Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

As the amount of sugar dissolved in water increases, the ability of the combined solution to bend (or refract) light also increases. A **refractometer** is an instrument that measures the angle of refraction through a sample of liquid; and, hence, is commonly used to assess the amount of sugar in grapes. The most common refractometers used by winemakers have their optical displays calibrated in units known as **Brix** (1 Brix = 1g of sugar per 100 mg of solution ≈ 1% sugar concentration).

Brix Refractometers are accurate, relatively inexpensive and easy to use. It comes as a surprise to many veteran winemakers that a refractometer can also be used to monitor the progress of a fermentation from start to finish – just like their trusty hydrometer. The reason for this preference for a hydrometer stems from the fact that Brix refractometers are NOT calibrated to account for the interfering effects of ever increasing alcohol levels as fermentation moves towards its end point. That is, the observed Brix reading made with a refractometer is the direct result of the change in the refractive index of the wine. However, two opposing processes are responsible for determining the change in the refractive index of the wine: (1) The reduction in the concentration of sugars due to yeast metabolism acts to reduce the refractive index of the wine. At the same time, however, (2) the increasing concentration of alcohol acts to increase the refractive index of the wine (albeit at a different rate than the effects of the changing level of sugar). These opposing influences on wine's ability to refract light as the fermentation process progresses are depicted in Figure 1.
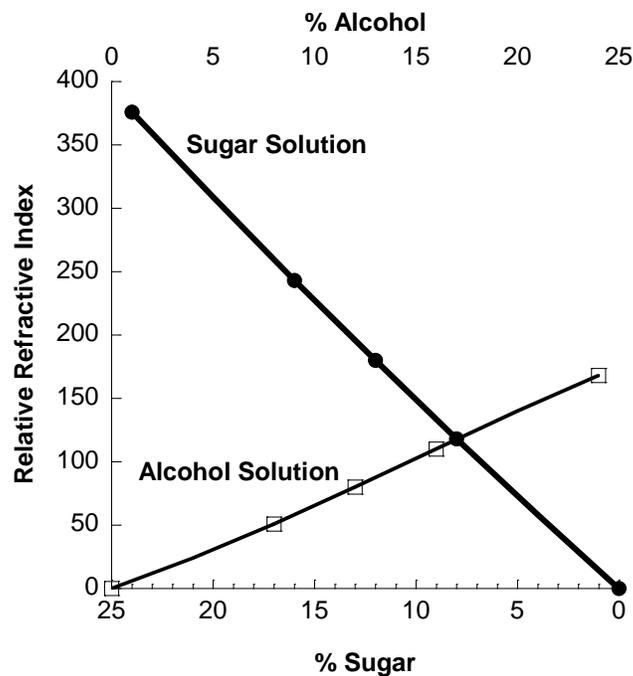
Figure 1. Relative contributions to the refractive index of wine due to the opposing influences of sugar depletion and alcohol accumulation during fermentation.

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

Because these opposing influences on the refractive index of wine are so lawful, it should be possible to derive an equation to "correct" a refractometer Brix reading for the effects of alcohol. Indeed, the folks at Valley Vintner have developed an Excel spreadsheet which can be used to apply such a compensatory model. A web page describing the equations together with a link to the spreadsheet can be found at http://valleyvintner.com/Refrac_Hydro/Refract_Hydro.htm.

Hence, armed with your refractometer and the Valley Vintner spreadsheet you can accurately estimate the specific gravity and "true" Brix of your fermentation using just a few drops of your precious wine. Using a thermometer to collect a concurrent temperature reading, the software will automatically apply a temperature correction to the specific gravity and "true" Brix estimates. The only catch is that you need to make sure that you measure and save the original (or starting) Brix level made prior to pitching the yeast.

Since I often spend many hours at a time in my wine cellar and find it inconvenient to climb two flights of stairs to access the computer in my home office, I have prepared a series of tables which allow me to convert my original Brix and current refractometer Brix and temperature readings into corrected estimates of specific gravity and "true" Brix. There is a separate table for each level of original/starting Brix (ranging from 18 to 28 Brix). Use these tables as follows: (1) measure and record the **original Brix** prior to pitching the yeast, (2) pull the table for the appropriate original brix level, (3) measure the current Brix (RBRIX) with your refractometer, (4) measure the temperature in °F) and (5) lookup the specific gravity (SG) and "true" Brix estimates in the appropriate row and column using the RBRIX and temperature values, respectively. If you use a disposable transfer pipette to collect your wine sample and a noncontact infrared thermometer to measure temperature, you can maintain the ultimate level of sanitation in your wine making endeavors.

The Equations
```
%estimate SG using current (rbrix) and original brix (obrix) readings
sg=1.001843-(0.002318474*obrix)-(0.000007775*(obrix^2))-
   (0.000000034*(obrix^3))+(0.00574*(rbrix))+(0.00003344*(rbrix^2))
   +(0.000000086*(rbrix^3));

%compute and apply temperature correction to SG estimate
tcorr=1.313454-(0.132674*tempf)+0.002057793*(tempf^2)-
   (0.000002627634*(tempf^3));
sgc=sg+(tcorr*0.001);

%estimate true brix using temperature corrected SG value
tbrix=-676.67+(1286.4*sgc)-(800.47*(sgc^2))+(190.74*(sgc^3));
```

Notes
These equations are used in the spreadsheet implemented by Valley Vintner and can also be found at http://www.primetab.com/formulas. Unfortunately, I have been unable to track them down to an original source. Nonetheless, special thanks to their creator even if it must be anonymous.

Original Brix = 18.0

	55F		60F		65F		70F		75F		80F		85F	
RBRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX
18.0	1.072	17.4	1.072	17.5	1.073	17.6	1.073	17.7	1.074	17.9	1.075	18.0	1.075	18.2
17.5	1.068	16.6	1.069	16.7	1.069	16.8	1.070	16.9	1.070	17.1	1.071	17.2	1.072	17.4
17.0	1.065	15.8	1.065	15.9	1.066	16.0	1.066	16.1	1.067	16.3	1.068	16.4	1.068	16.6
16.5	1.061	15.0	1.062	15.1	1.062	15.2	1.063	15.3	1.063	15.5	1.064	15.6	1.065	15.8
16.0	1.058	14.2	1.058	14.3	1.059	14.4	1.059	14.5	1.060	14.7	1.061	14.8	1.061	15.0
15.5	1.055	13.4	1.055	13.5	1.055	13.6	1.056	13.7	1.057	13.9	1.057	14.0	1.058	14.2
15.0	1.051	12.6	1.052	12.7	1.052	12.8	1.053	12.9	1.053	13.1	1.054	13.2	1.055	13.4
14.5	1.048	11.8	1.048	11.9	1.049	12.0	1.049	12.1	1.050	12.3	1.050	12.4	1.051	12.6
14.0	1.044	11.0	1.045	11.1	1.045	11.2	1.046	11.3	1.046	11.5	1.047	11.6	1.048	11.8
13.5	1.041	10.2	1.041	10.3	1.042	10.4	1.042	10.5	1.043	10.7	1.044	10.8	1.044	11.0
13.0	1.038	9.4	1.038	9.5	1.039	9.6	1.039	9.7	1.040	9.9	1.040	10.0	1.041	10.2
12.5	1.034	8.6	1.035	8.7	1.035	8.8	1.036	8.9	1.036	9.1	1.037	9.2	1.038	9.4
12.0	1.031	7.8	1.031	7.9	1.032	8.0	1.032	8.1	1.033	8.3	1.034	8.4	1.035	8.6
11.5	1.028	7.0	1.028	7.1	1.029	7.2	1.029	7.3	1.030	7.5	1.030	7.6	1.031	7.8
11.0	1.024	6.2	1.025	6.3	1.025	6.4	1.026	6.5	1.027	6.7	1.027	6.8	1.028	7.0
10.5	1.021	5.4	1.022	5.5	1.022	5.6	1.023	5.7	1.023	5.9	1.024	6.0	1.025	6.2
10.0	1.018	4.6	1.018	4.7	1.019	4.8	1.019	4.9	1.020	5.1	1.021	5.2	1.022	5.4
9.5	1.015	3.8	1.015	3.9	1.016	4.0	1.016	4.1	1.017	4.3	1.018	4.5	1.018	4.6
9.0	1.012	3.0	1.012	3.1	1.012	3.2	1.013	3.3	1.014	3.5	1.014	3.7	1.015	3.8
8.5	1.008	2.2	1.009	2.3	1.009	2.4	1.010	2.5	1.010	2.7	1.011	2.9	1.012	3.0
8.0	1.005	1.4	1.006	1.5	1.006	1.6	1.007	1.7	1.007	1.9	1.008	2.1	1.009	2.2
7.5	1.002	0.6	1.003	0.7	1.003	0.8	1.004	0.9	1.004	1.1	1.005	1.3	1.006	1.4
7.0	0.999	-0.2	0.999	-0.1	1.000	-0.0	1.000	0.1	1.001	0.3	1.002	0.5	1.003	0.7
6.5	0.996	-1.0	0.996	-0.9	0.997	-0.8	0.997	-0.7	0.998	-0.5	0.999	-0.3	0.999	-0.1
6.0	0.993	-1.9	0.993	-1.8	0.994	-1.6	0.994	-1.5	0.995	-1.3	0.996	-1.1	0.996	-0.9
5.5	0.990	-2.7	0.990	-2.6	0.991	-2.4	0.991	-2.3	0.992	-2.1	0.993	-1.9	0.993	-1.7
5.0	0.987	-3.5	0.987	-3.4	0.988	-3.2	0.988	-3.1	0.989	-2.9	0.989	-2.7	0.990	-2.5
4.5	0.984	-4.3	0.984	-4.2	0.985	-4.0	0.985	-3.9	0.986	-3.7	0.986	-3.5	0.987	-3.3
4.0	0.981	-5.1	0.981	-5.0	0.982	-4.8	0.982	-4.7	0.983	-4.5	0.983	-4.3	0.984	-4.1
3.5	0.978	-5.9	0.978	-5.8	0.979	-5.6	0.979	-5.5	0.980	-5.3	0.980	-5.1	0.981	-4.9
3.0	0.975	-6.7	0.975	-6.6	0.976	-6.4	0.976	-6.3	0.977	-6.1	0.977	-5.9	0.978	-5.7

