

Rushmore IPA - #157

Description [See Brew.XLS](#)

Mostly from John Palmer's revised book, "...Rushmore IPA recipe is a West Coast IPA with just enough caramel and Munich malt to add complexity." 100 IBU, 235 calories, 7.0% ABV.

Brew (Brew day takes ~8hr, see page 1 for mashing details)

- 1) **Yeast**, 4 packs of US-05, dated 9/2018, rehydrated, very little foam. Yeast not frozen.
- 2) **C filtered** 22 gal. H₂O day before. Also, add 1 Campden tablet per 20 gal. the night before (1.1 tabs). 13 gal.
- 3) **Grain Bill** (29 lb. total grain) based on 70% extraction efficiency, got 72%. in brew pot.
8.5 lb. Marty's 2 Row (29%) 16 lb. Golden Promise 2L (54%) 2 lb. Munich I, 6L (7%)
1 lb. Special Roast 40L (3.4%) 1.5 lb. Cane Sugar (7%) ~\$48.00
- 4) **Mash-In** – 1x infusion, 147-150°F, use 1.25 qt./lb., 8.6 gal. of 163°F strike H₂O, heat to 173°F, for 27.5 lb. malt, Salts added before grain, hold 60 min. (this one was 173°F in the kettle, and 163°F strike, added 0 qt. RT & got 150 °F mash held 50 min., 148°F at end.
- 5) **Water Adjustment** – Before Mash-In, add 12 gm. Gypsum, CaSO₄, & 4.9 gm. Citric Acid. then 17.4 gm. Gypsum & 7.1 gm. Citric Acid added to mash before 2nd batch sparge with 4 gal. mash out and added 7.5 gal. (12.5 gal. more) to get 15 gal. in brew pot.
136 ppm Ca, 10 ppm Mg, 206 ppm SO₄, 60 ppm Cl, 35 ppm Na. SO₄/Cl=3.4. Took pH sample 22 min. in, got pH = 5.4, also pH = 5.4 pre-boil, 5.2 after boil. See [EZ_water_Calculator-IPA157.xls](#), says 5.3, got 5.4
- 5) **Mash-Out** Add 4 gal. 185°F H₂O, no more room, got 161°F. **Vorlauf**, clarify, ~6 min. Collected 9.5 gal., so 3.1 gal. left in grain. Added 6.5 gal (oops 1 gal. too much) for 2nd Batch.
- 6) **2nd Batch Sparge** – Need **15 gal.**, got 17.75 gal. 1.75 gal. more than expected. Expect 72% extraction, got 72%. **I.G. target = 1.068.** Adjust for S.G = 1.061, so get S.G. = 1.051 avg. runnings, plus table sugar (+6 pts) & yeast (-1pts), got 1.052 avg. so added 0 qt. H₂O. Post boil 1.060, without sugar, so I added nothing pre-ferment, and 1.5 lb. table sugar 5 days in, and 0 qt. H₂O.
- 7) **Boil Adds** (79 min. total boil, ~5 min. hot break, due to throttled back full pot, then added ½ gal. add 10' to hops)
3 oz **Magnum (14.6%)** pellets, no bag 47 min. boil left
1 **WhirlFloc** tablet, 5.5 gm **DAP YN & ½ Zn tablet** 11 min. boil left
4 oz **Simcoe (13.7%)**, whole, no bag 7 min. boil left
- 7) **Hop Back**, loaded with 3 oz. **HG Cascade (~3%)**.
- 8) **Whirlpool** for 6 min., then gravity feed **Counterflow, Cool** wort to 68°F (2° high), into 2 ea., 6.5 gal. carboys.
- 9) **Oxygenate**, 1.5 min. 0.7 liter/min. pure O₂, ea. carboy, add blow-offs. pH = 5.2 (5.3 expected.)
- 10) **Pitch yeast**, 2 x 2 packs US-05, ~68°F, 2 to 4° high, OK.

Fermentation

- 1) 11 days in **primary**, 5 days@ ~ 68-70°F, with chamber venting and heater, then 70°F for 2 days. then ramp 2 days to 72°F (held 2 days), then cool to 60° 6 days. Started with blow-off tube in Star San in Fermentation Chamber, then bubblers.
- 2) 5 days in, added 1.5 lb. table sugar, plus 6 pts, so took O.G. = 1.060 to 1.066.
- 3) **Kegged** 5/25/17, dry hopped with, 2 oz. Ted's CTZ & 2 oz. Ted's Simcoe hops, left 4 days ~60°F. Got 10.1 gal. pH = 4.3.

Results

- 1) Brewed, 5/8/17, 72% extract efficiency. good initial hop bitterness & OK flavor, needs more hops in boil
- 2) 1.066 to 1.015 is 77% apparent attenuation, OK for this crystal malt grain bill, with 1.5 lb. sugar. Not freezing yeast and reduced DAP YN may have helped, a little.
- 3) 1st keg, good aroma, bitterness a little low, slightly sweet, OK malt flavor, some cloudy few days in fridge.
- 4) 1st keg 2nd dry hop with 1 oz. Cryohops LupuLN2 Simcoe (23.8% AA) 6/22, for 12 days, harsh bitterness
- 5) 2nd keg 1st dry hop 2 oz. Cent, 0.8 oz. Simcoe, whole in SS screen cylinder, 7/21, for 17 days
- 6) 2nd keg 2nd dry hop 4 oz. Ahtanum pellets in cylinder, 4 wks, no off flavors?
- 7) 2nd keg 3rd dry hop, 2 gal., 2 oz. whole Simcoe, 10/9/17

***Rehydrate Dry Yeast** Per John Palmer pg 72. Warm **11.5 gm.** yeast pack to RT. Prepare **115 ml** of sterile H₂O at **105°F**. Sprinkle yeast onto H₂O surface, wait **15 min.** Stir into a cream, wait **15 min., should foam up.** Adjust temperature to within **15°F** of wort, pitch.