	1.2789
784	782.9	1.2773
785	783.9	1.2757
786	784.9	1.2741
787	785.9	1.2724
788	786.9	1.2708
789	787.9	1.2692
790	788.9	1.2676
791	789.9	1.2660
792	790.9	1.2644
793	791.9	1.2628
794	792.9	1.2612
795	793.9	1.2596
796	794.9	1.2580
797	795.9	1.2564
798	796.9	1.2549
799	797.9	1.2533

800	798.9	1.2517
801	799.9	1.2502
802	800.9	1.2486
803	801.9	1.2470
804	802.9	1.2455
805	803.9	1.2439
806	804.9	1.2424
807	805.9	1.2408
808	806.9	1.2393
809	807.9	1.2378
810	808.9	1.2362
811	809.9	1.2347
812	810.9	1.2332
813	811.9	1.2317
814	812.9	1.2302
815	813.9	1.2286
816	814.9	1.2271
817	815.9	1.2256
818	816.9	1.2241
819	817.9	1.2226
820	818.9	1.2211
821	819.9	1.2197
822	820.9	1.2182
823	821.9	1.2167
824	822.9	1.2152
825	823.9	1.2137
826	824.9	1.2123
827	825.9	1.2108
828	826.9	1.2093
829	827.9	1.2079
830	828.9	1.2064
831	829.9	1.2050
832	830.9	1.2035
833	831.9	1.2021
834	832.9	1.2006
835	833.9	1.1992
836	834.9	1.1977
837	835.9	1.1963
838	836.9	1.1949
839	837.9	1.1935
840	838.9	1.1920
841	839.9	1.1906
842	840.9	1.1892
843	841.9	1.1878
844	842.9	1.1864
845	843.9	1.1850
846	844.9	1.1836
847	845.9	1.1822
848	846.9	1.1808
849	847.9	1.1794
850	848.9	1.1780
851	849.9	1.1766
852	850.9	1.1752
853	851.9	1.1738
854	852.9	1.1725
855	853.9	1.1711

856	854.9	1.1697
857	855.9	1.1683
858	856.9	1.1670
859	857.9	1.1656
860	858.9	1.1643
861	859.9	1.1629
862	860.9	1.1616
863	861.9	1.1602
864	862.9	1.1589
865	863.9	1.1575
866	864.9	1.1562
867	865.9	1.1549
868	866.9	1.1535
869	867.9	1.1522
870	868.9	1.1509
871	869.9	1.1495
872	870.9	1.1482
873	871.9	1.1469
874	872.9	1.1456
875	873.9	1.1443
876	874.9	1.1430
877	875.9	1.1417
878	876.9	1.1404
879	877.9	1.1391
880	878.9	1.1378
881	879.9	1.1365
882	880.9	1.1352
883	881.9	1.1339
884	882.9	1.1326
885	883.9	1.1313
886	884.9	1.1301
887	885.9	1.1288
888	886.9	1.1275
889	887.9	1.1262
890	888.9	1.1250
891	889.9	1.1237
892	890.9	1.1224
893	891.9	1.1212
894	892.9	1.1199
895	893.9	1.1187
896	894.9	1.1174
897	895.9	1.1162
898	896.9	1.1149
899	897.9	1.1137
900	898.9	1.1125
901	899.9	1.1112
902	900.9	1.1100
903	901.9	1.1088
904	902.9	1.1075
905	903.9	1.1063
906	904.9	1.1051
907	905.9	1.1039
908	906.9	1.1026
909	907.9	1.1014
910	908.9	1.1002
911	909.9	1.0990

912	910.9	1.0978
913	911.9	1.0966
914	912.9	1.0954
915	913.9	1.0942
916	914.9	1.0930
917	915.9	1.0918
918	916.9	1.0906
919	917.9	1.0894
920	918.9	1.0882
921	919.9	1.0871
922	920.9	1.0859
923	921.9	1.0847
924	922.9	1.0835
925	923.9	1.0823
926	924.9	1.0812
927	925.9	1.0800
928	926.9	1.0788
929	927.9	1.0777
930	928.9	1.0765
931	929.9	1.0754
932	930.9	1.0742
933	931.9	1.0731
934	932.9	1.0719
935	933.9	1.0708
936	934.9	1.0696
937	935.9	1.0685
938	936.9	1.0673
939	937.9	1.0662
940	938.9	1.0651
941	939.9	1.0639
942	940.9	1.0628
943	941.9	1.0617
944	942.9	1.0605
945	943.9	1.0594
946	944.9	1.0583
947	945.9	1.0572
948	946.9	1.0561
949	947.9	1.0549
950	948.9	1.0538
951	949.9	1.0527
952	950.9	1.0516
953	951.9	1.0505
954	952.9	1.0494
955	953.9	1.0483
956	954.9	1.0472
957	955.9	1.0461
958	956.9	1.0450
959	957.9	1.0439
960	958.9	1.0428
961	959.9	1.0417
962	960.9	1.0407
963	961.9	1.0396
964	962.9	1.0385
965	963.9	1.0374
966	964.9	1.0363
967	965.9	1.0353

