

Munich Helles

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Category: 5 - Bock
Subcategory: A - Maibock/Helles Bock



Kettle Volume: 13.71 gal (S.G.: 1.055)
Boil Duration: 90.0 min
Evaporation: 2.25 gal
Water Volume Added: 0.0 gal
Final Volume: 11.0 gal (S.G.: 1.068)

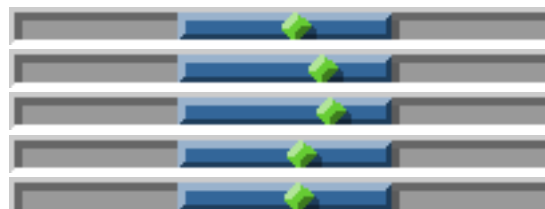
Efficiency: 83.0%
Attenuation: 77.0%
Evap/Hour: 1.5 gal

Ingredients:

16.0 lb Bohemian Pilsner Malt
10 lb Munich Malt
0.25 lb Caramel Munich 60L
1.0 oz Magnum (14.5%) - added during boil, boiled 60.0 min
1.0 oz Hallertau (4.5%) - added during boil, boiled 15.0 min
1.0 oz Hallertau (4.5%) - added during boil, boiled 5.0 min
4.0 ea White Labs WLP833 German Bock Lager Yeast
3.0 tsp 5.2 pH Stabilizer - added during mash
2.0 tsp Irish Moss - added during boil, boiled 10.0 min

Style:

Recipe	Guideline
Original Gravity: 1.068	1.064 - 1.072
Terminal Gravity: 1.016	1.011 - 1.018
Color: 9.58 °SRM	6.0 - 11.0
Alcohol: 6.94%	6.3% - 7.4%
Bitterness: 29.9	23.0 - 35.0



Analysis:

Apparent	Real	Weight	Calories
Original Extract: 16.68 °P	16.68 °P	Alcohol: 19.56 g	134.99 kcal
Attenuation: 77.0%	61.4%	Carbs: 22.83 g	86.77 kcal
Terminal Extract: 4.01 °P	6.43 °P	Protein: 1.6 g	6.39 kcal
% Alcohol: 6.94% ABV	5.43% ABW		Total: 228.16 kcal

Schedule:

Ambient Air: 60.0 °F
Source Water: 45.0 °F
Elevation: 0.0 m

00:21:04 Dough-in
Liquor: 8.2 gal
Strike: 163.81 °F
Target: 150.0 °F

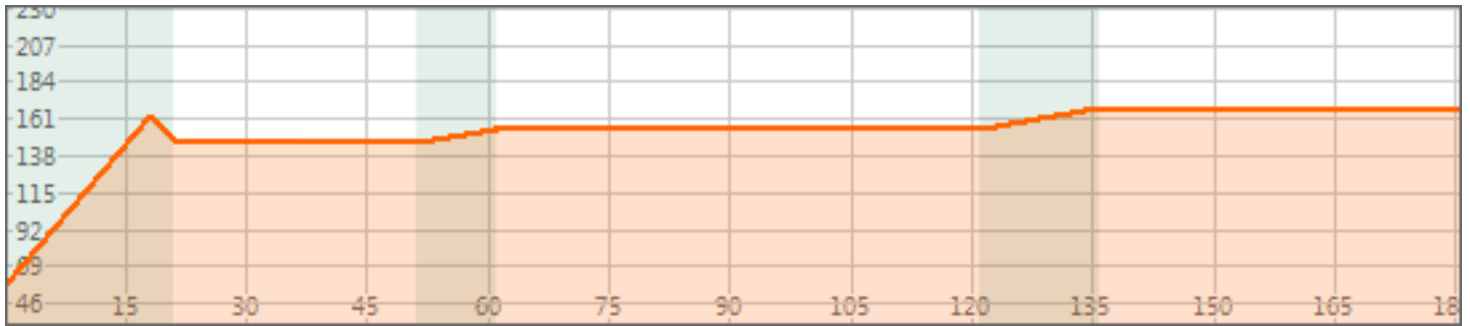
00:51:04 Rest #1
 Rest: 30.0 min
 Final: 148.4 °F

01:01:05 HERMS To Rest #2
 Heat: 10.0 min
 Target: 156.0 °F

02:01:05 Rest #2
 Rest: 60.0 min
 Final: 156.0 °F

02:15:41 Mash-out
 Heat: 14.6 min
 Target: 170.0 °F

03:00:41 Sparge
 Untitled Sparge
 Volume: 4.88 gal
 Temperature: 168.0 °F
 Duration: 45.0 min
 Total Runoff: 13.17 gal



Carbonation:

Natural Conditioning

Beer Temp: 68.0 °F
 Priming Agent Rate: 4.02 g/L
 Priming Agent Mass: 274.27 g
 Volumes CO₂: 2.5

Forced Carbonation

Beer Temp: 45.0 °F
 Pressure: 14.89 PSI
 Volumes CO₂: 2.5