

## Greg Hughes - Munich Dunkel - 5.6%

### Munich Dunkel

Author: Greg Hughes

Type: All Grain

IBU : 27 (Tinseth)  
 BU/GU : 0.53  
 Colour : 38 EBC  
 Carbonation : 2.5 CO2-vol

Pre-Boil Gravity : 1.040  
 Original Gravity : 1.052  
 Final Gravity : 1.009

### Fermentables (1.31 kg)

732 g - Munich Malt 15 EBC (55.8%)  
 ^ Brouwmaatje (NL) 051.043.8/1  
 488 g - Extra Pale Ale (Lager) Malt 3 EBC (37...  
 ^ The Malt Miller (UK) MAL-00-028  
 49 g - Biscuit 50 EBC (3.7%)  
 ^ Brouwmaatje (NL) 051.098.2/1  
 24 g - Chocolate Wheat 1000 EBC (1.8%)  
 ^ Brouwmaatje (NL) 051.327.5 0.5 KG  
 20 g - Carafa II 820 EBC (1.5%)

### Hops (6.4 g)

60 min - 5.2 g - Magnum - 10.7% (27 IBU)  
 ^ The Malt Miller (UK) HOP-06-009  
 5 min - 1.2 g - Hallertauer Mittelfrueh (T90)...  
 ^ The Malt Miller (UK) HOP-06-008

### Miscellaneous

Mash - 0.65 g - Baking Soda (NaHCO3)  
 ^ Lot # 41190621/3  
 ^ Brouwstore (NL) 003.106.2  
 Mash - 2.28 g - Calcium Chloride (CaCl2) 33 %...  
 ^ Lot # 115038  
 ^ Brouwstore (NL) 055.035.0  
 Mash - 0.64 g - Canning Salt (NaCl)  
 ^ Albert Heijn (NL)  
 Mash - 0.21 g - Epsom Salt (MgSO4)  
 ^ Lot # /2119000091  
 ^ Brouwstore (NL) 055.027.7  
 Mash - 0.2 g - Gypsum (CaSO4)  
 ^ The Malt Miller (UK) CHE-03-004  
 Mash - 0.7 ml - Lactic Acid 80% 80%  
 ^ Lot # 20200213  
 ^ Brouwstore (NL) 003.002.3

### Yeast

0.8 pkg - Fermentis Saflager Lager W-34/70  
 ^ The Malt Miller (UK) YEA-02-032

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

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

Mash Water : 3.94 L  
 Sparge Water : 5.2 L  
 Boil Time : 60 min  
 Total Water : 9.14 L



38 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

20 Lager (Standard)  
 12 °C - 14 days - Primary

### Water Profile

02 NL Spa Reine Flat Mineral Water (www.ah.nl...  
 Ca 40 Mg 4 Na 50 Cl 100 SO 25

SO/Cl ratio: 0.3

Mash pH: 5.4

Sparge pH: 6

### 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

Target: ABV = 5.5 %, IBU = 27, OG = 1.055.