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

```
Original Brix = 19.0


              55F          60F          65F          70F          75F          80F          85F
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RBRIX   SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX
19.0  1.076 18.4  1.077 18.5  1.077 18.6  1.078 18.7  1.078 18.9  1.079 19.0  1.080 19.2
18.5  1.073 17.6  1.073 17.7  1.074 17.8  1.074 17.9  1.075 18.1  1.075 18.2  1.076 18.4
18.0  1.069 16.8  1.070 16.9  1.070 17.0  1.071 17.1  1.071 17.3  1.072 17.4  1.073 17.6
17.5  1.066 16.0  1.066 16.1  1.067 16.2  1.067 16.3  1.068 16.5  1.068 16.6  1.069 16.8
17.0  1.062 15.2  1.063 15.3  1.063 15.4  1.064 15.5  1.064 15.7  1.065 15.8  1.066 16.0
16.5  1.059 14.4  1.059 14.5  1.060 14.6  1.060 14.7  1.061 14.9  1.061 15.0  1.062 15.2
16.0  1.055 13.6  1.056 13.7  1.056 13.8  1.057 13.9  1.057 14.1  1.058 14.2  1.059 14.4
15.5  1.052 12.8  1.052 12.9  1.053 13.0  1.053 13.1  1.054 13.3  1.055 13.4  1.055 13.6
15.0  1.048 12.0  1.049 12.1  1.049 12.2  1.050 12.3  1.050 12.5  1.051 12.6  1.052 12.8
14.5  1.045 11.2  1.045 11.3  1.046 11.4  1.046 11.5  1.047 11.7  1.048 11.8  1.049 12.0
14.0  1.042 10.4  1.042 10.5  1.043 10.6  1.043 10.7  1.044 10.8  1.044 11.0  1.045 11.2
13.5  1.038  9.6  1.039  9.7  1.039  9.8  1.040  9.9  1.040 10.0  1.041 10.2  1.042 10.4
13.0  1.035  8.8  1.035  8.8  1.036  9.0  1.036  9.1  1.037  9.2  1.038  9.4  1.039  9.6
12.5  1.032  7.9  1.032  8.0  1.033  8.2  1.033  8.3  1.034  8.4  1.034  8.6  1.035  8.8
12.0  1.028  7.1  1.029  7.2  1.029  7.3  1.030  7.5  1.030  7.6  1.031  7.8  1.032  8.0
11.5  1.025  6.3  1.026  6.4  1.026  6.5  1.027  6.7  1.027  6.8  1.028  7.0  1.029  7.2
11.0  1.022  5.5  1.022  5.6  1.023  5.7  1.023  5.9  1.024  6.0  1.025  6.2  1.025  6.4
10.5  1.019  4.7  1.019  4.8  1.019  4.9  1.020  5.1  1.021  5.2  1.021  5.4  1.022  5.6
10.0  1.015  3.9  1.016  4.0  1.016  4.1  1.017  4.3  1.017  4.4  1.018  4.6  1.019  4.8
 9.5  1.012  3.1  1.013  3.2  1.013  3.3  1.014  3.5  1.014  3.6  1.015  3.8  1.016  4.0
 9.0  1.009  2.3  1.009  2.4  1.010  2.5  1.010  2.7  1.011  2.8  1.012  3.0  1.012  3.2
 8.5  1.006  1.5  1.006  1.6  1.007  1.7  1.007  1.8  1.008  2.0  1.009  2.2  1.009  2.4
 8.0  1.003  0.7  1.003  0.8  1.004  0.9  1.004  1.0  1.005  1.2  1.005  1.4  1.006  1.6
 7.5  1.000 -0.1  1.000 -0.0  1.000  0.1  1.001  0.2  1.002  0.4  1.002  0.6  1.003  0.8
 7.0  0.996 -0.9  0.997 -0.8  0.997 -0.7  0.998 -0.6  0.998 -0.4  0.999 -0.2  1.000 -0.0
 6.5  0.993 -1.7  0.994 -1.6  0.994 -1.5  0.995 -1.4  0.995 -1.2  0.996 -1.0  0.997 -0.8
 6.0  0.990 -2.5  0.991 -2.4  0.991 -2.3  0.992 -2.2  0.992 -2.0  0.993 -1.8  0.994 -1.6
 5.5  0.987 -3.3  0.988 -3.2  0.988 -3.1  0.989 -3.0  0.989 -2.8  0.990 -2.6  0.991 -2.4
 5.0  0.984 -4.2  0.984 -4.1  0.985 -3.9  0.986 -3.8  0.986 -3.6  0.987 -3.4  0.988 -3.2
 4.5  0.981 -5.0  0.981 -4.9  0.982 -4.7  0.982 -4.6  0.983 -4.4  0.984 -4.2  0.985 -4.0
 4.0  0.978 -5.8  0.978 -5.7  0.979 -5.5  0.979 -5.4  0.980 -5.2  0.981 -5.0  0.982 -4.8
 3.5  0.975 -6.6  0.975 -6.5  0.976 -6.3  0.976 -6.2  0.977 -6.0  0.978 -5.8  0.979 -5.6
 3.0  0.972 -7.4  0.972 -7.3  0.973 -7.1  0.973 -7.0  0.974 -6.8  0.975 -6.6  0.976 -6.4
```

