American_Light_Lager-20230429.xlsx

6/11/2023 9:26 PM

Style: 1A. American Light Lager

Brewer: Beer-N-BBQ by Larry
Brew Date: April 29, 2023

Brew System: Blichmann BrewEasy Surface, 10 gal, 75% Power
Chiller: JaDeD Scylla **Fermenter(s):** BrewBuilt X2 14 Gal

Grain Bill, Adjuncts, & Sugars

Type	Qty lb	% of Bill
Pale Malt: Brewers Malt, 2-row (Briess)	11.00	57.9%
Flaked Brown Rice (Briess)	7.00	36.8%
Rice Hulls	1.00	5.3%

Recipe Outputs

	Design	Actual	BJCP Guide Min	BJCP Guide Max
Extract Eff.:	72.0%	87.1%		
Brewhouse Eff:	67.2%	#VALUE!		
O.G.:	1.037	1.039	1.028	1.040
F.G.:	1.007	1.008	0.998	1.008
Ferm Vol:	44.0			
Batch Vol:	40.0	43.0		
App Atten:	82.0%	80.5%		
IBUs:	11	10	8	12
ABV:	3.9%	4.2%	2.8%	4.2%
SRM:	3.0	2	2	3
BU:GU Ratio:	0.30	0.25		
Calories per US Pint:		166		

Water Information

Chicago (Lake Michigan)

ppm (mg/L)	Orig.	Adj.
Calcium	37	42
Magnesium	12	12
Sodium	9	9
Choride	16	25
Sulfate	25	25
Alkalinity	102	
Cl/SO_4 Ratio	0.64	0.98

Water Additions (grams)

	Mash	Sparge
Gypsum	0.0	0.0
Cal Chloride	1.0	0.0
Epson Salt	0.0	0.0
Slaked Lime	0.0	0.0
Baking Soda	0.0	0.0
Chalk	0.0	0.0
Lactic Acid	8	mL

Total Water Required

Design	58.4	qt	53.3	°F	Actual		qt		°F

Mash Schedule & Water Infusions

Step #	Schedule Temp °F	Schedule Time min	Strike Water (Preheated Tun) Design qt	Design °F	Actual qt	Actual °F	Mash Actual °F	Mash pH Design	Mash pH Actual
1	133	15	28.3	144	28.3	141.0		5.4	
2	147	30					145.0		
3	160	15							
4	170	10							
5									

Lautering Process (Wort Separation)

		Design qt	Design °F	Actual qt	Actual °F	Corrected qt	Corrected °F
No Sparge	Sparge Water Req'd	31.4	170.0	31.1	170.0	31.1	170.0
	-	-	-				
	-	-	-				
	-	-	-				
	Wort Collected	50.5	170.0	48.8	170.0	48.8	170.0
	Grain Absorb Rate	0.40	qt/lb	0.47	qt/lb		
Grains Only Contribution	S.G. Hydrometer	1.035		1.042	71.5	°F	**1.043**
	S.G. Refractometer	8.7	° Brix		° Brix		
	Mash Extract Efficiency	72%		**87.1%**	Hydrometer		
					Refractometer		

Boil Process

		Design		Actual		Corrected	
Boil	Start Volume	51.3	qt	56.0	qt		
	Time	60	min	60	min		
	End Volume (w/ IC)	49.3	qt	51.5	qt		
	Boil off Rate	4.0	qt/hr	4.5	qt/hr		
Post Boil	Chilled Volume	45.6	qt		qt	0.0	qt
		75	°F		°F	75	°F
O.G.	Hydrometer	1.037		1.039	64.9	°F	**1.039**
	Refractometer	9.2			° Brix		

Fermentation & Clarification

		Design qt	Design °F	Actual qt	Actual °F	Corrected	
Into Fermenter		44.0	75.0				
Into Bright Tank or Aging Vessel							
F.G.	Hydrometer	1.007		1.007	67.3	°F	**1.008**
	Refractometer	1.7	° Brix		° Brix		
Packaged Beer		40.0	qt	43.0	qt		

Hop Bill & Schedule

Species	Type	Alpha (%)	Qty oz	AAU	Time (min)
Crystal	Pellet	4.4	1.00	4.4	60
Crystal	Pellet	4.4	1.00	4.4	10

Yeast Information

Fermentis
SafLager W-34/70
Ferm Temp: 54-64 °F

Forced Carbonation

CO2 Volume	2.5	
Temperature	38.0	°F
Pressure	11.2	PSI

Other Ingredients/Additions

Other Ingredients/Additions	Amount	When
Whirlfloc tablets	2	15 min
Dry yeast (See yeast info for strain) for 1st fermenter	2 pkg	pitch

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NOTES:
- Pressure ferment ~3 weeks under 12 psi pressure at optimal yeast temperature (~59 deg F).
- Cold crash at 38 deg F for 2 days.
- Rack to keg(s) through 1 micron beer filter.
- Chill & carbonate for 1 week. Pour off any sediment.
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- Brew Day note: Added 8 qt water to correct pre-boil SG. Seems rice absorbs way more water than barley.