968	966.9	1.0342
969	967.9	1.0331
970	968.9	1.0321
971	969.9	1.0310
972	970.9	1.0299
973	971.9	1.0289
974	972.9	1.0278
975	973.9	1.0268
976	974.9	1.0257
977	975.9	1.0247
978	976.9	1.0236
979	977.9	1.0226
980	978.9	1.0215
981	979.9	1.0205
982	980.9	1.0194
983	981.9	1.0184
984	982.9	1.0174
985	983.9	1.0163
986	984.9	1.0153
987	985.9	1.0143
988	986.9	1.0132
989	987.9	1.0122
990	988.9	1.0112
991	989.9	1.0102
992	990.9	1.0092
993	991.9	1.0081
994	992.9	1.0071
995	993.9	1.0061
996	994.9	1.0051
997	995.9	1.0041
998	996.9	1.0031
999	997.9	1.0021
1000	998.9	1.0011
1001	999.9	1.0001
1002	1000.9	0.9991
1003	1001.9	0.9981
1004	1002.9	0.9971
1005	1003.9	0.9961
1006	1004.9	0.9951
1007	1005.9	0.9941
1008	1006.9	0.9931
1009	1007.9	0.9921
1010	1008.9	0.9911
1011	1009.9	0.9902
1012	1010.9	0.9892
1013	1011.9	0.9882
1014	1012.9	0.9872
1015	1013.9	0.9863
1016	1014.9	0.9853
1017	1015.9	0.9843
1018	1016.9	0.9833
1019	1017.9	0.9824
1020	1018.9	0.9814
1021	1019.9	0.9805
1022	1020.9	0.9795
1023	1021.9	0.9785

1024	1022.9	0.9776
1025	1023.9	0.9766
1026	1024.9	0.9757
1027	1025.9	0.9747
1028	1026.9	0.9738
1029	1027.9	0.9728
1030	1028.9	0.9719
1031	1029.9	0.9709
1032	1030.9	0.9700
1033	1031.9	0.9691
1034	1032.9	0.9681
1035	1033.9	0.9672
1036	1034.9	0.9662
1037	1035.9	0.9653
1038	1036.9	0.9644
1039	1037.9	0.9635
1040	1038.9	0.9625
1041	1039.9	0.9616
1042	1040.9	0.9607
1043	1041.9	0.9598
1044	1042.9	0.9588
1045	1043.9	0.9579
1046	1044.9	0.9570
1047	1045.9	0.9561
1048	1046.9	0.9552
1049	1047.9	0.9543
1050	1048.9	0.9533
1051	1049.9	0.9524
1052	1050.9	0.9515
1053	1051.9	0.9506
1054	1052.9	0.9497
1055	1053.9	0.9488
1056	1054.9	0.9479
1057	1055.9	0.9470
1058	1056.9	0.9461
1059	1057.9	0.9452
1060	1058.9	0.9443
1061	1059.9	0.9434
1062	1060.9	0.9426
1063	1061.9	0.9417
1064	1062.9	0.9408
1065	1063.9	0.9399
1066	1064.9	0.9390
1067	1065.9	0.9381
1068	1066.9	0.9373
1069	1067.9	0.9364
1070	1068.9	0.9355
1071	1069.9	0.9346
1072	1070.9	0.9338
1073	1071.9	0.9329
1074	1072.9	0.9320
1075	1073.9	0.9311

ASTM Table 57		
Density (15°C)	Short Tons per Cubic Mtr	Long Tons per Cubic Mtr
830	0.9137	0.8158
830.5	**0.9143**	**0.8163**
831	0.9148	0.8168

ASTM Table 58		
Density (15°C)	US Gallons per Tonne	Barrels per Tonne
830	318.85	7.592
830.5	**318.66**	**7.588**
831	318.47	7.583

ASTM Table 57		
Density (15°C)	**Short Tons per Cubic Mtr**	**Long Tons per Cubic Mtr**
650		
651		
652		
653		
654	0.7197	0.6426
655	0.7208	0.6436
656	0.7219	0.6445
657	0.7230	0.6455
658	0.7241	0.6465
659	0.7252	0.6475
660	0.7263	0.6485
661	0.7274	0.6495
662	0.7285	0.6504
663	0.7296	0.6514
664	0.7307	0.6524
665	0.7318	0.6534
666	0.7329	0.6544
667	0.7340	0.6554
668	0.7351	0.6563
669	0.7362	0.6573
670	0.7373	0.6583
671	0.7384	0.6593
672	0.7395	0.6603
673	0.7406	0.6613
674	0.7417	0.6623
675	0.7428	0.6632
676	0.7439	0.6642
677	0.7450	0.6652
678	0.7461	0.6662
679	0.7472	0.6672
680	0.7483	0.6682
681	0.7494	0.6691
682	0.7505	0.6701
683	0.7516	0.6711
684	0.7527	0.6721
685	0.7539	0.6731
686	0.7550	0.6741
687	0.7561	0.6751

ASTM Table 58		
Density (15°C)	**US Gallons per Tonne**	**Barrels per Tonne**
650		
651		
652		
653		
654	404.96	9.642
655	404.34	9.627
656	403.72	9.612
657	403.10	9.598
658	402.49	9.583
659	401.88	9.568
660	401.27	9.554
661	400.66	9.539
662	400.05	9.525
663	399.44	9.511
664	398.84	9.496
665	398.24	9.482
666	397.64	9.468
667	397.04	9.453
668	396.45	9.439
669	395.85	9.425
670	395.26	9.411
671	394.67	9.397
672	394.08	9.383
673	393.49	9.369
674	392.91	9.355
675	392.32	9.341
676	391.74	9.327
677	391.16	9.313
678	390.58	9.300
679	390.00	9.286
680	389.43	9.272
681	388.85	9.258
682	388.28	9.245
683	387.71	9.231
684	387.14	9.218
685	386.58	9.204
686	386.01	9.191
687	385.45	9.177