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

Original Brix = 20.0

	55F		60F		65F		70F		75F		80F		85F	
RBRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX
20.0	1.081	19.4	1.081	19.5	1.082	19.6	1.082	19.7	1.083	19.9	1.083	20.0	1.084	20.2
19.5	1.077	18.6	1.078	18.7	1.078	18.8	1.079	18.9	1.079	19.1	1.080	19.2	1.081	19.4
19.0	1.074	17.8	1.074	17.9	1.074	18.0	1.075	18.1	1.076	18.3	1.076	18.4	1.077	18.6
18.5	1.070	17.0	1.070	17.1	1.071	17.2	1.071	17.3	1.072	17.5	1.073	17.6	1.074	17.8
18.0	1.067	16.2	1.067	16.3	1.067	16.4	1.068	16.5	1.069	16.7	1.069	16.8	1.070	17.0
17.5	1.063	15.4	1.063	15.5	1.064	15.6	1.064	15.7	1.065	15.9	1.066	16.0	1.067	16.2
17.0	1.060	14.6	1.060	14.7	1.060	14.8	1.061	14.9	1.062	15.0	1.062	15.2	1.063	15.4
16.5	1.056	13.8	1.056	13.9	1.057	14.0	1.058	14.1	1.058	14.2	1.059	14.4	1.060	14.6
16.0	1.053	13.0	1.053	13.1	1.054	13.2	1.054	13.3	1.055	13.4	1.055	13.6	1.056	13.8
15.5	1.049	12.2	1.050	12.2	1.050	12.4	1.051	12.5	1.051	12.6	1.052	12.8	1.053	13.0
15.0	1.046	11.3	1.046	11.4	1.047	11.5	1.047	11.7	1.048	11.8	1.049	12.0	1.049	12.2
14.5	1.042	10.5	1.043	10.6	1.043	10.7	1.044	10.9	1.044	11.0	1.045	11.2	1.046	11.4
14.0	1.039	9.7	1.039	9.8	1.040	9.9	1.040	10.1	1.041	10.2	1.042	10.4	1.043	10.6
13.5	1.036	8.9	1.036	9.0	1.037	9.1	1.037	9.3	1.038	9.4	1.038	9.6	1.039	9.8
13.0	1.032	8.1	1.033	8.2	1.033	8.3	1.034	8.4	1.034	8.6	1.035	8.8	1.036	9.0
12.5	1.029	7.3	1.029	7.4	1.030	7.5	1.030	7.6	1.031	7.8	1.032	8.0	1.033	8.1
12.0	1.026	6.5	1.026	6.6	1.027	6.7	1.027	6.8	1.028	7.0	1.028	7.2	1.029	7.3
11.5	1.022	5.7	1.023	5.8	1.023	5.9	1.024	6.0	1.024	6.2	1.025	6.3	1.026	6.5
11.0	1.019	4.9	1.020	5.0	1.020	5.1	1.021	5.2	1.021	5.4	1.022	5.5	1.023	5.7
10.5	1.016	4.1	1.016	4.2	1.017	4.3	1.017	4.4	1.018	4.6	1.019	4.7	1.019	4.9
10.0	1.013	3.2	1.013	3.3	1.014	3.5	1.014	3.6	1.015	3.8	1.015	3.9	1.016	4.1
9.5	1.010	2.4	1.010	2.5	1.010	2.6	1.011	2.8	1.012	2.9	1.012	3.1	1.013	3.3
9.0	1.006	1.6	1.007	1.7	1.007	1.8	1.008	2.0	1.008	2.1	1.009	2.3	1.010	2.5
8.5	1.003	0.8	1.004	0.9	1.004	1.0	1.005	1.2	1.005	1.3	1.006	1.5	1.007	1.7
8.0	1.000	-0.0	1.000	0.1	1.001	0.2	1.001	0.4	1.002	0.5	1.003	0.7	1.003	0.9
7.5	0.997	-0.8	0.997	-0.7	0.998	-0.6	0.998	-0.4	0.999	-0.3	1.000	-0.1	1.000	0.1
7.0	0.994	-1.6	0.994	-1.5	0.995	-1.4	0.995	-1.3	0.996	-1.1	0.996	-0.9	0.997	-0.7
6.5	0.991	-2.4	0.991	-2.3	0.992	-2.2	0.992	-2.1	0.993	-1.9	0.993	-1.7	0.994	-1.5
6.0	0.988	-3.2	0.988	-3.1	0.988	-3.0	0.989	-2.9	0.990	-2.7	0.990	-2.5	0.991	-2.3
5.5	0.984	-4.1	0.985	-3.9	0.985	-3.8	0.986	-3.7	0.987	-3.5	0.987	-3.3	0.988	-3.1
5.0	0.981	-4.9	0.982	-4.8	0.982	-4.6	0.983	-4.5	0.983	-4.3	0.984	-4.1	0.985	-3.9
4.5	0.978	-5.7	0.979	-5.6	0.979	-5.4	0.980	-5.3	0.980	-5.1	0.981	-4.9	0.982	-4.7
4.0	0.975	-6.5	0.976	-6.4	0.976	-6.3	0.977	-6.1	0.977	-5.9	0.978	-5.8	0.979	-5.5

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

Original Brix = 21.0

	55F		60F		65F		70F		75F		80F		85F	
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RBRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX
21.0	1.085	20.4	1.086	20.5	1.086	20.6	1.087	20.8	1.087	20.9	1.088	21.0	1.089	21.2
20.5	1.082	19.6	1.082	19.7	1.083	19.8	1.083	19.9	1.084	20.1	1.084	20.2	1.085	20.4
20.0	1.078	18.8	1.078	18.9	1.079	19.0	1.079	19.1	1.080	19.3	1.081	19.4	1.082	19.6
19.5	1.074	18.0	1.075	18.1	1.075	18.2	1.076	18.3	1.077	18.5	1.077	18.6	1.078	18.8
19.0	1.071	17.2	1.071	17.3	1.072	17.4	1.072	17.5	1.073	17.7	1.074	17.8	1.074	18.0
18.5	1.067	16.4	1.068	16.5	1.068	16.6	1.069	16.7	1.069	16.9	1.070	17.0	1.071	17.2
18.0	1.064	15.6	1.064	15.7	1.065	15.8	1.065	15.9	1.066	16.0	1.067	16.2	1.067	16.4
17.5	1.060	14.8	1.061	14.9	1.061	15.0	1.062	15.1	1.062	15.2	1.063	15.4	1.064	15.6
17.0	1.057	14.0	1.057	14.0	1.058	14.2	1.058	14.3	1.059	14.4	1.060	14.6	1.060	14.8
16.5	1.053	13.1	1.054	13.2	1.054	13.3	1.055	13.5	1.055	13.6	1.056	13.8	1.057	14.0
16.0	1.050	12.3	1.050	12.4	1.051	12.5	1.051	12.7	1.052	12.8	1.053	13.0	1.053	13.2
15.5	1.047	11.5	1.047	11.6	1.047	11.7	1.048	11.9	1.049	12.0	1.049	12.2	1.050	12.3
15.0	1.043	10.7	1.044	10.8	1.044	10.9	1.045	11.0	1.045	11.2	1.046	11.4	1.047	11.5
14.5	1.040	9.9	1.040	10.0	1.041	10.1	1.041	10.2	1.042	10.4	1.042	10.5	1.043	10.7
14.0	1.036	9.1	1.037	9.2	1.037	9.3	1.038	9.4	1.038	9.6	1.039	9.7	1.040	9.9
13.5	1.033	8.3	1.033	8.4	1.034	8.5	1.034	8.6	1.035	8.8	1.036	8.9	1.036	9.1
13.0	1.030	7.5	1.030	7.5	1.031	7.7	1.031	7.8	1.032	7.9	1.032	8.1	1.033	8.3
12.5	1.026	6.6	1.027	6.7	1.027	6.8	1.028	7.0	1.028	7.1	1.029	7.3	1.030	7.5
12.0	1.023	5.8	1.023	5.9	1.024	6.0	1.024	6.2	1.025	6.3	1.026	6.5	1.027	6.7
11.5	1.020	5.0	1.020	5.1	1.021	5.2	1.021	5.4	1.022	5.5	1.022	5.7	1.023	5.9
11.0	1.017	4.2	1.017	4.3	1.017	4.4	1.018	4.5	1.019	4.7	1.019	4.9	1.020	5.1
10.5	1.013	3.4	1.014	3.5	1.014	3.6	1.015	3.7	1.015	3.9	1.016	4.1	1.017	4.3
10.0	1.010	2.6	1.010	2.7	1.011	2.8	1.011	2.9	1.012	3.1	1.013	3.3	1.014	3.4
9.5	1.007	1.8	1.007	1.9	1.008	2.0	1.008	2.1	1.009	2.3	1.010	2.4	1.010	2.6
9.0	1.004	0.9	1.004	1.0	1.005	1.2	1.005	1.3	1.006	1.5	1.006	1.6	1.007	1.8
8.5	1.000	0.1	1.001	0.2	1.001	0.3	1.002	0.5	1.002	0.6	1.003	0.8	1.004	1.0
8.0	0.997	-0.7	0.998	-0.6	0.998	-0.5	0.999	-0.3	0.999	-0.2	1.000	0.0	1.001	0.2
7.5	0.994	-1.5	0.995	-1.4	0.995	-1.3	0.996	-1.1	0.996	-1.0	0.997	-0.8	0.998	-0.6
7.0	0.991	-2.3	0.991	-2.2	0.992	-2.1	0.992	-2.0	0.993	-1.8	0.994	-1.6	0.995	-1.4
6.5	0.988	-3.1	0.988	-3.0	0.989	-2.9	0.989	-2.8	0.990	-2.6	0.991	-2.4	0.991	-2.2
6.0	0.985	-3.9	0.985	-3.8	0.986	-3.7	0.986	-3.6	0.987	-3.4	0.988	-3.2	0.988	-3.0
5.5	0.982	-4.8	0.982	-4.7	0.983	-4.5	0.983	-4.4	0.984	-4.2	0.985	-4.0	0.985	-3.8
5.0	0.979	-5.6	0.979	-5.5	0.980	-5.3	0.980	-5.2	0.981	-5.0	0.981	-4.9	0.982	-4.6

