

## Establishing the THC level in UK consumer CBD products

Right for UK: Consumers | Legislation & Regulation | Industry (inc. farming)

### Executive summary – 26.01.2022

- Ratio of THC to CBD to set the '*no more than*' THC level in consumer CBD products
- Ratio of THC to CBD protects consumers, it prevents the manipulation of a low milligram level of CBD to a 'regulated' % of THC in a container/product
- Consumer guidance for daily CBD consumption already established: '*no more than 70mg CBD per day*' - Food Standards Agency (FSA)
- Worldwide evidence available of '*No Observed Adverse Effect Level*' (NOAEL) and '*Lowest Observed Adverse Effect Level*' (LOAEL) to establish a THC to CBD Ratio
- Certificate of Analysis (COAs) used for verification of ratios, made publically available for each CBD product and produced by an independent certified laboratory

*"Delivering consumer health, environmental and economic benefits for the UK"*

## Establishing the THC level in UK consumer CBD products

ACMD report on Consumer Cannabidiol (CBD) products 17.12.2021, recommended a controlled phytocannabinoid dose - for each controlled phytocannabinoid - per unit of consumption or 'single serving' being defined as the typical quantity of CBD product consumed in one occasion.

'Single serving' needs to be defined for each product (route of administration), is open to wide interpretation and introduces unnecessary complexity for the consumer.

Comparing worldwide existing and established THC regulated limits, No Observed Adverse Effect Level (NOAEL) and Lowest Observed Adverse Effect Level (LOAEL) and reviewing as a ratio of THC to CBD, very efficiently protects consumers.

Table 1: THC to CBD ratios based on THC: regulated limits, NOAEL and LOAEL evidence

*Methodologies based on a 10% strength [1000mg] CBD oil in a 10ml bottle*

Methodology	Container size (ml)	CBD - number of mg in 10ml	FSA 'no more than 70mg CBD per day'	Max number of servings in 10ml (based on 70mg CBD per day)	THC - number of mg in 10ml	THC - number of mg per day	THC:CBD Ratio
<b>Health Canada 2001 LOAEL</b> 10mg THC/day 2x 5mg servings set +4hrs apart <i>acute neurological analysis</i>	10	1000	70	14.3	143	10	14%
<b>Health Canada 2001 NOAEL</b> 10mg THC/day 2x 5mg servings set +4hrs apart <i>psychoactive analysis</i>	10	1000	70	14.3	143	10	14%
<b>Switzerland</b> 1% THC per container Regulation	10	1000	70	14.3	100	7	10%
<b>ACMD Report LOAEL</b> 5mg THC/day <i>psychoactive analysis</i>	10	1000	70	14.3	71	5	7%
<b>Jersey</b> 3% THC:CBD Ratio Regulation	10	1000	70	14.3	30	2.1	3%
<b>America</b> 0.3% THC per container Regulation	10	1000	70	14.3	30	2.1	3%
<b>ACMD recommendation</b> 50 micro grams per 'single serving'	10	1000	70	14.3	'single serving' yet to be defined and open for interpretation		
<b>Home Office</b> 1mg THC per container Regulation	10	1000	70	14.3	1	0.07	0.001%

*Appendix 1 for calculations: THC to CBD ratios*

### References

FSA recommendation "no more than 70mg CBD per day"

LOAEL: Lowest Observed Adverse Effect Level

NOAEL: No Observed Adverse Effect Level

Health Canada 2001: Table 2.8:

<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.630.1743&rep=rep1&type=pdf>

## **% THC vs THC to CBD Ratio**

Just a percentage per container can be manipulated to have high amount of THC.

Plus, a THC limit per serving can also be manipulated by using smaller servings.

A fixed ratio of THC to the CBD content prevents any loopholes.

### **Example 1** – Manipulation per container/product to achieve high THC levels

Take a 50g edible product as a single serving.

#### **Percentage Model:**

- Swiss 1% THC per product/container means that this 50g edible product could contain up to 500mg THC regardless of the CBD content.
- USA 0.3% THC per product/container means that this 50g edible product could contain up to 150mg THC regardless of the CBD content.

#### **Ratio Model:**

- 14% ratio THC:CBD means that this 50g edible product in the UK could only contain a maximum of 4.2mg THC in a ratio to 30mg of CBD\*.
- 7% ratio THC:CBD means that this 50g edible product in the UK could only contain a maximum of 2.1mg THC in a ratio to 30mg of CBD\*.

*\*Manufacturers are advised not to offer more than 30mg CBD in an edible single serving in the UK*

### **Example 2** – Manipulation per serving to achieve high THC levels per overall product.

ACMD report recommend 0.05mg (i.e. 50 micrograms) per serving.

If you produce a sweet that weighs 0.5g, it could be sold in a 250g packet that contains 500 servings.

This totals 25mg of THC in the packet.

## **‘Advised’ limit of 70mg CBD per day**

Consumer guidance for daily CBD consumption is already well established: *‘no more than 70mg CBD per day’* - Food Standards Agency (FSA).

## **NOAEL & LOAEL**

Worldwide evidence of both *No Observed Adverse Effect Level (NOAEL)* and *Lowest Observed Adverse Effect Level (LOAEL)* to establish a THC to CBD ratio.

For example,

Health Canada report a NOAEL of 10mg THC per day (based on 2x 5mg THC servings set a minimum of 4 hours apart). As a ratio of THC to 70mg of CBD a day this is 14%

ACMD reports a LOAEL of 5mg THC per day. As a ratio of THC to 70mg of CBD a day this is 7%

## **Verification of ratios and Certificate of Analysis (COAs)**

Verification of ratios can easily and efficiently be achieved by the review of the product certificate of analysis that should be produced by an independent certified laboratory on behalf of the consumer CBD product brand/manufacture.

Consumers should be able to view a CBD product COA publically before making a purchase.