688	0.7572	0.6760		688	384.89	9.164
689	0.7583	0.6770		689	384.33	9.151
690	0.7594	0.6780		690	383.77	9.137
691	0.7605	0.6790		691	383.21	9.124
692	0.7616	0.6800		692	382.66	9.111
693	0.7627	0.6810		693	382.10	9.098
694	0.7638	0.6819		694	381.55	9.085
695	0.7649	0.6829		695	381.00	9.071
696	0.7660	0.6839		696	380.45	9.058
697	0.7671	0.6849		697	379.90	9.045
698	0.7682	0.6859		698	379.36	9.032
699	0.7693	0.6869		699	378.81	9.019
700	0.7704	0.6878		700	378.27	9.006
701	0.7715	0.6888		701	377.73	8.994
702	0.7726	0.6898		702	377.19	8.981
703	0.7737	0.6908		703	376.65	8.968
704	0.7748	0.6918		704	376.11	8.955
705	0.7759	0.6928		705	375.58	8.942
706	0.7770	0.6938		706	375.05	8.930
707	0.7781	0.6947		707	374.51	8.917
708	0.7792	0.6957		708	373.98	8.904
709	0.7803	0.6967		709	373.45	8.892
710	0.7814	0.6977		710	372.93	8.879
711	0.7825	0.6987		711	372.40	8.867
712	0.7836	0.6997		712	371.88	8.854
713	0.7847	0.7006		713	371.35	8.842
714	0.7858	0.7016		714	370.83	8.829
715	0.7869	0.7026		715	370.31	8.817
716	0.7880	0.7036		716	369.79	8.805
717	0.7891	0.7046		717	369.28	8.792
718	0.7902	0.7056		718	368.76	8.780
719	0.7913	0.7066		719	368.25	8.768
720	0.7924	0.7075		720	367.73	8.756
721	0.7935	0.7085		721	367.22	8.743
722	0.7946	0.7095		722	366.71	8.731
723	0.7957	0.7105		723	366.20	8.719
724	0.7968	0.7115		724	365.70	8.707
725	0.7980	0.7125		725	365.19	8.695
726	0.7991	0.7134		726	364.69	8.683
727	0.8002	0.7144		727	364.18	8.671
728	0.8013	0.7154		728	363.68	8.659
729	0.8024	0.7164		729	363.18	8.647
730	0.8035	0.7174		730	362.68	8.635
731	0.8046	0.7184		731	362.18	8.623
732	0.8057	0.7193		732	361.69	8.612
733	0.8068	0.7203		733	361.19	8.600
734	0.8079	0.7213		734	360.70	8.588
735	0.8090	0.7223		735	360.21	8.576
736	0.8101	0.7233		736	359.72	8.565
737	0.8112	0.7243		737	359.23	8.553
738	0.8123	0.7253		738	358.74	8.541
739	0.8134	0.7262		739	358.25	8.530
740	0.8145	0.7272		740	357.77	8.518
741	0.8156	0.7282		741	357.28	8.507
742	0.8167	0.7292		742	356.80	8.495
743	0.8178	0.7302		743	356.32	8.484

744	0.8189	0.7312		744	355.84	8.472
745	0.8200	0.7321		745	355.36	8.461
746	0.8211	0.7331		746	354.88	8.450
747	0.8222	0.7341		747	354.41	8.438
748	0.8233	0.7351		748	353.93	8.427
749	0.8244	0.7361		749	353.46	8.416
750	0.8255	0.7371		750	352.98	8.404
751	0.8266	0.7380		751	352.51	8.393
752	0.8277	0.7390		752	352.04	8.382
753	0.8288	0.7400		753	351.57	8.371
754	0.8299	0.7410		754	351.11	8.360
755	0.8310	0.7420		755	350.64	8.349
756	0.8321	0.7430		756	350.18	8.338
757	0.8332	0.7440		757	349.71	8.326
758	0.8343	0.7449		758	349.25	8.315
759	0.8354	0.7459		759	348.79	8.304
760	0.8365	0.7469		760	348.33	8.294
761	0.8376	0.7479		761	347.87	8.283
762	0.8387	0.7489		762	347.41	8.272
763	0.8398	0.7499		763	346.95	8.261
764	0.8409	0.7508		764	346.50	8.250
765	0.8421	0.7518		765	346.05	8.239
766	0.8432	0.7528		766	345.59	8.228
767	0.8443	0.7538		767	345.14	8.218
768	0.8454	0.7548		768	344.69	8.207
769	0.8465	0.7558		769	344.24	8.196
770	0.8476	0.7568		770	343.79	8.186
771	0.8487	0.7577		771	343.34	8.175
772	0.8498	0.7587		772	342.90	8.164
773	0.8509	0.7597		773	342.45	8.154
774	0.8520	0.7607		774	342.00	8.143
775	0.8531	0.7617		775	341.56	8.132
776	0.8542	0.7627		776	341.12	8.122
777	0.8553	0.7636		777	340.68	8.111
778	0.8564	0.7646		778	340.23	8.101
779	0.8575	0.7656		779	339.80	8.090
780	0.8586	0.7666		780	339.36	8.080
781	0.8597	0.7676		781	338.92	8.070
782	0.8608	0.7686		782	338.48	8.059
783	0.8619	0.7695		783	338.05	8.049
784	0.8630	0.7705		784	337.61	8.038
785	0.8641	0.7715		785	337.18	8.028
786	0.8652	0.7725		786	336.75	8.018
787	0.8663	0.7735		787	336.32	8.008
788	0.8674	0.7745		788	335.89	7.997
789	0.8685	0.7755		789	335.46	7.987
790	0.8696	0.7764		790	335.04	7.977
791	0.8707	0.7774		791	334.61	7.967
792	0.8718	0.7784		792	334.19	7.957
793	0.8729	0.7794		793	333.77	7.947
794	0.8740	0.7804		794	333.35	7.937
795	0.8751	0.7814		795	332.93	7.927
796	0.8762	0.7823		796	332.51	7.917
797	0.8773	0.7833		797	332.09	7.907
798	0.8784	0.7843		798	331.67	7.897
799	0.8795	0.7853		799	331.25	7.887