Original Brix = 22.0

RBRIX	55F SG	55F BRIX	60F SG	60F BRIX	65F SG	65F BRIX	70F SG	70F BRIX	75F SG	75F BRIX	80F SG	80F BRIX	85F SG	85F BRIX
22.0	1.090	21.5	1.090	21.5	1.091	21.6	1.091	21.8	1.092	21.9	1.093	22.1	1.093	22.2
21.5	1.086	20.6	1.087	20.7	1.087	20.8	1.088	21.0	1.088	21.1	1.089	21.3	1.090	21.4
21.0	1.083	19.8	1.083	19.9	1.083	20.0	1.084	20.1	1.085	20.3	1.085	20.4	1.086	20.6
20.5	1.079	19.0	1.079	19.1	1.080	19.2	1.080	19.3	1.081	19.5	1.082	19.6	1.082	19.8
20.0	1.075	18.2	1.076	18.3	1.076	18.4	1.077	18.5	1.077	18.7	1.078	18.8	1.079	19.0
19.5	1.072	17.4	1.072	17.5	1.073	17.6	1.073	17.7	1.074	17.9	1.075	18.0	1.075	18.2
19.0	1.068	16.6	1.069	16.7	1.069	16.8	1.070	16.9	1.070	17.0	1.071	17.2	1.072	17.4
18.5	1.065	15.8	1.065	15.9	1.066	16.0	1.066	16.1	1.067	16.2	1.067	16.4	1.068	16.6
18.0	1.061	15.0	1.062	15.0	1.062	15.2	1.063	15.3	1.063	15.4	1.064	15.6	1.065	15.8
17.5	1.058	14.1	1.058	14.2	1.059	14.3	1.059	14.5	1.060	14.6	1.060	14.8	1.061	14.9
17.0	1.054	13.3	1.055	13.4	1.055	13.5	1.056	13.7	1.056	13.8	1.057	14.0	1.058	14.1
16.5	1.051	12.5	1.051	12.6	1.052	12.7	1.052	12.8	1.053	13.0	1.053	13.1	1.054	13.3
16.0	1.047	11.7	1.048	11.8	1.048	11.9	1.049	12.0	1.049	12.2	1.050	12.3	1.051	12.5
15.5	1.044	10.9	1.044	11.0	1.045	11.1	1.045	11.2	1.046	11.4	1.047	11.5	1.047	11.7
15.0	1.040	10.1	1.041	10.2	1.041	10.3	1.042	10.4	1.042	10.5	1.043	10.7	1.044	10.9
14.5	1.037	9.2	1.037	9.3	1.038	9.4	1.038	9.6	1.039	9.7	1.040	9.9	1.041	10.1
14.0	1.034	8.4	1.034	8.5	1.035	8.6	1.035	8.8	1.036	8.9	1.036	9.1	1.037	9.3
13.5	1.030	7.6	1.031	7.7	1.031	7.8	1.032	7.9	1.032	8.1	1.033	8.3	1.034	8.5
13.0	1.027	6.8	1.027	6.9	1.028	7.0	1.028	7.1	1.029	7.3	1.030	7.5	1.030	7.6
12.5	1.024	6.0	1.024	6.1	1.025	6.2	1.025	6.3	1.026	6.5	1.026	6.6	1.027	6.8
12.0	1.020	5.2	1.021	5.3	1.021	5.4	1.022	5.5	1.022	5.7	1.023	5.8	1.024	6.0
11.5	1.017	4.3	1.017	4.4	1.018	4.5	1.018	4.7	1.019	4.8	1.020	5.0	1.021	5.2
11.0	1.014	3.5	1.014	3.6	1.015	3.7	1.015	3.9	1.016	4.0	1.017	4.2	1.017	4.4
10.5	1.011	2.7	1.011	2.8	1.011	2.9	1.012	3.1	1.013	3.2	1.013	3.4	1.014	3.6
10.0	1.007	1.9	1.008	2.0	1.008	2.1	1.009	2.2	1.009	2.4	1.010	2.6	1.011	2.8
9.5	1.004	1.1	1.005	1.2	1.005	1.3	1.006	1.4	1.006	1.6	1.007	1.8	1.008	2.0
9.0	1.001	0.2	1.001	0.3	1.002	0.5	1.002	0.6	1.003	0.8	1.004	0.9	1.004	1.1
8.5	0.998	-0.6	0.998	-0.5	0.999	-0.4	0.999	-0.2	1.000	-0.1	1.000	0.1	1.001	0.3
8.0	0.995	-1.4	0.995	-1.3	0.995	-1.2	0.996	-1.0	0.997	-0.9	0.997	-0.7	0.998	-0.5
7.5	0.991	-2.2	0.992	-2.1	0.992	-2.0	0.993	-1.8	0.994	-1.7	0.994	-1.5	0.995	-1.3
7.0	0.988	-3.0	0.989	-2.9	0.989	-2.8	0.990	-2.7	0.990	-2.5	0.991	-2.3	0.992	-2.1
6.5	0.985	-3.8	0.986	-3.7	0.986	-3.6	0.987	-3.5	0.987	-3.3	0.988	-3.1	0.989	-2.9
6.0	0.982	-4.7	0.983	-4.6	0.983	-4.4	0.984	-4.3	0.984	-4.1	0.985	-3.9	0.986	-3.7
5.5	0.979	-5.5	0.980	-5.4	0.980	-5.3	0.981	-5.1	0.981	-4.9	0.982	-4.8	0.983	-4.6
5.0	0.976	-6.3	0.976	-6.2	0.977	-6.1	0.977	-5.9	0.978	-5.8	0.979	-5.6	0.980	-5.4

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

Original Brix = 23.0

RBRIX	55F SG	55F BRIX	60F SG	60F BRIX	65F SG	65F BRIX	70F SG	70F BRIX	75F SG	75F BRIX	80F SG	80F BRIX	85F SG	85F BRIX
23.0	1.095	22.5	1.095	22.6	1.095	22.7	1.096	22.8	1.097	22.9	1.097	23.1	1.098	23.2
22.5	1.091	21.7	1.091	21.8	1.092	21.9	1.092	22.0	1.093	22.1	1.094	22.3	1.094	22.4
22.0	1.087	20.9	1.088	20.9	1.088	21.0	1.089	21.2	1.089	21.3	1.090	21.5	1.091	21.6
21.5	1.084	20.0	1.084	20.1	1.084	20.2	1.085	20.4	1.086	20.5	1.086	20.6	1.087	20.8
21.0	1.080	19.2	1.080	19.3	1.081	19.4	1.081	19.5	1.082	19.7	1.083	19.8	1.083	20.0
20.5	1.076	18.4	1.077	18.5	1.077	18.6	1.078	18.7	1.078	18.9	1.079	19.0	1.080	19.2
20.0	1.073	17.6	1.073	17.7	1.074	17.8	1.074	17.9	1.075	18.1	1.075	18.2	1.076	18.4
19.5	1.069	16.8	1.069	16.9	1.070	17.0	1.070	17.1	1.071	17.2	1.072	17.4	1.073	17.6
19.0	1.066	16.0	1.066	16.0	1.066	16.2	1.067	16.3	1.068	16.4	1.068	16.6	1.069	16.8
18.5	1.062	15.1	1.062	15.2	1.063	15.3	1.063	15.5	1.064	15.6	1.065	15.8	1.065	15.9
18.0	1.058	14.3	1.059	14.4	1.059	14.5	1.060	14.6	1.060	14.8	1.061	15.0	1.062	15.1
17.5	1.055	13.5	1.055	13.6	1.056	13.7	1.056	13.8	1.057	14.0	1.058	14.1	1.058	14.3
17.0	1.051	12.7	1.052	12.8	1.052	12.9	1.053	13.0	1.053	13.2	1.054	13.3	1.055	13.5
16.5	1.048	11.9	1.048	12.0	1.049	12.1	1.049	12.2	1.050	12.3	1.051	12.5	1.051	12.7
16.0	1.045	11.0	1.045	11.1	1.045	11.2	1.046	11.4	1.047	11.5	1.047	11.7	1.048	11.9
15.5	1.041	10.2	1.042	10.3	1.042	10.4	1.043	10.6	1.043	10.7	1.044	10.9	1.045	11.1
15.0	1.038	9.4	1.038	9.5	1.039	9.6	1.039	9.7	1.040	9.9	1.040	10.1	1.041	10.2
14.5	1.034	8.6	1.035	8.7	1.035	8.8	1.036	9.1	1.036	9.1	1.037	9.2	1.038	9.4
14.0	1.031	7.8	1.031	7.9	1.032	8.0	1.032	8.1	1.033	8.3	1.034	8.4	1.034	8.6
13.5	1.028	6.9	1.028	7.0	1.028	7.2	1.029	7.3	1.030	7.4	1.030	7.6	1.031	7.8
13.0	1.024	6.1	1.025	6.2	1.025	6.3	1.026	6.5	1.026	6.6	1.027	6.8	1.028	7.0
12.5	1.021	5.3	1.021	5.4	1.022	5.5	1.022	5.6	1.023	5.8	1.024	6.0	1.024	6.2
12.0	1.018	4.5	1.018	4.6	1.018	4.7	1.019	4.8	1.020	5.0	1.020	5.2	1.021	5.3
11.5	1.014	3.7	1.015	3.8	1.015	3.9	1.016	4.0	1.016	4.2	1.017	4.3	1.018	4.5
11.0	1.011	2.8	1.011	2.9	1.012	3.0	1.013	3.2	1.013	3.3	1.014	3.5	1.015	3.7
10.5	1.008	2.0	1.008	2.1	1.009	2.2	1.009	2.4	1.010	2.5	1.011	2.7	1.011	2.9
10.0	1.005	1.2	1.005	1.3	1.005	1.4	1.006	1.5	1.007	1.7	1.007	1.9	1.008	2.1
9.5	1.001	0.4	1.002	0.5	1.002	0.6	1.003	0.7	1.003	0.9	1.004	1.1	1.005	1.3
9.0	0.998	-0.5	0.999	-0.4	0.999	-0.2	1.000	-0.1	1.000	0.1	1.001	0.2	1.002	0.4
8.5	0.995	-1.3	0.995	-1.2	0.996	-1.1	0.996	-0.9	0.997	-0.8	0.998	-0.6	0.999	-0.4
8.0	0.992	-2.1	0.992	-2.0	0.993	-1.9	0.993	-1.7	0.994	-1.6	0.995	-1.4	0.995	-1.2
7.5	0.989	-2.9	0.989	-2.8	0.990	-2.7	0.990	-2.6	0.991	-2.4	0.991	-2.2	0.992	-2.0
7.0	0.986	-3.7	0.986	-3.6	0.987	-3.5	0.987	-3.4	0.988	-3.2	0.988	-3.0	0.989	-2.8
6.5	0.983	-4.6	0.983	-4.5	0.983	-4.3	0.984	-4.2	0.985	-4.0	0.985	-3.8	0.986	-3.6
6.0	0.979	-5.4	0.980	-5.3	0.980	-5.2	0.981	-5.0	0.981	-4.9	0.982	-4.7	0.983	-4.5
5.5	0.976	-6.2	0.977	-6.1	0.977	-6.0	0.978	-5.8	0.978	-5.7	0.979	-5.5	0.980	-5.3
5.0	0.973	-7.0	0.974	-6.9	0.974	-6.8	0.975	-6.7	0.975	-6.5	0.976	-6.3	0.977	-6.1

