IBU Calculations

There are various methods of predicting bitterness with many tables, equations and spreadsheets available. The following chart and the magic number was developed by Greg from the work done by Byron Burch and utilisation figures averaged from Papazian and Noonan. The chart assumes a starting gravity of around 50 and close to sea level. The magic number 203.1 allows the calculations to be made in grams. Checks against recipes containing enough detail have confirmed accuracy.

A range of parameters will affect hop utilization including: high gravity worts (negatively), hop bags (negatively), being above sea level (positively the higher you go), a more vigorous boil (positively), as well as several others.

Boiling Time (minutes)	Pellet Utilization	Flower & Plug Utilization
0 – 5	5%	4.1%
6 – 10	6%	5%
11 – 15	8%	6.6%
16 – 20	10.1%	8.4%
21 – 25	12.1%	10.1%
26 – 30	15.3%	12.7%
31 – 35	18.8%	15.6%
36 – 40	22.8%	19%
41 – 45	26.9%	22.4%
46 – 50	28.1%	23. 4%
51 – 60	30%	25%

To calculate IBUs –

Multiply grams of hops by AAU% by utilization. For example, 36 grams of East Kent Goldings with an
AAU% of 4.9 boiled for 60 minutes would be:

36 x 4.9 x 30 = 5292.
Divide this figure by 203.1 = 26.05

This is your IBUs in 18.9 litres (or 5 US gallons).

To recalculate for a different volume (e.g., 22 litres), multiply your IBU figure (26.05) by 18.9, then divide by your batch size (22).

26.05 x 18.9 = 492.34
492 / 22 = 22.37 IBUs