

Batch #7 - 6 Mar 2021

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SMASH Citra - 6.2%

American Pale Ale

Brewer: The Thirsty Otter

Type: All Grain

IBU : 38 (Tinseth)
 BU/GU : 0.68
 Colour : 10 EBC
 Carbonation : 2.5 CO₂-vol

Pre-Boil Gravity : 1.041
 Original Gravity : 1.053
 Total Gravity : 1.056
 Final Gravity : 1.009

Fermentables (1.3 kg)

1.3 kg - Maris Otter Pale Ale Malt 5.9 EBC (1...
 ^ Lot # 67-200827-161058-155815-1/1
 ^ The Malt Miller (UK) MAL-00-036
 34 g - Bottling - Sugar, Table (Sucrose) 2 EBC
 ^ Albert Heijn (NL)

Hops (23 g)

30 min - 3 g - Citra - 13.8% (15 IBU)
 ^ Worcester Hop Shop (UK)
 10 min - 5 g - Citra - 13.8% (14 IBU)
 ^ Worcester Hop Shop (UK)

Hop Stand

20 min hopstand @ 80 °C
 20 min - 10 g - Citra - 13.8% (8 IBU)
 ^ Worcester Hop Shop (UK)

Dry Hops

7 days - 5 g - Citra - 13.8%
 ^ Worcester Hop Shop (UK)

Miscellaneous

Mash - 0.46 g - Epsom Salt (MgSO₄)
 ^ Lot # /2119000091
 ^ Brouwstore (NL) 055.027.7
 Mash - 2.39 g - Gypsum (CaSO₄)
 ^ Brouwmaatje (NL)
 Mash - 0.8 ml - Lactic Acid 80% 80%
 ^ Lot # 20200213
 ^ Brouwstore (NL) 003.002.3
 Mash - 2 items - pH paper strips 5.2 - 6.8
 ^ Lot # 20200422/1
 ^ Brouwstore (NL) 013.075.7
 Sparge - 0.95 ml - Lactic Acid 80% 80%
 ^ Lot # 20200213
 ^ Brouwstore (NL) 003.002.3
 60 min - Boil - 0.16 g - Lipohop K
 ^ Lot # LPK110
 ^ The Malt Miller (UK) CH-03-013
 10 min - Boil - 1.01 g - Irish Moss
 ^ Lot # 4348
 ^ Brouwstore (NL) 125.249.1
 10 min - Boil - 0.08 g - Lallemand Servomyces
 ^ Lot # 154001112904ABV
 ^ Brouwstore (NL) 050.620.4
 10 min - Boil - 1 items - Wort Chiller
 ^ Brouwstore (NL) 057.020.20
 Bottling - 4 items - 33 cl Steine bottle (26...
 ^ Brouwstore (NL) 017.476.3

01 Brouwpunt 5L (60min) (rev 4)

Batch Size : 5.6 L
 Boil Size : 7.76 L
 Post-Boil Vol : 5.96 L

Mash Water : 3.9 L
 Sparge Water : 5.23 L
 Boil Time : 60 min
 Total Water : 9.13 L

10 EBC

Brewhouse Efficiency: 71.8%

Mash Efficiency: 73.3%

Mash Profile

01 One Step Mash (60 min)
 68.7 °C - Strike Temp
 63 °C - 60 min - Temperature

Fermentation Profile

Ale
 20 °C - 11 days - Primary
 23 °C - 4 days - Diacetyl rest
 20 °C - 14 days - Carbonation
 15 °C - 28 days - Conditioning

Water Profile

NL Hoofddorp Rein Tap Water (2020-Q3 WQR) (St...
 Ca 100 Mg 15 Na 68 Cl 92 SO 212 HCO 168

SO/Cl ratio: 2.3

Mash pH: 5.4

Sparge pH: 6

Measurements

Mash pH: 5.5

Boil Volume: 8.5

Pre-Boil Gravity: 1.038

Post-Boil Kettle Volume: 5.65

Original Gravity: 1.060

Fermenter Top-Up:

Fermenter Volume: 5.6

Final Gravity: 1.006

Bottling Volume: 4

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Recipe Notes

Malt is ordered with standard crush @ The Malt Miller (<https://www.themaltmiller.co.uk/>).

