

## Stout v4\_tonka #78

- Gravity **16.8 BLG**
- ABV **7.1 %**
- IBU **49**
- SRM **34.4**
- Style **Foreign Extra Stout**

### Batch size

- Expected quantity of finished beer **20.4 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21.4 liter(s)**
- Boil time **90 min**
- Evaporation rate **12 %/h**
- Boil size **25.5 liter(s)**

### Mash information

- Mash efficiency **81.2 %**
- Liquor-to-grist ratio **3.39 liter(s) / kg**
- Mash size **20 liter(s)**
- Total mash volume **25.9 liter(s)**

### Steps

- Temp **66 C**, Time **45 min**
- Temp **72 C**, Time **30 min**
- Temp **75 C**, Time **7 min**

### Mash step by step

- Heat up **20 liter(s)** of strike water to **72.8C**
- Add grains
- Keep mash **45 min** at **66C**
- Keep mash **30 min** at **72C**
- Keep mash **7 min** at **75C**
- Sparge using **11.4 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking - pilzneński	1 kg (16.9%)	80 %	4
Grain	Mep©Ale	3 kg (50.8%)	82.1 %	5.5
Grain	Viking - monachijski I	1 kg (16.9%)	79 %	16
Grain	Viking - karmelowy czerwony	0.4 kg (6.8%)	75 %	50
Grain	Fawcett - czekoladowy pszeniczny	0.2 kg (3.4%)	72.7 %	1000
Grain	Chateau - black	0.3 kg (5.1%)	73 %	1350

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Warrior	20 g	60 min	14.7 %
Aroma (end of boil)	Chinook PL	20 g	30 min	8.6 %
Aroma (end of boil)	Perle szyszka mokra	30 g	10 min	6.5 %
120 gr mokrej szyszki (mrożonej), ekwiwalent 30 gr suchej				

### Yeasts

Name	Type	Form	Amount	Laboratory
FM54 Gorączka kalifornijska	Ale	Slant	170 ml	Fermentum Mobile

### Extras

Type	Name	Amount	Use for	Time
Water Agent	gips	1.5 g	Mash	---
Water Agent	węglan wapnia	7 g	Mash	---
Water Agent	sól epsom	1 g	Mash	---
Water Agent	kwask mlekowy [ml]	3.03 g	Mash	---
Water Agent	chlorek wapnia [ml]	0 g	Mash	---
Fining	mech irlandzki	3 g	Boil	10 min
Flavor	bób tonka	5 g	Secondary	20 day(s)
Flavor	cukier z wanilią	24 g	Bottling	---

### Notes

- bób tonka pokruszony i macerowany - dodany do 10 L piwa, pozostałe 10/11L - bez dodatków  
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