

## Marcowe

- Gravity **13.1 BLG**
- ABV ---
- IBU **21**
- SRM **12.4**
- Style **German Pilsner (Pils)**

### Batch size

- Expected quantity of finished beer **13.5 liter(s)**
- Trub loss **5 %**
- Size with trub loss **14.2 liter(s)**
- Boil time **90 min**
- Evaporation rate **10 %/h**
- Boil size **17.8 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **11.6 liter(s)**
- Total mash volume **14.9 liter(s)**

### Steps

- Temp **52 C**, Time **10 min**
- Temp **64 C**, Time **15 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **5 min**

### Mash step by step

- Heat up **11.6 liter(s)** of strike water to **56.6C**
- Add grains
- Keep mash **10 min** at **52C**
- Keep mash **15 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **9.5 liter(s)** of **76C** water or to achieve **17.8 liter(s)** of wort

### Fermentables

| Type  | Name                        | Amount         | Yield  | EBC |
|-------|-----------------------------|----------------|--------|-----|
| Grain | Strzegom Wiedeński          | 1 kg (30.3%)   | 79 %   | 10  |
| Grain | Pilzneński                  | 0.5 kg (15.2%) | 81 %   | 4   |
| Grain | Strzegom Monachijski typ I  | 1 kg (30.3%)   | 79 %   | 16  |
| Grain | Caramunich Malt             | 0.2 kg (6.1%)  | 71.7 % | 110 |
| Grain | Acid Malt                   | 0.1 kg (3%)    | 58.7 % | 6   |
| Grain | Strzegom Monachijski typ II | 0.5 kg (15.2%) | 79 %   | 22  |

### Hops

| Use for | Name              | Amount | Time   | Alpha acid |
|---------|-------------------|--------|--------|------------|
| Boil    | Marynka           | 10 g   | 60 min | 10 %       |
| Boil    | Lublin (Lubelski) | 10 g   | 20 min | 4 %        |

### Yeasts

| Name | Type | Form | Amount | Laboratory |
|------|------|------|--------|------------|
|------|------|------|--------|------------|

|                                    |       |       |        |                 |
|------------------------------------|-------|-------|--------|-----------------|
| Mangrove Jack's M84 Bohemian Lager | Lager | Slant | 800 ml | Mangrove Jack's |
|------------------------------------|-------|-------|--------|-----------------|

### Extras

| Type        | Name           | Amount | Use for | Time   |
|-------------|----------------|--------|---------|--------|
| Water Agent | chlorek wapnia | 4 g    | Boil    | 70 min |
| Fining      | mech irlandzki | 3 g    | Boil    | 15 min |

### Notes

- woda miękka 5,5 PH - z Tesco lub z filtra Brita  
*Feb 18, 2016, 6:56 PM*