800	0.8806	0.7863		800	330.84	7.877
801	0.8817	0.7873		801	330.43	7.867
802	0.8828	0.7883		802	330.01	7.857
803	0.8839	0.7892		803	329.60	7.848
804	0.8850	0.7902		804	329.19	7.838
805	0.8861	0.7912		805	328.78	7.828
806	0.8873	0.7922		806	328.37	7.818
807	0.8884	0.7932		807	327.96	7.809
808	0.8895	0.7942		808	327.56	7.799
809	0.8906	0.7951		809	327.15	7.789
810	0.8917	0.7961		810	326.74	7.780
811	0.8928	0.7971		811	326.34	7.770
812	0.8939	0.7981		812	325.94	7.760
813	0.8950	0.7991		813	325.54	7.751
814	0.8961	0.8001		814	325.13	7.741
815	0.8972	0.8010		815	324.73	7.732
816	0.8983	0.8020		816	324.34	7.722
817	0.8994	0.8030		817	323.94	7.713
818	0.9005	0.8040		818	323.54	7.703
819	0.9016	0.8050		819	323.14	7.694
820	0.9027	0.8060		820	322.75	7.685
821	0.9038	0.8070		821	322.36	7.675
822	0.9049	0.8079		822	321.96	7.666
823	0.9060	0.8089		823	321.57	7.656
824	0.9071	0.8099		824	321.18	7.647
825	0.9082	0.8109		825	320.79	7.638
826	0.9093	0.8119		826	320.40	7.629
827	0.9104	0.8129		827	320.01	7.619
828	0.9115	0.8138		828	319.62	7.610
829	0.9126	0.8148		829	319.24	7.601
830	0.9137	0.8158		830	318.85	7.592
831	0.9148	0.8168		831	318.47	7.583
832	0.9159	0.8178		832	318.08	7.573
833	0.9170	0.8188		833	317.70	7.564
834	0.9181	0.8198		834	317.32	7.555
835	0.9192	0.8207		835	316.94	7.546
836	0.9203	0.8217		836	316.56	7.537
837	0.9214	0.8227		837	316.18	7.528
838	0.9225	0.8237		838	315.80	7.519
839	0.9236	0.8247		839	315.42	7.510
840	0.9247	0.8257		840	315.05	7.501
841	0.9258	0.8266		841	314.67	7.492
842	0.9269	0.8276		842	314.30	7.483
843	0.9280	0.8286		843	313.92	7.474
844	0.9291	0.8296		844	313.55	7.465
845	0.9302	0.8306		845	313.18	7.457
846	0.9314	0.8316		846	312.81	7.448
847	0.9325	0.8325		847	312.44	7.439
848	0.9336	0.8335		848	312.07	7.430
849	0.9347	0.8345		849	311.70	7.421
850	0.9358	0.8355		850	311.33	7.413
851	0.9369	0.8365		851	310.97	7.404
852	0.9380	0.8375		852	310.60	7.395
853	0.9391	0.8385		853	310.24	7.387
854	0.9402	0.8394		854	309.87	7.378
855	0.9413	0.8404		855	309.51	7.369

856	0.9424	0.8414		856	309.15	7.361
857	0.9435	0.8424		857	308.78	7.352
858	0.9446	0.8434		858	308.42	7.343
859	0.9457	0.8444		859	308.06	7.335
860	0.9468	0.8453		860	307.71	7.326
861	0.9479	0.8463		861	307.35	7.318
862	0.9490	0.8473		862	306.99	7.309
863	0.9501	0.8483		863	306.63	7.301
864	0.9512	0.8493		864	306.28	7.292
865	0.9523	0.8503		865	305.92	7.284
866	0.9534	0.8513		866	305.57	7.275
867	0.9545	0.8522		867	305.22	7.267
868	0.9556	0.8532		868	304.86	7.259
869	0.9567	0.8542		869	304.51	7.250
870	0.9578	0.8552		870	304.16	7.242
871	0.9589	0.8562		871	303.81	7.234
872	0.9600	0.8572		872	303.46	7.225
873	0.9611	0.8581		873	303.11	7.217
874	0.9622	0.8591		874	302.77	7.209
875	0.9633	0.8601		875	302.42	7.200
876	0.9644	0.8611		876	302.07	7.192
877	0.9655	0.8621		877	301.73	7.184
878	0.9666	0.8631		878	301.38	7.176
879	0.9677	0.8640		879	301.04	7.168
880	0.9688	0.8650		880	300.70	7.159
881	0.9699	0.8660		881	300.36	7.151
882	0.9710	0.8670		882	300.02	7.143
883	0.9721	0.8680		883	299.67	7.135
884	0.9732	0.8690		884	299.34	7.127
885	0.9743	0.8700		885	299.00	7.119
886	0.9754	0.8709		886	298.66	7.111
887	0.9766	0.8719		887	298.32	7.103
888	0.9777	0.8729		888	297.98	7.095
889	0.9788	0.8739		889	297.65	7.087
890	0.9799	0.8749		890	297.31	7.079
891	0.9810	0.8759		891	296.98	7.071
892	0.9821	0.8768		892	296.65	7.063
893	0.9832	0.8778		893	296.31	7.055
894	0.9843	0.8788		894	295.98	7.047
895	0.9854	0.8798		895	295.65	7.039
896	0.9865	0.8808		896	295.32	7.031
897	0.9876	0.8818		897	294.99	7.024
898	0.9887	0.8827		898	294.66	7.016
899	0.9898	0.8837		899	294.33	7.008
900	0.9909	0.8847		900	294.00	7.000
901	0.9920	0.8857		901	293.68	6.992
902	0.9931	0.8867		902	293.35	6.985
903	0.9942	0.8877		903	293.03	6.977
904	0.9953	0.8887		904	292.70	6.969
905	0.9964	0.8896		905	292.38	6.961
906	0.9975	0.8906		906	292.05	6.954
907	0.9986	0.8916		907	291.73	6.946
908	0.9997	0.8926		908	291.41	6.938
909	1.0008	0.8936		909	291.09	6.931
910	1.0019	0.8946		910	290.77	6.923
911	1.0030	0.8955		911	290.45	6.915