Batch Notes

06-03-2021 09:31 Start brewing.
 06-03-2021 09:31 Took 4 L mash water boiled the day before.
 06-03-2021 09:31 Added 2.36 grams Gypsum
 06-03-2021 09:31 Added 0.46 grams Epson salt.
 06-03-2021 09:31 Added 0.8 mL Lactic Acid.
 06-03-2021 09:40 Mash water pH = 5.2.
 06-03-2021 09:42 Mash in @ 68 C.
 06-03-2021 09:44 Lump hunting.
 06-03-2021 09:55 Mash temperature = 65 ... 68 C for first 15 minutes.
 06-03-2021 10:02 Mash pH = 5.5.
 06-03-2021 10:02 Mash temp 59 ... 62 C.
 06-03-2021 10:42 4.9 L sparge water @ 75 C.
 06-03-2021 10:42 Added 0.95 mL Lactic acid to sparge water.
 06-03-2021 11:25 SG = 1.027 @ 51.5 C --> SG = 1.038 @ 20 C.
 06-03-2021 11:41 Boil over.
 06-03-2021 11:42 Added 0.16 grams Lipohop K.
 06-03-2021 12:11 Added 3 grams Citra.
 06-03-2021 12:30 Added 5 grams Citra.
 06-03-2021 12:30 Added 1 gram Irish Moss.
 06-03-2021 12:31 Added 0.15 grams Servonices yeast nutrient.
 06-03-2021 12:32 Added 1 worth chiller.
 06-03-2021 12:40 Flame out.
 06-03-2021 13:00 Hopstand start @ 80 C, added 10 grams Citra, whirlpool-style stir.
 06-03-2021 13:20 Hopstand end @ 69.5 C.
 06-03-2021 13:50 SG = 1.060 @ 19.8 C.
 06-03-2021 14:54 Pitched 5 grams US-05 yeast @ 18.5 C.

Day 0 in fermentation

06-03-2021 14:54 18.5 C, dp = 0 mm H2O, SG = 1.060.
 06-03-2021 18:42 20.0 C, dp = 0 mm H2O, no bubbles.
 06-03-2021 20:43 19.2 C, dp = 50 mm H2O, no bubbles.
 06-03-2021 23:17 19.8 C, dp = 50 mm H2O, no bubbles.

Day 1 in fermentation

07-03-2021 08:44 19.8 C, dp = 50 mm H2O, few bubbles.
 07-03-2021 13:32 19.2 C, dp = 50 mm H2O, many bubbles.
 07-03-2021 16:31 19.0 C, dp = 50 mm H2O, many bubbles.
 07-03-2021 17:55 20.1 C, dp = 50 mm H2O, many bubbles.
 07-03-2021 19:51 19.1 C, dp = 50 mm H2O, many bubbles.

Day 2 in fermentation

08-03-2021 08:37 19.0 C, dp = 50 mm H2O, many bubbles.
 08-03-2021 10:53 19.2 C, dp = 50 mm H2O, many bubbles.
 08-03-2021 13:26 19.8 C, dp = 50 mm H2O, many bubbles.
 08-03-2021 16:25 20.1 C, dp = 50 mm H2O, many bubbles.
 08-03-2021 19:55 19.7 C, dp = 50 mm H2O, many bubbles.
 08-03-2021 23:28 19.4 C, dp = 50 mm H2O, many bubbles.

Day 3 in fermentation

09-03-2021 08:32 19.8 C, dp = 50 mm H2O, many bubbles.
 09-03-2021 10:51 19.7 C, dp = 50 mm H2O, many bubbles.
 09-03-2021 12:52 19.5 C, dp = 50 mm H2O, many bubbles.
 09-03-2021 16:20 19.7 C, dp = 50 mm H2O, many bubbles.
 09-03-2021 21:26 19.0 C, dp = 50 mm H2O, many bubbles.

