Bezalkoholowskie

- Gravity **2.1 BLG**
- ABV **---**
- IBU **46**
- SRM **10.2**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.5 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **2.8 liter(s)**
- Total mash volume **3.6 liter(s)**

Steps

- Temp **68 C**, Time **30 min**

Mash step by step

- Heat up **2.8 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **30 min** at **68C**
- Sparge using **23.5 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Monachijski	0.13 kg *(16.5%)*	80 %	16
Grain	Karmelowy Jasny 30EBC	0.19 kg *(24.1%)*	75 %	30
Grain	Caramel/Crystal Malt - 120L	0.06 kg *(7.6%)*	72 %	236
Grain	Amber Malt	0.03 kg *(3.8%)*	75 %	43
Grain	Fawcett - Dark Crystal	0.13 kg *(16.5%)*	71 %	300
Grain	Czekoladowy	0.06 kg *(7.6%)*	60 %	788
Grain	Pszeniczny	0.06 kg *(7.6%)*	85 %	4
Grain	Żytni	0.13 kg *(16.5%)*	85 %	8

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Amarillo	6.3 g	45 min	9.5 %
Boil	Simcoe	5 g	45 min	13.2 %
Boil	Centennial	6.3 g	45 min	10.5 %
Boil	Amarillo	6.3 g	15 min	9.5 %
Boil	Simcoe	2.5 g	15 min	13.2 %
Boil	Centennial	6.3 g	15 min	10.5 %

Recipe has been printed via **BREWNESS.com** - a complex online solution for homebrewers to track brewing process easily.

Aroma (end of boil)	Amarillo	5 g	1 min	9.5 %
Aroma (end of boil)	Simcoe	5 g	1 min	13.2 %
Aroma (end of boil)	Cascade	12.5 g	1 min	6 %
Aroma (end of boil)	Ahtanum	12.5 g	1 min	5 %
Dry Hop	Centennial	50 g	4 day(s)	10.5 %
Dry Hop	Cascade	50 g	4 day(s)	6 %
Dry Hop	Ahtanum	25 g	4 day(s)	5 %
Dry Hop	Simcoe	25 g	4 day(s)	13.2 %
Dry Hop	Columbus/Tomahawk/Zeus	37.5 g	4 day(s)	15.5 %

Yeasts

Name	**Type**	**Form**	**Amount**	**Laboratory**
Safbrew S-33	Ale	Dry	11.5 g	Safbrew