



## CONSIDERATIONS FOR CANNABIS EDIBLES PRODUCT DEVELOPMENT

### THC

The most researched cannabinoid is delta-9-tetrahydrocannabinol (THC). THC is responsible for the way your brain and body respond to cannabis, including the high and intoxication.

### CBD

Cannabidiol (CBD) is another cannabinoid. Unlike THC, CBD does not produce a high or intoxication. CBD is also being studied for its possible therapeutic uses.

Source: <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/about.html>

### Edible Product Regulations

- A maximum allowable amount of 10mg THC per package
- No regulated limits on CBD
- Products must be shelf-stable – cannot require refrigeration or freezing
- No added caffeine
- No nicotine or added alcohol
- Must be in child-resistant packaging

### Typical Forms of Cannabis used in the Development of Edibles

**Crude Extract** – lower purity range, more of a combination of THC and CBD, more “cannabis flavour,” must use more ingredient to achieve target total mg, therefore, having more of a flavour impact on the product.

**Distillate** – higher purity as most plant materials and terpenes have been removed, less of a “cannabis” taste. It can have primarily THC or CBD distillate with small percentages of the other present. Do not need as much ingredient to achieve target total mg.

**Isolate** – a solid crystalline powder that contains 99% purity. The most commonly used isolate is CBD isolate because it allows for products to be made with no THC.



# FACT SHEET

NOVEMBER 2020 | ©Perennia 2020

## Carriers for Cannabis

Cannabis distillate is quite difficult to work with on its own as it is very thick and sticky at room temperature. For best results, one should heat distillate to between 60-70°C. In this temperature range, distillate becomes more fluid. For best homogeneity results in the product, distillate should be mixed with a carrier to ensure it is distributed throughout the product evenly.

THC and CBD are both fat-soluble, meaning they mix the best with fats and oils. If you are creating a product with a fat or oil in it, the ideal first step is to mix the cannabis into the fat. If you are not creating a product with a fat or oil (e.g. beverage), you need to find a non-fat based carrier that aids in combining the distillate with a non-fat matrix.

**Fat based carrier** – ensuring the distillate and fat are at the same temperature when combining is very important. If the carrier is cooler than the distillate, it will immediately seize up when combining with the cooler fat. A sufficient mixing time is required to ensure the distillate has been properly distributed throughout the fat.

**Non-fat based carrier** – since the distillate is going into a water-soluble product, an emulsion or stable suspension must be created to disperse the distillate into the product evenly. Various methods can be trialed to achieve this:

- High shear mixing with carrier and emulsifier
- Nano-emulsions with oil and water—this requires special equipment
- Sprayed dried water-soluble emulsions—this creates a dry product
- Encapsulation

The most suitable method depends on the product you are developing, the costing, and the cannabis's final efficacy.

## Considerations During Processing

**Homogeneity** – during the processing of the product you are creating, it is very important to ensure the cannabis is mixed properly, so it is homogeneous throughout the final product. The method of incorporation of the cannabis will determine the length of time required for mixing. For example, if you are adding distillate straight to a fat, it will take longer to incorporate than if you are adding an emulsion to water

**Heat** – THC and CBD degrade in the presence of heat over time. When developing a product, it is important to consider

the processing parameters if heat is involved. Ideally, the cannabis should be exposed to the least amount of heat for the shortest amount of time possible to minimize degradation but still achieve product stability. If exposed to heat, additional testing should be completed to ensure it has not degraded the THC level to below the specifications.

**Acid** – exposure to acids can cause THC and CBD to degrade, which can affect the potency. If you are creating a low pH product, you should ensure cannabis degradation is not occurring. This is an important consideration as cannabis edible products may fall in the high acid range due to the requirement of shelf stability.

## Packaging Considerations

Regulations state that all products must be in a child-resistant (CR) package. As in all product development, when determining the packaging, it is important to consider how it will affect the product. For example, light and oxygen can affect the product over time, but these can be minimized with the proper packaging. You also want to ensure the packaging does not interact with the cannabis, which could cause potencies to be affected.

## Stability and Shelf Life

Edible products must uphold food safety and quality over time, similarly to non-cannabis food products, however, with the addition of maintaining cannabis potency. The cannabis itself can degrade over time, so the shelf life studies for edibles must also ensure the potency of the product remains within the specifications for the duration of the product's shelf life.

## Resources:

Final Regulation: Edible cannabis, cannabis extract, cannabis topicals

<https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/resources/regulations-edible-cannabis-extracts-topicals.html>

Cannabis Act

<https://laws-lois.justice.gc.ca/eng/acts/c-24.5/>