Day 4 in fermentation

10-03-2021 08:59 19.3 C, dp = 50 mm H2O, many bubbles.
 10-03-2021 11:49 19.0 C, dp = 50 mm H2O, many bubbles.
 10-03-2021 14:54 19.3 C, dp = 50 mm H2O, many bubbles.
 10-03-2021 18:15 19.5 C, dp = 50 mm H2O, many bubbles.
 10-03-2021 20:13 19.7 C, dp = 50 mm H2O, many bubbles.

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Batch Notes

10-03-2021 20:46 20.0 C, dp = 50 mm H₂O, many bubbles.

Day 5 in fermentation

11-03-2021 08:38 19.8 C, dp = 50 mm H₂O, few bubbles.11-03-2021 10:17 19.5 C, dp = 45 mm H₂O, no bubbles.11-03-2021 13:36 20.0 C, dp = 45 mm H₂O, no bubbles.11-03-2021 17:11 19.4 C, dp = 45 mm H₂O, no bubbles.11-03-2021 19:35 19.5 C, dp = 45 mm H₂O, no bubbles.

Day 6 in fermentation

12-03-2021 00:12 19.3 C, dp = 45 mm H₂O, no bubbles.12-03-2021 08:20 19.5 C, dp = 35 mm H₂O, no bubbles.12-03-2021 12:56 19.3 C, dp = 10 mm H₂O, no bubbles.12-03-2021 17:05 19.1 C, dp = 10 mm H₂O, no bubbles.12-03-2021 20:43 19.6 C, dp = 15 mm H₂O, no bubbles.12-03-2021 23:36 20.0 C, dp = 50 mm H₂O, no bubbles.

Day 7 in fermentation

13-03-2021 08:57 19.9 C, dp = 13 mm H₂O, no bubbles.13-03-2021 12:24 20.0 C, dp = 35 mm H₂O, no bubbles.13-03-2021 16:43 20.1 C, dp = 30 mm H₂O, no bubbles.13-03-2021 20:21 19.5 C, dp = 50 mm H₂O, no bubbles.13-03-2021 23:56 19.0 C, dp = 45 mm H₂O, no bubbles.

Day 8 in fermentation

14-03-2021 08:42 19.0 C, dp = 8 mm H₂O, no bubbles.14-03-2021 12:21 19.0 C, dp = 2 mm H₂O, no bubbles.

14-03-2021 12:37 added 5 grams Citra pellet hops for dry hopping.

14-03-2021 12:37 18.4 C, dp = 15 mm H₂O, no bubbles.14-03-2021 13:24 18.9 C, dp = 45 mm H₂O, no bubbles.14-03-2021 14:32 19.7 C, dp = 45 mm H₂O, no bubbles.14-03-2021 15:18 20.0 C, dp = 45 mm H₂O, no bubbles.14-03-2021 17:52 19.0 C, dp = 12 mm H₂O, no bubbles.14-03-2021 21:03 19.5 C, dp = 2 mm H₂O, no bubbles.14-03-2021 23:58 19.9 C, dp = 12 mm H₂O, no bubbles.

Day 9 in fermentation

15-03-2021 09:08 19.9 C, dp = 45 mm H₂O, no bubbles.15-03-2021 13:15 19.7 C, dp = 20 mm H₂O, no bubbles.15-03-2021 16:59 19.4 C, dp = 40 mm H₂O, no bubbles.15-03-2021 20:37 19.0 C, dp = 2 mm H₂O, no bubbles.15-03-2021 23:58 19.0 C, dp = 7 mm H₂O, no bubbles.

Day 10 in fermentation

16-03-2021 07:44 19.1 C, dp = 0 mm H₂O, no bubbles.16-03-2021 12:56 19.4 C, dp = 11 mm H₂O, no bubbles.16-03-2021 17:34 19.5 C, dp = 8 mm H₂O, no bubbles.16-03-2021 20:39 19.0 C, dp = 1 mm H₂O, no bubbles.16-03-2021 23:53 19.6 C, dp = 4 mm H₂O, no bubbles.