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]

Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

Original Brix = 24.0

RBRIX	55F SG	BRIX	60F SG	BRIX	65F SG	BRIX	70F SG	BRIX	75F SG	BRIX	80F SG	BRIX	85F SG	BRIX
24.0	1.099	23.5	1.100	23.6	1.100	23.7	1.101	23.8	1.101	24.0	1.102	24.1	1.103	24.3
23.5	1.096	22.7	1.096	22.8	1.096	22.9	1.097	23.0	1.098	23.1	1.098	23.3	1.099	23.5
23.0	1.092	21.9	1.092	22.0	1.093	22.1	1.093	22.2	1.094	22.3	1.095	22.5	1.095	22.6
22.5	1.088	21.1	1.089	21.1	1.089	21.3	1.090	21.4	1.090	21.5	1.091	21.7	1.092	21.8
22.0	1.084	20.2	1.085	20.3	1.085	20.4	1.086	20.6	1.086	20.7	1.087	20.9	1.088	21.0
21.5	1.081	19.4	1.081	19.5	1.082	19.6	1.082	19.7	1.083	19.9	1.083	20.0	1.084	20.2
21.0	1.077	18.6	1.078	18.7	1.078	18.8	1.079	18.9	1.079	19.1	1.080	19.2	1.081	19.4
20.5	1.074	17.8	1.074	17.9	1.074	18.0	1.075	18.1	1.076	18.2	1.076	18.4	1.077	18.6
20.0	1.070	17.0	1.070	17.1	1.071	17.2	1.071	17.3	1.072	17.4	1.073	17.6	1.073	17.8
19.5	1.066	16.1	1.067	16.2	1.067	16.3	1.068	16.5	1.068	16.6	1.069	16.8	1.070	16.9
19.0	1.063	15.3	1.063	15.4	1.064	15.5	1.064	15.6	1.065	15.8	1.065	16.0	1.066	16.1
18.5	1.059	14.5	1.060	14.6	1.060	14.7	1.061	14.8	1.061	15.0	1.062	15.1	1.063	15.3
18.0	1.056	13.7	1.056	13.8	1.057	13.9	1.057	14.0	1.058	14.2	1.058	14.3	1.059	14.5
17.5	1.052	12.9	1.053	12.9	1.053	13.1	1.054	13.2	1.054	13.3	1.055	13.5	1.056	13.7
17.0	1.049	12.0	1.049	12.1	1.050	12.2	1.050	12.4	1.051	12.5	1.051	12.7	1.052	12.9
16.5	1.045	11.2	1.046	11.3	1.046	11.4	1.047	11.5	1.047	11.7	1.048	11.9	1.049	12.0
16.0	1.042	10.4	1.042	10.5	1.043	10.6	1.043	10.7	1.044	10.9	1.045	11.0	1.045	11.2
15.5	1.038	9.6	1.039	9.7	1.039	9.8	1.040	9.9	1.040	10.1	1.041	10.2	1.042	10.4
15.0	1.035	8.7	1.035	8.8	1.036	8.9	1.036	9.1	1.037	9.2	1.038	9.4	1.038	9.6
14.5	1.032	7.9	1.032	8.0	1.032	8.1	1.033	8.3	1.034	8.4	1.034	8.6	1.035	8.8
14.0	1.028	7.1	1.029	7.2	1.029	7.3	1.030	7.4	1.030	7.6	1.031	7.8	1.032	7.9
13.5	1.025	6.3	1.025	6.4	1.026	6.5	1.026	6.6	1.027	6.8	1.028	6.9	1.028	7.1
13.0	1.022	5.4	1.022	5.5	1.022	5.7	1.023	5.8	1.024	5.9	1.024	6.1	1.025	6.3
12.5	1.018	4.6	1.019	4.7	1.019	4.8	1.020	5.0	1.020	5.1	1.021	5.3	1.022	5.5
12.0	1.015	3.8	1.015	3.9	1.016	4.0	1.016	4.1	1.017	4.3	1.018	4.5	1.018	4.7
11.5	1.012	3.0	1.012	3.1	1.012	3.2	1.013	3.3	1.014	3.5	1.014	3.6	1.015	3.8
11.0	1.008	2.1	1.009	2.2	1.009	2.4	1.010	2.5	1.010	2.7	1.011	2.8	1.012	3.0
10.5	1.005	1.3	1.006	1.4	1.006	1.5	1.007	1.7	1.007	1.8	1.008	2.0	1.009	2.2
10.0	1.002	0.5	1.002	0.6	1.003	0.7	1.003	0.8	1.004	1.0	1.005	1.2	1.005	1.4
9.5	0.999	-0.3	0.999	-0.2	1.000	-0.1	1.000	0.0	1.001	0.2	1.001	0.4	1.002	0.6
9.0	0.995	-1.2	0.996	-1.1	0.996	-0.9	0.997	-0.8	0.998	-0.6	0.998	-0.5	0.999	-0.3
8.5	0.992	-2.0	0.993	-1.9	0.993	-1.8	0.994	-1.6	0.994	-1.5	0.995	-1.3	0.996	-1.1
8.0	0.989	-2.8	0.990	-2.7	0.990	-2.6	0.991	-2.5	0.991	-2.3	0.992	-2.1	0.993	-1.9
7.5	0.986	-3.6	0.986	-3.5	0.987	-3.4	0.987	-3.3	0.988	-3.1	0.989	-2.9	0.990	-2.7
7.0	0.983	-4.5	0.983	-4.4	0.984	-4.2	0.984	-4.1	0.985	-3.9	0.986	-3.8	0.986	-3.5
6.5	0.980	-5.3	0.980	-5.2	0.981	-5.1	0.981	-4.9	0.982	-4.8	0.983	-4.6	0.983	-4.4
6.0	0.977	-6.1	0.977	-6.0	0.978	-5.9	0.978	-5.7	0.979	-5.6	0.979	-5.4	0.980	-5.2
5.5	0.974	-7.0	0.974	-6.8	0.975	-6.7	0.975	-6.6	0.976	-6.4	0.976	-6.2	0.977	-6.0
5.0	0.971	-7.8	0.971	-7.7	0.971	-7.5	0.972	-7.4	0.973	-7.2	0.973	-7.0	0.974	-6.8

