Brewfather
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Guinness - Guinness Draught (clone) - 4.2%

Irish Stout
Author: Bruce Itterman (BYO Magazine)

Type: All Grain

IBU	: 43 (Tinseth)
BU/GU	: 0.97
Colour	: 70 EBC
Carbonation	: 2.2 CO2-vol
Pre-Boil Gravity	: 1.034
Original Gravity	: 1.044
Final Gravity	: 1.012

Fermentables (1.12 kg)
730 g - Maris Otter Pale Ale Malt 5.9 EBC (65...
^ The Malt Miller (UK) MAL-00-036
280 g - Barley, Flaked 3.9 EBC (25%)
110 g - Roasted Barley 1200 EBC (9.8%)

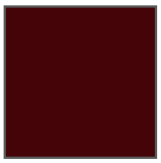
Hops (16.8 g)
60 min - 16.8 g - East Kent Goldings (EKG) -...
^ The Malt Miller (UK) HOP-04-001

Miscellaneous
Mash - 0.17 ml - Calcium Chloride (CaCl2) 33...
^ Lot # 115038
^ Brouwstore (NL) 055.035.0
Mash - 0.55 g - Epsom Salt (MgSO4)
^ Lot # /2119000091
^ Brouwstore (NL) 055.027.7
Mash - 0.9 ml - Lactic Acid 80% 80%
^ Lot # 20200213
^ Brouwstore (NL) 003.002.3

Yeast
0.5 pkg - Lallemand (LalBrew) Nottingham Yeast
^ The Malt Miller (UK) YEA-02-023

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

Batch Size	: 5.6 L
Boil Size	: 7.76 L
Post-Boil Vol	: 5.96 L
Mash Water	: 3.36 L
Sparge Water	: 5.6 L
Boil Time	: 60 min
Total Water	: 8.96 L


70 EBC

Brewhouse Efficiency: 71.8%
Mash Efficiency: 73.3%

Mash Profile
Guiness BYO Mash Profile
61.9 °C - Strike Temp
57 °C - 30 min - Protein Rest
67 °C - 90 min - Mash
76 °C - 15 min - Mashout

Fermentation Profile
Ale
16.7 °C - 14 days - Primary

Water Profile
NL Hoofddorp Rein Tap Water (2020-Q1 WQR) (St...
Ca 43 Mg 15 Na 67 Cl 75 SO 68

SO/Cl ratio: 0.9
Mash pH: 5.4

Measurements

Mash pH:

Boil Volume:

Pre-Boil Gravity:

Post-Boil Kettle Volume:

Original Gravity:

Fermenter Top-Up:

Fermenter Volume:

Final Gravity:

Bottling Volume:

Recipe Notes

https://web.archive.org/web/20130120122623/byo.com/stories/beer-styles/article/indices/11-beer-styles/1458-stout-hearted-in-ireland

Mashing
McGovern notes that unlike those in corn and rice, the starches in raw barley do not have to be gelatinized before mashing. So no cooking is required. The enzymatic action of pale malt is strong enough to convert the starch into the sugars required for fermentation. So you won’t find any cereal

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cookers at the Guinness plant.

Guinness' new brew house is laid out in the traditional, top to bottom design. Though the grains are not milled on the top floor, they are sent there by conveyor for storage in the huge grist bins. To mash a batch of Guinness, you'll need 22 tons of grist (48,501 lb.) of around 65 percent pale malt, 25 percent raw barley, and 10 percent roast. Add that to 50 tons of water (13,233 gallons) in the mash tun, where huge, automatic paddles and knives rotate through the mash to keep it loose and well-mixed.

The water comes from Ireland's Wicklow mountains. It's relatively soft, but with the right blend of minerals for a successful mash. It's the same water that Arthur Guinness used to make stout back in the 18th century.

The mash rests at 57° C (135° F) for 75 minutes, then it is stepped up to 67° C (152.6° F) and held for 45 minutes, then mashed out at 78° C (172° F).

The mash is fully converted in just over two hours, but the whole process takes about three. After mash-out it is automatically transferred to the kieve (pronounced "keev").

"Kieve is a term unique to Ireland," McGovern says. "Most breweries call this vessel the lauter tun, where the mash is strained and rinsed over a false bottom to extract the sweet wort for fermentation." The word is derived from the French word for copper, cuivre, pronounced "kweev." McGovern says the Irish just like to be different.

For souring you can do multiple ways:
1) Naturally sour part of the beer
2) Add lactic acid at kegging time.
3) Replace some the base malt with acid malt.

I choose 2 as I can dose to my taste.