912	1.0041	0.8965		912	290.13	6.908
913	1.0052	0.8975		913	289.81	6.900
914	1.0063	0.8985		914	289.49	6.893
915	1.0074	0.8995		915	289.17	6.885
916	1.0085	0.9005		916	288.86	6.878
917	1.0096	0.9015		917	288.54	6.870
918	1.0107	0.9024		918	288.23	6.863
919	1.0118	0.9034		919	287.91	6.855
920	1.0129	0.9044		920	287.60	6.848
921	1.0140	0.9054		921	287.29	6.840
922	1.0151	0.9064		922	286.98	6.833
923	1.0162	0.9074		923	286.66	6.825
924	1.0173	0.9083		924	286.35	6.818
925	1.0184	0.9093		925	286.04	6.811
926	1.0195	0.9103		926	285.73	6.803
927	1.0207	0.9113		927	285.42	6.796
928	1.0218	0.9123		928	285.12	6.788
929	1.0229	0.9133		929	284.81	6.781
930	1.0240	0.9142		930	284.50	6.774
931	1.0251	0.9152		931	284.20	6.767
932	1.0262	0.9162		932	283.89	6.759
933	1.0273	0.9172		933	283.59	6.752
934	1.0284	0.9182		934	283.28	6.745
935	1.0295	0.9192		935	282.98	6.738
936	1.0306	0.9202		936	282.68	6.730
937	1.0317	0.9211		937	282.37	6.723
938	1.0328	0.9221		938	282.07	6.716
939	1.0339	0.9231		939	281.77	6.709
940	1.0350	0.9241		940	281.47	6.702
941	1.0361	0.9251		941	281.17	6.695
942	1.0372	0.9261		942	280.87	6.687
943	1.0383	0.9270		943	280.57	6.680
944	1.0394	0.9280		944	280.28	6.673
945	1.0405	0.9290		945	279.98	6.666
946	1.0416	0.9300		946	279.68	6.659
947	1.0427	0.9310		947	279.39	6.652
948	1.0438	0.9320		948	279.09	6.645
949	1.0449	0.9330		949	278.80	6.638
950	1.0460	0.9339		950	278.51	6.631
951	1.0471	0.9349		951	278.21	6.624
952	1.0482	0.9359		952	277.92	6.617
953	1.0493	0.9369		953	277.62	6.610
954	1.0504	0.9379		954	277.33	6.603
955	1.0515	0.9389		955	277.04	6.596
956	1.0526	0.9398		956	276.75	6.589
957	1.0537	0.9408		957	276.46	6.582
958	1.0548	0.9418		958	276.17	6.576
959	1.0559	0.9428		959	275.88	6.569
960	1.0570	0.9438		960	275.60	6.562
961	1.0581	0.9448		961	275.31	6.555
962	1.0592	0.9457		962	275.02	6.548
963	1.0603	0.9467		963	274.74	6.541
964	1.0614	0.9477		964	274.45	6.535
965	1.0625	0.9487		965	274.17	6.528
966	1.0636	0.9497		966	273.88	6.521
967	1.0648	0.9507		967	273.60	6.514

968	1.0659	0.9517		968	273.31	6.507
969	1.0670	0.9526		969	273.03	6.501
970	1.0681	0.9536		970	272.75	6.494
971	1.0692	0.9546		971	272.47	6.487
972	1.0703	0.9556		972	272.19	6.481
973	1.0714	0.9566		973	271.91	6.474
974	1.0725	0.9576		974	271.63	6.467
975	1.0736	0.9585		975	271.35	6.461
976	1.0747	0.9595		976	271.07	6.454
977	1.0758	0.9605		977	270.79	6.447
978	1.0769	0.9615		978	270.51	6.441
979	1.0780	0.9625		979	270.24	6.434
980	1.0791	0.9635		980	269.96	6.428
981	1.0802	0.9645		981	269.69	6.421
982	1.0813	0.9654		982	269.41	6.415
983	1.0824	0.9664		983	269.14	6.408
984	1.0835	0.9674		984	268.86	6.401
985	1.0846	0.9684		985	268.59	6.395
986	1.0857	0.9694		986	268.32	6.388
987	1.0868	0.9704		987	268.04	6.382
988	1.0879	0.9713		988	267.77	6.376
989	1.0890	0.9723		989	267.50	6.369
990	1.0901	0.9733		990	267.23	6.363
991	1.0912	0.9743		991	266.96	6.356
992	1.0923	0.9753		992	266.69	6.350
993	1.0934	0.9763		993	266.42	6.343
994	1.0945	0.9772		994	266.15	6.337
995	1.0956	0.9782		995	265.88	6.331
996	1.0967	0.9792		996	265.62	6.324
997	1.0978	0.9802		997	265.35	6.318
998	1.0989	0.9812		998	265.08	6.312
999	1.1000	0.9822		999	264.82	6.305
1000	1.1011	0.9832		1000	264.55	6.299
1001	1.1022	0.9841		1001	264.29	6.293
1002	1.1033	0.9851		1002	264.02	6.286
1003	1.1044	0.9861		1003	263.76	6.280
1004	1.1055	0.9871		1004	263.50	6.274
1005	1.1066	0.9881		1005	263.23	6.267
1006	1.1077	0.9891		1006	262.97	6.261
1007	1.1088	0.9900		1007	262.71	6.255
1008	1.1100	0.9910		1008	262.45	6.249
1009	1.1111	0.9920		1009	262.19	6.243
1010	1.1122	0.9930		1010	261.93	6.236
1011	1.1133	0.9940		1011	261.67	6.230
1012	1.1144	0.9950		1012	261.41	6.224
1013	1.1155	0.9960		1013	261.15	6.218
1014	1.1166	0.9969		1014	260.89	6.212
1015	1.1177	0.9979		1015	260.64	6.206
1016	1.1188	0.9989		1016	260.38	6.200
1017	1.1199	0.9999		1017	260.12	6.193
1018	1.1210	1.0009		1018	259.87	6.187
1019	1.1221	1.0019		1019	259.61	6.181
1020	1.1232	1.0028		1020	259.36	6.175
1021	1.1243	1.0038		1021	259.10	6.169
1022	1.1254	1.0048		1022	258.85	6.163
1023	1.1265	1.0058		1023	258.60	6.157