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

```
Original Brix = 25.0


            55F          60F          65F          70F          75F          80F          85F
         ----------   ----------   ----------   ----------   ----------   ----------   ----------
RBRIX    SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX     SG  BRIX
25.0   1.104 24.6   1.104 24.6   1.105 24.7   1.105 24.9   1.106 25.0   1.107 25.1   1.108 25.3
24.5   1.100 23.7   1.101 23.8   1.101 23.9   1.102 24.0   1.102 24.2   1.103 24.3   1.104 24.5
24.0   1.097 22.9   1.097 23.0   1.097 23.1   1.098 23.2   1.099 23.4   1.099 23.5   1.100 23.7
23.5   1.093 22.1   1.093 22.2   1.094 22.3   1.094 22.4   1.095 22.5   1.095 22.7   1.096 22.9
23.0   1.089 21.3   1.089 21.4   1.090 21.5   1.090 21.6   1.091 21.7   1.092 21.9   1.093 22.0
22.5   1.085 20.4   1.086 20.5   1.086 20.6   1.087 20.8   1.087 20.9   1.088 21.1   1.089 21.2
22.0   1.082 19.6   1.082 19.7   1.083 19.8   1.083 19.9   1.084 20.1   1.084 20.2   1.085 20.4
21.5   1.078 18.8   1.078 18.9   1.079 19.0   1.079 19.1   1.080 19.3   1.081 19.4   1.082 19.6
21.0   1.074 18.0   1.075 18.1   1.075 18.2   1.076 18.3   1.076 18.4   1.077 18.6   1.078 18.8
20.5   1.071 17.2   1.071 17.2   1.072 17.4   1.072 17.5   1.073 17.6   1.073 17.8   1.074 18.0
20.0   1.067 16.3   1.068 16.4   1.068 16.5   1.069 16.7   1.069 16.8   1.070 17.0   1.071 17.1
19.5   1.064 15.5   1.064 15.6   1.064 15.7   1.065 15.8   1.066 16.0   1.066 16.1   1.067 16.3
19.0   1.060 14.7   1.060 14.8   1.061 14.9   1.061 15.0   1.062 15.2   1.063 15.3   1.064 15.5
18.5   1.056 13.9   1.057 13.9   1.057 14.1   1.058 14.2   1.058 14.3   1.059 14.5   1.060 14.7
18.0   1.053 13.0   1.053 13.1   1.054 13.2   1.054 13.4   1.055 13.5   1.056 13.7   1.056 13.8
17.5   1.049 12.2   1.050 12.3   1.050 12.4   1.051 12.5   1.051 12.7   1.052 12.8   1.053 13.0
17.0   1.046 11.4   1.046 11.5   1.047 11.6   1.047 11.7   1.048 11.9   1.049 12.0   1.049 12.2
16.5   1.042 10.6   1.043 10.6   1.043 10.8   1.044 10.9   1.045 11.0   1.045 11.2   1.046 11.4
16.0   1.039  9.7   1.039  9.8   1.040  9.9   1.040 10.1   1.041 10.2   1.042 10.4   1.043 10.6
15.5   1.036  8.9   1.036  9.0   1.036  9.1   1.037  9.2   1.038  9.4   1.038  9.6   1.039  9.7
15.0   1.032  8.1   1.033  8.2   1.033  8.3   1.034  8.4   1.034  8.6   1.035  8.7   1.036  8.9
14.5   1.029  7.2   1.029  7.3   1.030  7.5   1.030  7.6   1.031  7.7   1.032  7.9   1.032  8.1
14.0   1.025  6.4   1.026  6.5   1.026  6.6   1.027  6.8   1.027  6.9   1.028  7.1   1.029  7.3
13.5   1.022  5.6   1.022  5.7   1.023  5.8   1.023  5.9   1.024  6.1   1.025  6.3   1.026  6.4
13.0   1.019  4.8   1.019  4.9   1.020  5.0   1.020  5.1   1.021  5.3   1.021  5.4   1.022  5.6
12.5   1.015  3.9   1.016  4.0   1.016  4.1   1.017  4.3   1.017  4.4   1.018  4.6   1.019  4.8
12.0   1.012  3.1   1.013  3.2   1.013  3.3   1.014  3.4   1.014  3.6   1.015  3.8   1.016  4.0
11.5   1.009  2.3   1.009  2.4   1.010  2.5   1.010  2.6   1.011  2.8   1.012  3.0   1.012  3.1
11.0   1.006  1.4   1.006  1.5   1.006  1.7   1.007  1.8   1.008  2.0   1.008  2.1   1.009  2.3
10.5   1.002  0.6   1.003  0.7   1.003  0.8   1.004  1.0   1.004  1.1   1.005  1.3   1.006  1.5
10.0   0.999 -0.2   1.000 -0.1   1.000 -0.0   1.001  0.1   1.001  0.3   1.002  0.5   1.003  0.7
 9.5   0.996 -1.1   0.996 -1.0   0.997 -0.8   0.997 -0.7   0.998 -0.5   0.999 -0.4   0.999 -0.2
 9.0   0.993 -1.9   0.993 -1.8   0.994 -1.7   0.994 -1.5   0.995 -1.4   0.995 -1.2   0.996 -1.0
 8.5   0.990 -2.7   0.990 -2.6   0.990 -2.5   0.991 -2.3   0.992 -2.2   0.992 -2.0   0.993 -1.8
 8.0   0.986 -3.5   0.987 -3.4   0.987 -3.3   0.988 -3.2   0.988 -3.0   0.989 -2.8   0.990 -2.6
 7.5   0.983 -4.4   0.984 -4.3   0.984 -4.2   0.985 -4.0   0.985 -3.8   0.986 -3.7   0.987 -3.5
 7.0   0.980 -5.2   0.981 -5.1   0.981 -5.0   0.982 -4.8   0.982 -4.7   0.983 -4.5   0.984 -4.3
 6.5   0.977 -6.0   0.977 -5.9   0.978 -5.8   0.978 -5.7   0.979 -5.5   0.980 -5.3   0.981 -5.1
 6.0   0.974 -6.9   0.974 -6.8   0.975 -6.6   0.975 -6.5   0.976 -6.3   0.977 -6.1   0.977 -5.9
 5.5   0.971 -7.7   0.971 -7.6   0.972 -7.5   0.972 -7.3   0.973 -7.2   0.974 -7.0   0.974 -6.8
 5.0   0.968 -8.5   0.968 -8.4   0.969 -8.3   0.969 -8.1   0.970 -8.0   0.971 -7.8   0.971 -7.6
```

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

```
Original Brix = 26.0


             55F          60F          65F          70F          75F          80F          85F
          ----------   ----------   ----------   ----------   ----------   ----------   ----------
RBRIX    SG   BRIX     SG   BRIX     SG   BRIX     SG   BRIX     SG   BRIX     SG   BRIX     SG   BRIX
26.0   1.109 25.6    1.109 25.7    1.110 25.8    1.110 25.9    1.111 26.0    1.112 26.2    1.112 26.3
25.5   1.105 24.8    1.105 24.9    1.106 25.0    1.106 25.1    1.107 25.2    1.108 25.4    1.109 25.5
25.0   1.101 23.9    1.102 24.0    1.102 24.1    1.103 24.3    1.103 24.4    1.104 24.5    1.105 24.7
24.5   1.097 23.1    1.098 23.2    1.098 23.3    1.099 23.4    1.100 23.6    1.100 23.7    1.101 23.9
24.0   1.094 22.3    1.094 22.4    1.095 22.5    1.095 22.6    1.096 22.7    1.096 22.9    1.097 23.1
23.5   1.090 21.5    1.090 21.6    1.091 21.7    1.091 21.8    1.092 21.9    1.093 22.1    1.093 22.2
23.0   1.086 20.7    1.087 20.7    1.087 20.8    1.088 21.0    1.088 21.1    1.089 21.3    1.090 21.4
22.5   1.083 19.8    1.083 19.9    1.083 20.0    1.084 20.1    1.085 20.3    1.085 20.4    1.086 20.6
22.0   1.079 19.0    1.079 19.1    1.080 19.2    1.080 19.3    1.081 19.5    1.082 19.6    1.082 19.8
21.5   1.075 18.2    1.076 18.3    1.076 18.4    1.077 18.5    1.077 18.6    1.078 18.8    1.079 19.0
21.0   1.072 17.3    1.072 17.4    1.072 17.5    1.073 17.7    1.074 17.8    1.074 18.0    1.075 18.1
20.5   1.068 16.5    1.068 16.6    1.069 16.7    1.069 16.8    1.070 17.0    1.071 17.1    1.071 17.3
20.0   1.064 15.7    1.065 15.8    1.065 15.9    1.066 16.0    1.066 16.2    1.067 16.3    1.068 16.5
19.5   1.061 14.9    1.061 15.0    1.062 15.1    1.062 15.2    1.063 15.3    1.064 15.5    1.064 15.7
19.0   1.057 14.0    1.058 14.1    1.058 14.2    1.059 14.4    1.059 14.5    1.060 14.7    1.061 14.8
18.5   1.054 13.2    1.054 13.3    1.055 13.4    1.055 13.5    1.056 13.7    1.056 13.8    1.057 14.0
18.0   1.050 12.4    1.051 12.5    1.051 12.6    1.052 12.7    1.052 12.9    1.053 13.0    1.054 13.2
17.5   1.047 11.5    1.047 11.6    1.048 11.8    1.048 11.9    1.049 12.0    1.049 12.2    1.050 12.4
17.0   1.043 10.7    1.044 10.8    1.044 10.9    1.045 11.1    1.045 11.2    1.046 11.4    1.047 11.5
16.5   1.040  9.9    1.040 10.0    1.041 10.1    1.041 10.2    1.042 10.4    1.042 10.5    1.043 10.7
16.0   1.036  9.1    1.037  9.1    1.037  9.3    1.038  9.4    1.038  9.5    1.039  9.7    1.040  9.9
15.5   1.033  8.2    1.033  8.3    1.034  8.4    1.034  8.6    1.035  8.7    1.036  8.9    1.036  9.1
15.0   1.029  7.4    1.030  7.5    1.030  7.6    1.031  7.7    1.031  7.9    1.032  8.1    1.033  8.2
14.5   1.026  6.6    1.026  6.7    1.027  6.8    1.027  6.9    1.028  7.1    1.029  7.2    1.030  7.4
14.0   1.023  5.7    1.023  5.8    1.024  5.9    1.024  6.1    1.025  6.2    1.025  6.4    1.026  6.6
13.5   1.019  4.9    1.020  5.0    1.020  5.1    1.021  5.2    1.021  5.4    1.022  5.6    1.023  5.8
13.0   1.016  4.1    1.016  4.2    1.017  4.3    1.017  4.4    1.018  4.6    1.019  4.7    1.019  4.9
12.5   1.013  3.2    1.013  3.3    1.014  3.4    1.014  3.6    1.015  3.7    1.015  3.9    1.016  4.1
12.0   1.009  2.4    1.010  2.5    1.010  2.6    1.011  2.7    1.011  2.9    1.012  3.1    1.013  3.3
11.5   1.006  1.6    1.006  1.7    1.007  1.8    1.007  1.9    1.008  2.1    1.009  2.2    1.010  2.4
11.0   1.003  0.7    1.003  0.8    1.004  0.9    1.004  1.1    1.005  1.2    1.006  1.4    1.006  1.6
10.5   1.000 -0.1    1.000 -0.0    1.000  0.1    1.001  0.3    1.002  0.4    1.002  0.6    1.003  0.8
10.0   0.996 -0.9    0.997 -0.8    0.997 -0.7    0.998 -0.6    0.998 -0.4    0.999 -0.2    1.000 -0.0
 9.5   0.993 -1.8    0.994 -1.7    0.994 -1.6    0.995 -1.4    0.995 -1.3    0.996 -1.1    0.997 -0.9
 9.0   0.990 -2.6    0.990 -2.5    0.991 -2.4    0.991 -2.2    0.992 -2.1    0.993 -1.9    0.993 -1.7
 8.5   0.987 -3.4    0.987 -3.3    0.988 -3.2    0.988 -3.1    0.989 -2.9    0.989 -2.7    0.990 -2.5
 8.0   0.984 -4.3    0.984 -4.2    0.984 -4.1    0.985 -3.9    0.986 -3.7    0.986 -3.6    0.987 -3.4
 7.5   0.980 -5.1    0.981 -5.0    0.981 -4.9    0.982 -4.7    0.983 -4.6    0.983 -4.4    0.984 -4.2
 7.0   0.977 -6.0    0.978 -5.8    0.978 -5.7    0.979 -5.6    0.979 -5.4    0.980 -5.2    0.981 -5.0
 6.5   0.974 -6.8    0.975 -6.7    0.975 -6.6    0.976 -6.4    0.976 -6.2    0.977 -6.1    0.978 -5.8
 6.0   0.971 -7.6    0.972 -7.5    0.972 -7.4    0.973 -7.2    0.973 -7.1    0.974 -6.9    0.975 -6.7
 5.5   0.968 -8.5    0.968 -8.3    0.969 -8.2    0.970 -8.1    0.970 -7.9    0.971 -7.7    0.972 -7.5
 5.0   0.965 -9.3    0.965 -9.2    0.966 -9.1    0.966 -8.9    0.967 -8.7    0.968 -8.5    0.969 -8.3
```