Day 11 in fermentation

17-03-2021 08:39 19.2 C, dp = 3 mm H₂O, no bubbles.17-03-2021 12:42 19.1 C, dp = 1 mm H₂O, no bubbles.17-03-2021 15:06 20.0 C, dp = 3 mm H₂O, no bubbles.

17-03-2021 15:06 SV = 23.0 C

17-03-2021 16:20 20.6 C.

17-03-2021 17:56 21.7 C, dp = 40 mm H₂O, no bubbles.17-03-2021 19:36 22.7 C, dp = 33 mm H₂O, no bubbles.17-03-2021 21:42 22.5 C, dp = 10 mm H₂O, no bubbles.17-03-2021 23:51 22.5 C, dp = 12 mm H₂O, no bubbles.

Day 12 in fermentation

18-03-2021 07:32 22.1 C, dp = 12 mm H₂O, no bubbles.18-03-2021 11:46 22.8 C, dp = 15 mm H₂O, no bubbles.18-03-2021 17:55 22.0 C, dp = 4 mm H₂O, no bubbles.18-03-2021 23:41 22.0 C, dp = 5 mm H₂O, no bubbles.

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Batch Notes

Day 13 in fermentation

19-03-2021 08:10 22.5 C, dp = 15 mm H₂O, no bubbles.
 19-03-2021 12:30 23.0 C, dp = 4 mm H₂O, no bubbles.
 19-03-2021 13:52 22.2 C, dp = 0 mm H₂O, no bubbles.
 19-03-2021 15:22 22.5 C, dp = 20 mm H₂O, no bubbles.
 19-03-2021 17:52 22.4 C, dp = 0 mm H₂O, no bubbles.
 19-03-2021 20:05 22.7 C, dp = 5 mm H₂O, no bubbles.
 19-03-2021 23:54 22.3 C, dp = 6 mm H₂O, no bubbles.

Day 14 in fermentation

20-03-2021 10:34 22.9 C, dp = 9 mm H₂O, no bubbles.
 20-03-2021 12:39 22.0 C, dp = 0 mm H₂O, no bubbles.
 20-03-2021 15:51 22.8 C, dp = 1 mm H₂O, no bubbles.
 20-03-2021 19:18 22.8 C, dp = 4 mm H₂O, no bubbles.
 20-03-2021 23:29 22.7 C, dp = 40 mm H₂O, no bubbles.

Day 15 in fermentation

21-03-2021 10:08 22.8 C, dp = 1 mm H₂O, no bubbles.
 21-03-2021 12:00 22.1 C, dp = 2 mm H₂O, no bubbles.
 21-03-2021 13:52 22.9 C, dp = 30 mm H₂O, no bubbles.
 21-03-2021 14:00 33.72 grams sugar in 300 mL water brought to the boil.
 21-03-2021 15:05 22.7 C, dp = 2 mm H₂O, no bubbles.

Bottling day

21-03-2021 15:05 moved bucket to kitchen.
 21-03-2021 15:51 FG = 1.006
 21-03-2021 15:10 filled 12 Steiner bottles (33 cl, 8x swing-top, 4x cap)

Day 0 in conditioning

21-03-2021 18:00 20.1 C.
 21-03-2021 21:33 19.0 C.

Day 1 in conditioning

22-03-2021 07:49 20.0 C.
 22-03-2021 11:03 19.3 C.
 22-03-2021 15:01 19.7 C.
 22-03-2021 19:40 19.3 C.
 22-03-2021 23:37 19.4 C.

Day 2 in conditioning

23-03-2021 08:37 19.9 C.
 23-03-2021 12:06 19.0 C.
 23-03-2021 16:01 19.9 C.
 23-03-2021 22:33 18.9 C.

Day 3 in conditioning

24-03-2021 08:11 19.2 C.
 24-03-2021 12:18 19.2 C.
 24-03-2021 16:18 20.0 C.
 24-03-2021 20:44 19.5 C.