1024	1.1276	1.0068	1024	258.34	6.151
1025	1.1287	1.0078	1025	258.09	6.145
1026	1.1298	1.0087	1026	257.84	6.139
1027	1.1309	1.0097	1027	257.59	6.133
1028	1.1320	1.0107	1028	257.34	6.127
1029	1.1331	1.0117	1029	257.08	6.121
1030	1.1342	1.0127	1030	256.83	6.115
1031	1.1353	1.0137	1031	256.59	6.109
1032	1.1364	1.0147	1032	256.34	6.103
1033	1.1375	1.0156	1033	256.09	6.097
1034	1.1386	1.0166	1034	255.84	6.091
1035	1.1397	1.0176	1035	255.59	6.086
1036	1.1408	1.0186	1036	255.35	6.080
1037	1.1419	1.0196	1037	255.10	6.074
1038	1.1430	1.0206	1038	254.85	6.068
1039	1.1441	1.0215	1039	254.61	6.062
1040	1.1452	1.0225	1040	254.36	6.056
1041	1.1463	1.0235	1041	254.12	6.050
1042	1.1474	1.0245	1042	253.87	6.045
1043	1.1485	1.0255	1043	253.63	6.039
1044	1.1496	1.0265	1044	253.39	6.033
1045	1.1507	1.0274	1045	253.14	6.027
1046	1.1518	1.0284	1046	252.90	6.021
1047	1.1529	1.0294	1047	252.66	6.016
1048	1.1541	1.0304	1048	252.42	6.010
1049	1.1552	1.0314	1049	252.18	6.004
1050	1.1563	1.0324	1050	251.93	5.998
1051	1.1574	1.0334	1051	251.69	5.993
1052	1.1585	1.0343	1052	251.46	5.987
1053	1.1596	1.0353	1053	251.22	5.981
1054	1.1607	1.0363	1054	250.98	5.976
1055	1.1618	1.0373	1055	250.74	5.970
1056	1.1629	1.0383	1056	250.50	5.964
1057	1.1640	1.0393	1057	250.26	5.959
1058	1.1651	1.0402	1058	250.03	5.953
1059	1.1662	1.0412	1059	249.79	5.947
1060	1.1673	1.0422	1060	249.55	5.942
1061	1.1684	1.0432	1061	249.32	5.936
1062	1.1695	1.0442	1062	249.08	5.931
1063	1.1706	1.0452	1063	248.85	5.925
1064	1.1717	1.0462	1064	248.61	5.919
1065	1.1728	1.0471	1065	248.38	5.914
1066	1.1739	1.0481	1066	248.15	5.908
1067	1.1750	1.0491	1067	247.91	5.903
1068	1.1761	1.0501	1068	247.68	5.897
1069	1.1772	1.0511	1069	247.45	5.892
1070	1.1783	1.0521	1070	247.22	5.886
1071	1.1794	1.0530	1071	246.99	5.881
1072	1.1805	1.0540	1072	246.76	5.875
1073	1.1816	1.0550	1073	246.53	5.870
1074	1.1827	1.0560	1074	246.30	5.864
1075	1.1838	1.0570	1075	246.07	5.859

DO NOT EN

Volume XI

API Gravity (60°F)	Short Tons per 1000 US Gallons (60°F)	Short Tons per Barrel (60°F)
27	3.7169	0.15611
27.05	3.71575	0.15606
27.1	3.7146	0.15601

Volume
4
1
2
3
4
5
6
7
8
9

Volume XII

Relative Density (60/60°F)	Short Tons per 1000 US Gallons (60°F)	Short Tons per Barrel (60°F)
0.83	3.4553	0.14512
0.8305	3.4574	0.14521
0.831	3.4595	0.1453

Volume
4
1
2
3
4
5
6
7
8

Volume XII (2)

Density (15°C)	Kilograms per Cubic Mtr	Cubic Mtrs per Tonne
830	828.9	1.2064
830.5	829.4	1.2057
831	829.9	1.205