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

Original Brix = 27.0

	55F		60F		65F		70F		75F		80F		85F	
RBRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX	SG	BRIX
27.0	1.114	26.6	1.114	26.7	1.115	26.8	1.115	26.9	1.116	27.1	1.116	27.2	1.117	27.4
26.5	1.110	25.8	1.110	25.9	1.111	26.0	1.111	26.1	1.112	26.3	1.113	26.4	1.113	26.6
26.0	1.106	25.0	1.106	25.1	1.107	25.2	1.107	25.3	1.108	25.4	1.109	25.6	1.110	25.7
25.5	1.102	24.2	1.103	24.3	1.103	24.4	1.104	24.5	1.104	24.6	1.105	24.8	1.106	24.9
25.0	1.098	23.3	1.099	23.4	1.099	23.5	1.100	23.6	1.100	23.8	1.101	23.9	1.102	24.1
24.5	1.095	22.5	1.095	22.6	1.096	22.7	1.096	22.8	1.097	23.0	1.097	23.1	1.098	23.3
24.0	1.091	21.7	1.091	21.8	1.092	21.9	1.092	22.0	1.093	22.1	1.094	22.3	1.094	22.5
23.5	1.087	20.9	1.088	20.9	1.088	21.0	1.089	21.2	1.089	21.3	1.090	21.5	1.091	21.6
23.0	1.083	20.0	1.084	20.1	1.084	20.2	1.085	20.3	1.085	20.5	1.086	20.6	1.087	20.8
22.5	1.080	19.2	1.080	19.3	1.081	19.4	1.081	19.5	1.082	19.7	1.082	19.8	1.083	20.0
22.0	1.076	18.4	1.076	18.5	1.077	18.6	1.077	18.7	1.078	18.8	1.079	19.0	1.080	19.2
21.5	1.072	17.5	1.073	17.6	1.073	17.7	1.074	17.9	1.074	18.0	1.075	18.2	1.076	18.3
21.0	1.069	16.7	1.069	16.8	1.070	16.9	1.070	17.0	1.071	17.2	1.072	17.3	1.072	17.5
20.5	1.065	15.9	1.066	16.0	1.066	16.1	1.067	16.2	1.067	16.3	1.068	16.5	1.069	16.7
20.0	1.062	15.0	1.062	15.1	1.062	15.2	1.063	15.4	1.064	15.5	1.064	15.7	1.065	15.9
19.5	1.058	14.2	1.058	14.3	1.059	14.4	1.059	14.5	1.060	14.7	1.061	14.8	1.061	15.0
19.0	1.054	13.4	1.055	13.5	1.055	13.6	1.056	13.7	1.056	13.9	1.057	14.0	1.058	14.2
18.5	1.051	12.5	1.051	12.6	1.052	12.7	1.052	12.9	1.053	13.0	1.054	13.2	1.054	13.4
18.0	1.047	11.7	1.048	11.8	1.048	11.9	1.049	12.0	1.049	12.2	1.050	12.4	1.051	12.5
17.5	1.044	10.9	1.044	11.0	1.045	11.1	1.045	11.2	1.046	11.4	1.047	11.5	1.047	11.7
17.0	1.040	10.0	1.041	10.1	1.041	10.3	1.042	10.4	1.042	10.5	1.043	10.7	1.044	10.9
16.5	1.037	9.2	1.037	9.3	1.038	9.4	1.038	9.5	1.039	9.7	1.040	9.9	1.040	10.0
16.0	1.033	8.4	1.034	8.5	1.034	8.6	1.035	8.7	1.035	8.9	1.036	9.0	1.037	9.2
15.5	1.030	7.5	1.030	7.6	1.031	7.7	1.031	7.9	1.032	8.0	1.033	8.2	1.034	8.4
15.0	1.027	6.7	1.027	6.8	1.027	6.9	1.028	7.0	1.029	7.2	1.029	7.4	1.030	7.6
14.5	1.023	5.9	1.024	6.0	1.024	6.1	1.025	6.2	1.025	6.4	1.026	6.5	1.027	6.7
14.0	1.020	5.0	1.020	5.1	1.021	5.2	1.021	5.4	1.022	5.5	1.023	5.7	1.023	5.9
13.5	1.017	4.2	1.017	4.3	1.017	4.4	1.018	4.5	1.019	4.7	1.019	4.9	1.020	5.1
13.0	1.013	3.4	1.014	3.5	1.014	3.6	1.015	3.7	1.015	3.9	1.016	4.0	1.017	4.2
12.5	1.010	2.5	1.010	2.6	1.011	2.7	1.011	2.9	1.012	3.0	1.013	3.2	1.013	3.4
12.0	1.007	1.7	1.007	1.8	1.007	1.9	1.008	2.0	1.009	2.2	1.009	2.4	1.010	2.6
11.5	1.003	0.8	1.004	0.9	1.004	1.1	1.005	1.2	1.005	1.4	1.006	1.5	1.007	1.7
11.0	1.000	0.0	1.000	0.1	1.001	0.2	1.001	0.4	1.002	0.5	1.003	0.7	1.003	0.9
10.5	0.997	-0.8	0.997	-0.7	0.998	-0.6	0.998	-0.5	0.999	-0.3	0.999	-0.1	1.000	0.1
10.0	0.994	-1.7	0.994	-1.6	0.994	-1.5	0.995	-1.3	0.996	-1.1	0.996	-1.0	0.997	-0.8
9.5	0.990	-2.5	0.991	-2.4	0.991	-2.3	0.992	-2.1	0.992	-2.0	0.993	-1.8	0.994	-1.6
9.0	0.987	-3.4	0.988	-3.2	0.988	-3.1	0.989	-3.0	0.989	-2.8	0.990	-2.6	0.991	-2.4
8.5	0.984	-4.2	0.984	-4.1	0.985	-4.0	0.985	-3.8	0.986	-3.7	0.987	-3.5	0.987	-3.3
8.0	0.981	-5.0	0.981	-4.9	0.982	-4.8	0.982	-4.7	0.983	-4.5	0.984	-4.3	0.984	-4.1
7.5	0.978	-5.9	0.978	-5.8	0.979	-5.6	0.979	-5.5	0.980	-5.3	0.980	-5.1	0.981	-4.9
7.0	0.975	-6.7	0.975	-6.6	0.975	-6.5	0.976	-6.3	0.977	-6.2	0.977	-6.0	0.978	-5.8
6.5	0.971	-7.5	0.972	-7.4	0.972	-7.3	0.973	-7.2	0.973	-7.0	0.974	-6.8	0.975	-6.6
6.0	0.968	-8.4	0.969	-8.3	0.969	-8.2	0.970	-8.0	0.970	-7.8	0.971	-7.6	0.972	-7.4
5.5	0.965	-9.2	0.966	-9.1	0.966	-9.0	0.967	-8.8	0.967	-8.7	0.968	-8.5	0.969	-8.3
5.0	0.962	-10.1	0.963	-10.0	0.963	-9.8	0.964	-9.7	0.964	-9.5	0.965	-9.3	0.966	-9.1