Day 4 in conditioning

25-03-2021 08:44 19.6 C.
 25-03-2021 11:07 19.0 C.
 25-03-2021 18:18 20.0 C.
 25-03-2021 22:07 19.9 C.

Day 5 in conditioning

26-03-2021 08:23 20.0 C.
 26-03-2021 12:56 19.7 C.
 26-03-2021 16:08 19.0 C.
 26-03-2021 22:36 19.6 C.

Day 6 in conditioning

27-03-2021 09:20 19.0 C.

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Batch Notes

27-03-2021 13:02 19.7 C.
27-03-2021 16:00 20.0 C.
27-03-2021 23:22 19.7 C.

Day 7 in conditioning

28-03-2021 10:10 19.6 C.
28-03-2021 12:59 19.3 C.
28-03-2021 18:02 19.0 C.
28-03-2021 23:02 20.0 C.

Day 8 in conditioning

29-03-2021 09:03 19.4 C.
29-03-2021 13:23 19.7 C.
29-03-2021 15:24 20.2 C.
29-03-2021 17:58 19.2 C.
29-03-2021 21:03 20.2 C.

Day 9 in conditioning

30-03-2021 08:52 19.2 C.
30-03-2021 12:19 19.2 C.
30-03-2021 17:33 19.1 C.
30-03-2021 22:39 19.7 C.

Day 10 in conditioning

31-03-2021 08:31 19.6 C.
31-03-2021 12:38 19.0 C.
31-03-2021 14:53 19.3 C.
31-03-2021 17:09 19.2 C.
31-03-2021 21:38 19.9 C.

Day 11 in conditioning

01-04-2021 08:09 19.1 C.
01-04-2021 16:35 19.2 C.
01-04-2021 22:34 19.4 C.

Day 12 in conditioning

02-04-2021 08:29 19.5 C.
02-04-2021 13:35 20.1 C.
02-04-2021 18:52 19.5 C.
02-04-2021 22:42 19.1 C.

Day 13 in conditioning

03-04-2021 10:22 19.0 C.
03-04-2021 13:48 20.0 C.
03-04-2021 14:00 moved bottles from brew fridge to cellar.
03-04-2021 16:10 16.1 C.
03-04-2021 20:48 16.7 C.

Day 14 in conditioning

04-04-2021 09:58 16.7 C.
04-04-2021 16:42 16.7 C.
04-04-2021 21:57 16.5 C.

Day 15 in conditioning

05-04-2021 08:43 16.9 C.
05-04-2021 16:06 16.7 C.
05-04-2021 23:13 16.5 C.

Day 16 in conditioning

06-04-2021 07:40 16.7 C.
06-04-2021 15:03 15.7 C.

Day 17 in conditioning

07-04-2021 09:23 15.4 C.
07-04-2021 14:50 15.4 C.
07-04-2021 22:18 15.5 C.

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Batch Notes

Day 18 in conditioning

08-04-2021 12:54 15.9 C.
08-04-2021 19:49 15.5 C.
08-04-2021 23:18 15.5 C.

Day 19 in conditioning

09-04-2021 07:26 15.4 C.
09-04-2021 14:21 15.5 C.
09-04-2021 21:32 15.2 C.

Day 20 in conditioning

10-04-2021 09:36 15.7 C.
10-04-2021 15:54 15.8 C.
10-04-2021 21:39 15.0 C.

Day 21 in conditioning

11-04-2021 09:35 15.7 C.
11-04-2021 13:30 15.6 C.
11-04-2021 21:12 15.3 C.

Day 22 in conditioning

12-04-2021 08:06 15.2 C.
12-04-2021 13:44 15.6 C.
12-04-2021 17:43 15.7 C.
12-04-2021 22:53 15.7 C.

Day 23 in conditioning

13-04-2021 07:55 15.4 C.
13-04-2021 12:13 15.9 C.
13-04-2021 21:23 15.2 C.