Volume
3
1
2
3
4
5

XI

ASTM Table 9 - API ; Short Tons/1000 US Gallons ; Short Tons/Barrel.
ASTM Table 3 - API ; Relative Density ; Density.
ASTM Table 4 - API ; Litres/US Gallon ; Cubic Mtrs/Barrel.
ASTM Table 8 - API ; Pounds/US Gallon ; US Gallons/Pound.
ASTM Table 9 - API ; Short Tons/1000 US Gallons ; Short Tons/Barrel.
ASTM Table 10 - API ; US Gallons/Short Ton ; Barrels/Short Ton.
ASTM Table 11 - API ; Long Tons/1000 US Gallons ; Long Tons/Barrel.
ASTM Table 12 - API ; US Gallons/Long Ton ; Barrels/Long Ton.
ASTM Table 13 - API ; Tonnes/1000 US Gallons ; Tonnes/Barrel.
ASTM Table 14 - API ; Cubic Mtrs/Short Ton ; Cubic Mtrs/Long Ton

XII

ASTM Table 27 - Rel.Density ; Short Tons/1000 US Gallons ; Short Tons/Barrel.
ASTM Table 21 - Rel.Density ; API ; Density.
ASTM Table 22 - Rel.Density ; Litres/US Gallon ; Cubic Mtrs/Barrel
ASTM Table 26 - Rel.Density ; Pounds/US Gallon ; US Gallons/Pound.
ASTM Table 27 - Rel.Density ; Short Tons/1000 US Gallons ; Short Tons/Barrel.
ASTM Table 28 - Rel.Density ; US Gallons/Short Ton ; Barrels/Short Ton.
ASTM Table 29 - Rel.Density ; Long Tos/1000 US Gallons ; Long Tons/Barrel.
ASTM Table 30 - Rel.Density ; US Gallons/Long Ton ; Barrels/Long Ton.
ASTM Table 31 - Rel.Density ; Cubic Mtrs/Short Ton ; Cubic Mtrs/Long Ton.

XII (2)

ASTM Table 56 - Density ; Kilograms/Cubic Mtr ; Cubic Mtrs/Tonne.
ASTM Table 51 - Density ; Relative Density ; API.
ASTM Table 52 - Density ; Cubic Mtrs/Barrel ; Barrels/Cubic Mtr.
ASTM Table 56 - Density ; Kilograms/Cubic Mtr ; Cubic Mtrs/Tonne.
ASTM Table 57 - Density ; Short Tons/Cubic Mtr ; Long Tons/Cubic Mtr.
ASTM Table 58 - Density ; US Gallons/Tonne ; Barrels/Tonne.

Short Tons per 1000 US Gallons and per Barrel	ASTM Table 9
API Gravity to Relative Density and to Density	ASTM Table 3
US Galons to Litres and Barrels to Cubic Metres	ASTM Table 4
Pounds per US Gallon and US Gallons per Pound	ASTM Table 8
Short Tons per 1000 US Gallons and per Barrel	ASTM Table 9
US Galons and Barrels per Short Ton	ASTM Table 10
Long Tons per 1000 US Gallons and per Barrel	ASTM Table 11
US Galons and Barrels per Long Ton	ASTM Table 12
Metric Tons (Tonnes) per 1000 US Gallons and per Barrel	ASTM Table 13
Cubic Metres per Short Ton and per Long Ton	ASTM Table 14

Short Tons per 1000 US Gallons and per Barrel	ASTM Table 27
Relative Density to API Gravity and to Density	ASTM Table 21
US Gallons to Litres and Barrels to Cubic Metres	ASTM Table 22
Pounds per US Gallon and US Gallons per Pound	ASTM Table 26
Short Tons per 1000 US Gallons and per Barrel	ASTM Table 27
US Gallons and Barrels per Short Ton	ASTM Table 28
Long Tons per 1000 US Gallons and per Barrel	ASTM Table 29
US Gallons and Barrels per Long Ton	ASTM Table 30
Cubic Metres per Short Ton and per Long Ton	ASTM Table 31

Kilograms per Cubic Metre and Cubic Metres per Metric Ton (Tonnes)	ASTM Table 56
Density to Relative Density and to API Gravity	ASTM Table 51
Barrels to Cubic Metres and Cubic Metres to Barrels	ASTM Table 52
Kilograms per Cubic Metre and Cubic Metres per Metric Ton (Tonnes)	ASTM Table 56
Short Tons and Long Tons per Cubic Metre	ASTM Table 57
US Gallons and Barrels per Metric Ton (Tonnes)	ASTM Table 58

API	Gravity	0	(60°F)	27	27.05	27.1	Relative	Density	0
API	Gravity	0	(60°F)		27.05		Litres @15°C	per	US Gallon @60°F
API	Gravity	0	(60°F)	27	27.05	27.1	Pounds	per	US Gallon
API	Gravity	0	(60°F)	27	27.05	27.1	Short Tons	per	1000 US Gallons
API	Gravity	0	(60°F)	27	27.05	27.1	US Gallons	per	Short Ton
API	Gravity	0	(60°F)	27	27.05	27.1	Long Tons	per	1000 US Gallons
API	Gravity	0	(60°F)	27	27.05	27.1	US Gallons	per	Long Ton
API	Gravity	0	(60°F)	27	27.05	27.1	Tonnes	per	1000 US Gallons
API	Gravity	0	(60°F)	27	27.05	27.1	Cubic Mtrs	per	Short Ton

Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	API	Gravity	0
Relative	Density	0	(60/60°F)		0.8305		Litres @15°C	per	US Gallon @60°F
Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	Pounds	per	US Gallon
Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	Short Tons	per	1000 US Gallons
Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	US Gallons	per	Short Ton
Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	Long Tons	per	1000 US Gallons
Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	US Gallons	per	Long Ton
Relative	Density	0	(60/60°F)	0.83	0.8305	0.831	Cubic Mtrs	per	Short Ton
					0.8305				