Fermentation Monitoring Chart [using non-temperature-compensated Refractometer]
Lookup Specific Gravity (SG) and True BRIX using Refractometer (RBRIX) and Temperature (°F)

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Original Brix = 28.0


            55F          60F          65F          70F          75F          80F          85F
         ----------   ----------   ----------   ----------   ----------   ----------   ----------
RBRIX    SG   BRIX    SG   BRIX    SG   BRIX    SG   BRIX    SG   BRIX    SG   BRIX    SG   BRIX
28.0   1.119 27.7   1.119 27.8   1.120 27.9   1.120 28.0   1.121 28.1   1.121 28.3   1.122 28.4
27.5   1.115 26.9   1.115 26.9   1.116 27.0   1.116 27.2   1.117 27.3   1.118 27.4   1.118 27.6
27.0   1.111 26.0   1.111 26.1   1.112 26.1   1.112 26.3   1.113 26.5   1.114 26.6   1.114 26.8
26.5   1.107 25.2   1.107 25.3   1.108 25.4   1.108 25.5   1.109 25.6   1.110 25.8   1.111 26.0
26.0   1.103 24.4   1.104 24.5   1.104 24.6   1.105 24.7   1.105 24.8   1.106 25.0   1.107 25.1
25.5   1.099 23.6   1.100 23.6   1.100 23.7   1.101 23.9   1.101 24.0   1.102 24.1   1.103 24.3
25.0   1.096 22.7   1.096 22.8   1.096 22.9   1.097 23.0   1.098 23.2   1.098 23.3   1.099 23.5
24.5   1.092 21.9   1.092 22.0   1.093 22.1   1.093 22.2   1.094 22.3   1.095 22.5   1.095 22.7
24.0   1.088 21.1   1.088 21.1   1.089 21.3   1.090 21.4   1.090 21.5   1.091 21.7   1.092 21.8
23.5   1.084 20.2   1.085 20.3   1.085 20.4   1.086 20.5   1.086 20.7   1.087 20.8   1.088 21.0
23.0   1.081 19.4   1.081 19.5   1.082 19.6   1.082 19.7   1.083 19.9   1.083 20.0   1.084 20.2
22.5   1.077 18.6   1.077 18.7   1.078 18.8   1.078 18.9   1.079 19.0   1.080 19.2   1.080 19.3
22.0   1.073 17.7   1.074 17.8   1.074 17.9   1.075 18.0   1.075 18.2   1.076 18.3   1.077 18.5
21.5   1.070 16.9   1.070 17.0   1.070 17.1   1.071 17.2   1.072 17.4   1.072 17.5   1.073 17.7
21.0   1.066 16.1   1.066 16.2   1.067 16.3   1.067 16.4   1.068 16.5   1.069 16.7   1.069 16.9
20.5   1.062 15.2   1.063 15.3   1.063 15.4   1.064 15.6   1.064 15.7   1.065 15.9   1.066 16.0
20.0   1.059 14.4   1.059 14.5   1.060 14.6   1.060 14.7   1.061 14.9   1.061 15.0   1.062 15.2
19.5   1.055 13.6   1.056 13.6   1.056 13.8   1.057 13.9   1.057 14.0   1.058 14.2   1.059 14.4
19.0   1.052 12.7   1.052 12.8   1.052 12.9   1.053 13.0   1.054 13.2   1.054 13.4   1.055 13.5
18.5   1.048 11.9   1.048 12.0   1.049 12.1   1.049 12.2   1.050 12.4   1.051 12.5   1.052 12.7
18.0   1.045 11.0   1.045 11.1   1.045 11.2   1.046 11.4   1.047 11.5   1.047 11.7   1.048 11.9
17.5   1.041 10.2   1.041 10.3   1.042 10.4   1.042 10.5   1.043 10.7   1.044 10.9   1.045 11.0
17.0   1.038  9.4   1.038  9.5   1.038  9.6   1.039  9.7   1.040  9.9   1.040 10.0   1.041 10.2
16.5   1.034  8.5   1.034  8.6   1.035  8.7   1.035  8.9   1.036  9.0   1.037  9.2   1.038  9.4
16.0   1.031  7.7   1.031  7.8   1.031  7.9   1.032  8.0   1.033  8.2   1.033  8.3   1.034  8.5
15.5   1.027  6.8   1.028  6.9   1.028  7.1   1.029  7.2   1.029  7.3   1.030  7.5   1.031  7.7
15.0   1.024  6.0   1.024  6.1   1.025  6.2   1.025  6.4   1.026  6.5   1.027  6.7   1.027  6.9
14.5   1.020  5.2   1.021  5.3   1.021  5.4   1.022  5.5   1.022  5.7   1.023  5.8   1.024  6.0
14.0   1.017  4.3   1.017  4.4   1.018  4.5   1.018  4.7   1.019  4.8   1.020  5.0   1.021  5.2
13.5   1.014  3.5   1.014  3.6   1.015  3.7   1.015  3.8   1.016  4.0   1.016  4.2   1.017  4.4
13.0   1.010  2.6   1.011  2.7   1.011  2.9   1.012  3.0   1.012  3.2   1.013  3.3   1.014  3.5
12.5   1.007  1.8   1.007  1.9   1.008  2.0   1.008  2.2   1.009  2.3   1.010  2.5   1.011  2.7
12.0   1.004  1.0   1.004  1.1   1.005  1.2   1.005  1.3   1.006  1.5   1.006  1.7   1.007  1.8
11.5   1.000  0.1   1.001  0.2   1.001  0.3   1.002  0.5   1.002  0.6   1.003  0.8   1.004  1.0
11.0   0.997 -0.7   0.998 -0.6   0.998 -0.5   0.999 -0.4   0.999 -0.2   1.000 -0.0   1.001  0.2
10.5   0.994 -1.6   0.994 -1.5   0.995 -1.3   0.995 -1.2   0.996 -1.0   0.997 -0.9   0.997 -0.7
10.0   0.991 -2.4   0.991 -2.3   0.992 -2.2   0.992 -2.0   0.993 -1.9   0.993 -1.7   0.994 -1.5
 9.5   0.988 -3.3   0.988 -3.2   0.988 -3.0   0.989 -2.9   0.990 -2.7   0.990 -2.5   0.991 -2.3
 9.0   0.984 -4.1   0.985 -4.0   0.985 -3.9   0.986 -3.7   0.986 -3.6   0.987 -3.4   0.988 -3.2
 8.5   0.981 -4.9   0.982 -4.8   0.982 -4.7   0.983 -4.6   0.983 -4.4   0.984 -4.2   0.985 -4.0
 8.0   0.978 -5.8   0.978 -5.7   0.979 -5.6   0.979 -5.4   0.980 -5.2   0.981 -5.1   0.981 -4.9
 7.5   0.975 -6.6   0.975 -6.5   0.976 -6.4   0.976 -6.2   0.977 -6.1   0.978 -5.9   0.978 -5.7
 7.0   0.972 -7.5   0.972 -7.4   0.973 -7.2   0.973 -7.1   0.974 -6.9   0.974 -6.7   0.975 -6.5
 6.5   0.969 -8.3   0.969 -8.2   0.969 -8.1   0.970 -7.9   0.971 -7.8   0.971 -7.6   0.972 -7.4
 6.0   0.966 -9.2   0.966 -9.0   0.966 -8.9   0.967 -8.8   0.968 -8.6   0.968 -8.4   0.969 -8.2
 5.5   0.962-10.0   0.963 -9.9   0.963 -9.8   0.964 -9.6   0.965 -9.4   0.965 -9.3   0.966 -9.0
 5.0   0.959-10.8   0.960-10.7   0.960-10.6   0.961-10.5   0.961-10.3   0.962-10.1   0.963 -9.9
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