Day 24 in conditioning

14-04-2021 08:13 15.4 C.
14-04-2021 23:39 15.9 C.

Day 25 in conditioning

15-04-2021 07:14 15.7 C.
15-04-2021 15:50 15.6 C.
15-04-2021 23:18 15.9 C.

Day 26 in conditioning

16-04-2021 08:25 15.7 C.
16-04-2021 12:40 15.6 C.
16-04-2021 19:53 15.3 C.

Day 27 in conditioning

17-04-2021 09:11 15.7 C.
17-04-2021 15:30 15.0 C.

Day 28 in conditioning

18-04-2021 00:28 15.9 C.
18-04-2021 10:13 15.1 C.
18-04-2021 14:25 15.9 C.
18-04-2021 18:57 15.7 C.

Day 29 in conditioning

19-04-2021 08:25 15.2 C.
19-04-2021 13:28 15.4 C.
19-04-2021 18:45 16.3 C.
19-04-2021 23:09 16.7 C.

Day 30 in conditioning

20-04-2021 07:49 16.7 C.
20-04-2021 12:44 16.1 C.
20-04-2021 19:02 16.7 C.

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Batch Notes

20-04-2021 22:20 16.0 C.

Day 31 in conditioning

21-04-2021 05:48 16.9 C.

21-04-2021 12:25 16.1 C.

21-04-2021 19:35 16.7 C.

Day 32 in conditioning

22-04-2021 12:54 16.9 C.

22-04-2021 17:17 16.1 C.

22-04-2021 23:01 16.2 C.

Day 33 in conditioning

23-04-2021 05:58 16.6 C.

23-04-2021 12:44 16.7 C.

23-04-2021 18:55 16.7 C.

23-04-2021 22:47 16.6 C.

Day 34 in conditioning

24-04-2021 10:12 16.3 C.

24-04-2021 14:40 16.4 C.

Day 35 in conditioning

25-04-2021 09:02 16.4 C.

25-04-2021 12:27 16.2 C.

25-04-2021 19:34 16.7 C.

25-04-2021 23:45 16.9 C.

Day 36 in conditioning

26-04-2021 08:28 16.7 C.

26-04-2021 12:51 16.9 C.

26-04-2021 18:49 16.0 C.

26-04-2021 23:40 16.4 C.

Day 37 in conditioning

27-04-2021 09:09 16.7 C.

27-04-2021 15:25 16.7 C.

27-04-2021 22:38 16.2 C.

Day 38 in conditioning

28-04-2021 08:18 16.3 C.

28-04-2021 13:45 16.4 C.

28-04-2021 23:24 16.3 C.

Day 39 in conditioning

29-04-2021 09:45 16.4 C.

29-04-2021 17:08 16.5 C.

29-04-2021 23:55 16.4 C.

Day 40 in conditioning

30-04-2021 08:04 16.4 C.

30-04-2021 12:24 16.5 C.

30-04-2021 21:07 16.6 C.

Day 41 in conditioning

01-05-2021 11:08 16.6 C.

01-05-2021 18:04 16.9 C.

01-05-2021 23:38 16.9 C.

Day 42 in conditioning

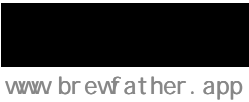
02-05-2021 09:17 16.2 C.

02-05-2021 18:12 17.3 C.

02-05-2021 23:15 16.5 C.

05-09-2021 17:15 16.1 C, pH = 4.50.

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Extra Measured Values	
Strike Temperature	68
Strike Water pH	5.2

Batch Log	
6 March 2021	Brew Date
6 March 2021	Fermentation Start
6 March 2021 09:31	Status: Brewing
6 March 2021 14:54	Status: Fermenting
14 March 2021 12:37	Added 5 grams Citra for dry hopping
17 March 2021 15:06	Diacetyl rest
21 March 2021	Bottling Date
21 March 2021 16:10	Filled 12 Steinie bottles (33 cl)
2 May 2021 23:16	Status: Completed
1 January 2023 19:19	Status: Archived

Taste	
3.5 / 5.0	