Density	0	0	(15°C)	830	830.5	831	Relative	Density	0
Density	0	0	(15°C)		830.5		Cubic Mtrs @15°C	per	Barrel @60°F
Density	0	0	(15°C)	830	830.5	831	Kilograms	per	Cubic Mtr
Density	0	0	(15°C)	830	830.5	831	Short Tons	per	Cubic Mtr
Density	0	0	(15°C)	830	830.5	831	US Gallons	per	Tonne

(60/60°F)	0.8927	0.89245	0.89220	Density	0	0	(15°C)	892.2
0	3.7838	3.7838	3.7838	Cubic Mtrs @15°C	per	Barrel @60°F	0	0.15892
(60°F)	7.434	7.4315	7.429	US Gallons	per	Pound	(60°F)	0.13452
(60°F)	3.7169	3.71575	3.7146	Short Tons	per	Barrel	(60°F)	0.15611
(60°F)	269.04	269.13	269.21	Barrels	per	Short Ton	(60°F)	6.406
(60°F)	3.3187	3.31765	3.3166	Long Tons	per	Barrel	(60°F)	0.13939
(60°F)	301.32	301.42	301.51	Barrels	per	Long Ton	(60°F)	7.174
(60°F)	3.3719	3.37085	3.3698	Tonnes	per	Barrel	(60°F)	0.14162
(15°C)	1.018	1.0183	1.0186	Cubic Mtrs	per	Long Ton	(15°C)	1.1401

(60°F)	38.98	38.88	38.78	Density	0	0	(15°C)	829.6
0	3.7836	3.7836	3.7836	Cubic Mtrs @15°C	per	Barrel @60°F	0	0.15891
0	6.9107	6.91485	6.919	US Gallons	per	Pound	0	0.1447
(60°F)	3.4553	3.4574	3.4595	Short Tons	per	Barrel	(60°F)	0.14512
(60°F)	289.41	289.24	289.06	Barrels	per	Short Ton	(60°F)	6.891
(60°F)	3.0851	3.087	3.0889	Long Tons	per	Barrel	(60°F)	0.12958
(60°F)	324.14	323.95	323.75	Barrels	per	Long Ton	(60°F)	7.718
0	1.095	1.09435	1.0937	Cubic Mtrs	per	Long Ton	0	1.2264

(60/60°F)	0.8304	0.8309	0.8314	API	Gravity	0	(60°F)	38.9
0	0.15891	0.15891	0.15891	Barrels @60°F	per	Cubic Mtr @15°C	0	6.293
0	828.9	829.4	829.9	Cubic Mtrs	per	Tonne	0	1.2064
0	0.9137	0.91425	0.9148	Long Tons	per	Cubic Mtr	0	0.8158
0	318.85	318.66	318.47	Barrels	per	Tonne	0	7.592

891.95	891.7
0.15892	0.15892
0.13456	0.1346
0.15606	0.15601
6.408	6.41
0.139345	0.1393
7.1765	7.179
0.141575	0.14153
1.1405	1.1409

830.1	830.6
0.15891	0.15891
0.144615	0.14453
0.14521	0.1453
6.8865	6.882
0.129655	0.12973
7.713	7.708
1.22565	1.2249

38.795	38.69
6.293	6.293
1.2057	1.205
0.8163	0.8168
7.5875	7.583

2	ASTM Table 6A
1	ASTM Table 6
2	ASTM Table 6A
3	ASTM Table 6B

1	ASTM Table 54A
1	ASTM Table 54A
2	ASTM Table 54B

Generalized Crude Oils Correction of Volume to 60°F against API Gravity at 60°F.
Reduction of Volume to 60°F against API Gravity at 60°F
Generalized Crude Oils Correction of Volume to 60°F against API Gravity at 60°F.
Generalized Products Correction of Volume to 60°F against API Gravity at 60°F.

API
22.90

API
22.90

API
22.90

Generalized Crude Oils Correction of Volume to 15°C against Density at 15°C.
Generalized Crude Oils Correction of Volume to 15°C against Density at 15°C.
Generalized Products Correction of Volume to 15°C against Density at 15°C.

Density15°C
870.00

Density15°C
870.00

	ASTM Table 6					
T°F	**API**	**T°F**	f	g	h	s
100.9°F	**22.9**	**100.9**	-0.0003948	0.00003	-0.000400792	6.53286E-08

	ASTM Table 6A				VCF
T°F	**API**	**T°F**	A	b	**6A**
100.9°F	**23.0**	**101.0**	0.000407454	1.013364502	**0.9832**

	ASTM Table 6B		Cor1	Cor2		
T°F	**API**	**T°F**		API<37.0	37.0=< API <48.0	48.0=< API <52.0
100.9°F	**23.0**	**101.0**	914.9527379	0.000419286	0	0

	ASTM Table 54A				VCF
T°C	**Density15°C**	**T°C**	A	b	**54A**
36.20	**870**	**36.25**	0.000811167	1.013789839	**0.9827**

	ASTM Table 54B		Cor1			
T°C	**Density15°C**	**T°C**	D<770	770=< D <787.5	787.5=< D <838.5	838.5=< D <1075
36.20	**870**	**36.25**	0	0	0	0.000447695

	VCF
e	6
40.9	**0.9837**

	Cor2	Cor3	VCF
52.0=< API <85.0			6B
0	0.000419286	1.013752592	**0.9827**

Cor1	Cor2	VCF
		54B
0.000447695	38.25	**0.9828**

Notes:

This program is written by Capt. Yury Shishkin

No liability can be claimed for errors resulting from the use of this program.

Please contact Yury.Shishkin@rambler.ru if you have any suggestions to improve this program.