

My name is Justin Nussbaum. I majored in mathematics at Hood College in Frederick Maryland where I received my undergraduate degree. I am the Chief of Extraction and Formulation at Fingerboard Farm. The Farm is an agritourism farm- stay, located in Frederick County. It is a woman owned vertically integrated cultivation, extraction/formulation and farm market sales business. Our CBD and Hemp Flower products are sold in six Maryland Medical Marijuana Dispensaries. I assist with many of the operations at the farm. I am primarily responsible for for the extraction/formulation side of things. If it was made at the farm, it was most likely made by me. We have our products third party tested for compliance and safety. I am writing because I am deeply concerned about the proposed language in the Cannabis Reform Act, HB0556. I am specifically concerned about the cap on THC at 0.5mg per serving and 2.5mg per package for those without a recreational cannabis license. (§ 36-1103 (A)(1); Page 69, lines 23-27).

This language is not only misleading but it would render hundreds of products that are currently protected under federal law illegal. As written, this bill would have a devastating impact on the hemp industry in Maryland and would result in the closure of hundreds of family-owned, small, and minority owned businesses like the one I work at. It would destroy an industry overnight without any input from industry participants. The Hemp Industry in Maryland has worked hard to create common sense regulations for these types of products in accordance with the recommendations from the Maryland Medical Cannabis Commission's study group that was formed last year to study these products specifically. We stand ready to support amendments that would protect public safety as well as the industry's ability to participate in the free market. We want regulation, but we do not want to lose our businesses which are protected by federal law due to the implementation of the recreational cannabis industry. A collaborative effort between the hemp and cannabis industry can and should exist as that is what is best for our industry as well as what is best for the consumers of these products.

When we finish growing for the season, as we grow outdoors and only have a single season, we have officials come out and take samples for testing to make sure we have complied and did indeed grow hemp, having a THC level below 0.3%, and not high THC flower before we harvest. Some of the crop is taken and frozen in order to preserve some of the other chemicals produced by the plant. Namely terpenes, where much of the smell and flavors come from. The rest is dried and cured. That's when my processing really begins. My primary method for separating the cannabinoids from the plant material is through ice water extraction. I utilize really cold water, and not other solvents typically used such as alcohol or butane, to pull the nearly microscopic trichome heads, where all the cannabinoids reside, away from the stalks. Everything goes through a series of different sized sieves and collected and dried using pharmaceutical freeze driers in a process known as Lyophilization. This concentrate is then used for formulation after a sample is sent off for testing, so that I have quantifiable numbers to make calculations with. Once I have the COA, or certificate of analysis, from the third party lab I can calculate out how much of the concentrate I need to use in formulation to get to the desired dosages, while still remaining below the federal

allowable THC limits. I have also formulated with other CBD concentrates extracted by other processors who utilized different methods of extraction, such as ethanol or hydrocarbons (butane and propane). A sample of the concentrate is sent off for third party testing and I read the COA and make calculations on how much is needed to make products with desired dosages and keeping THC levels below the federal limits. Under the strictest guidelines of 0.3% total THC by dry weight, this is calculated by adding the DELTA-9-TETRAHYDROCANNABINOL and the TETRAHYDROCANNABINOLIC—ACID by a decarboxylation multiplier of 87.7%. Heat converts 87.7% THCA into THC. With the 2.5 mg per package clause, federally legal hemp flower with 0% THC and a 0.3% THCA would be : $(0.3 \times 0.877 = 0.2631\%)$ which translates to 2.63 mg of THC per gram of flower. Above the proposed ammendment of 2.5 mg per package.

Formulation will be impossible without using isolate and eliminating other beneficial minor cannabinoids. Think of it like making lemonade, but you can't use lemons or lemon juice, you can only use citric acid.

I believe that the regulations ammendment should remove this new clause and ban the formulation of any cannabis sativa product using acetate as the catalyst and solvent.

Justin Nussbaum

Chief of Extraction and Formulation

Fingerboard Farm

Justin@Fingerboardfarm.market

240-498-9545