

# Black Flag

- Gravity **13.6 BLG**
- ABV **5.6 %**
- IBU **33**
- SRM **44.9**
- Style **American Stout**

## Batch size

- Expected quantity of finished beer **10 liter(s)**
- Trub loss **5 %**
- Size with trub loss **10.5 liter(s)**
- Boil time **60 min**
- Evaporation rate **20 %/h**
- Boil size **12.7 liter(s)**

## Mash information

- Mash efficiency **77 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **7.8 liter(s)**
- Total mash volume **10.4 liter(s)**

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	1.35 kg (51.9%)	80 %	5
Grain	Monachijski	0.5 kg (19.2%)	80 %	16
Grain	Strzegom Czekoladowy 400	0.25 kg (9.6%)	68 %	400
Grain	Strzegom Karmel 300	0.15 kg (5.8%)	70 %	299
Grain	Jęczmień palony	0.23 kg (8.8%)	55 %	985
Grain	Czekoladowy	0.12 kg (4.6%)	60 %	788

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Simcoe	5 g	60 min	13.2 %
Boil	Simcoe	10 g	15 min	13.2 %
Boil	Simcoe	5 g	5 min	13.2 %
Dry Hop	Styrian Golding	72 g	10 day(s)	3.3 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Dry	12 g	Fermentis

## Notes

- Woda Primavera: Ca:48.1; Mg:6.68; Na:10.29; Cl:5.6; SO4:2.10; HCO3:166; PH:8

Celowanie: Ca:110; Mg:4; Na:12; Cl:19; SO4:53; HCO3:280;

Modyfikacja:

Gips: 3g

Chlorek wapnia: 0.5g

Proszek do pieczenia 1.6g

Efekt: Ca:106.7; Mg:6.7; Na:31.3; Cl:26.9; SO4:121.9; HCO3:275.9;

PH: 5.39  
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