

Who is the FCC?

The [Food Chemicals Codex \(FCC\)](#) is a compendium of internationally recognized standards for the identity, purity, and quality of food ingredients. It features over 1,200 monographs, including food-grade chemicals, processing aids, food ingredients (such as vegetable oils, fructose, whey, and amino acids), flavoring agents, vitamins, and functional food ingredients (such as lycopene, olestra, and short chain fructooligosaccharides).

Why should my company care?

Food production, from "farm to fork" is a long, complicated, and ever more globalized process. Potential vulnerabilities that may affect the integrity of food ingredients are increasingly scrutinized by regulators, retailers, and consumers. The FCC serves two key roles in this area: 1.) helping to limit the introduction of potential problems at the ingredients level, and 2.) serving as a widely acknowledged quality benchmark in the global marketplace for food ingredients. FCC standards are recognized around the world by regulatory agencies, food processors, and ingredient suppliers as the basis for defining "food grade" ingredients.

FCC has promulgated draft monographs that encompass [Hemp Seed Protein and Hemp Seed Oil](#). FCC monographs set standards for ingredient identification methods, limits on impurities, and product specific tests such as percent moisture, protein, or in the case of hemp ingredients, limits on CBD and THC content. FCC monographs are not state or federal regulations and compliance is entirely voluntary. However, it is common that food and beverage ingredients and additives are sold as "FCC grade" and some manufacturers will set internal purchasing and QA standards based on FCC monographs.

It is in our industry's best interest to guide the FCC monograph creation to standards that are logical, do not impose undue testing burden, and do not limit innovation. If we do not participate we risk the creation of standards that become yet another hurdle for hemp grain to overcome.

How do we get involved?

- Create an FCC/USP account (this is free to comment on new monographs).
 - Start here
 - Click "Access FCC Forum"
 - Create account
- Navigate to "FCC Forum"
- Review proposed monographs for Hemp Seed Oil and Hemp Seed Protein
- Follow the link on the left hand side of the screen to "Submit Comment"
- If desired, purchase access to FCC. Not necessary to participate in monograph comments

Suggested Comments - Hemp Seed Oil

Item	Proposed Standard	Suggested Comment
Name	Cannabis sativa seed oil, Hempseed oil	Cannabis sativa seed oil, Hemp seed oil
Description	Hemp Seed Oil is derived from the seeds of Cannabis sativa L. The oil is obtained via mechanical separation from the whole or parts of seeds using cold pressing. Hemp Seed Oil is clear, light green.	"This description limits future innovation and development. Please change to Hemp Seed Oil is derived from the seeds of Cannabis sativa L. The oil is obtained via a number of approaches including mechanical separation from the whole or parts of seeds using expeller pressing, suitable organic solvents, and or enzymes. It may be filtered and packaged directly as is or it and may undergo bleaching, winterization, and deodorization to produce refined hemp seed oil. Hemp Seed Oil is clear, light green to light yellow."
Function	Coating agent; stabilizer; thickener; emulsifier; texturizer	"Ok" or "Acceptable" or "Yes" or similar verbiage
Packaging and Storage	Store in well-closed containers in a dry place avoiding excessive heat.	"Ok" or "Acceptable" or "Yes" or similar verbiage
Identification - A	Fatty Acid Composition by GC-FID	These profiles do not match Fatty acid profiles by AOAC 996.06. We suggest delaying identification methods and gathering data from multiple cultivars from different regions and growing seasons.
Identification - B	Sterol Profile by TLC and GC-FIC	Sterols are rarely if ever analyzed by hemp seed oil producers. It is unknown if these values are representative of hemp seed oil from all common cannabis sativa cultivars used for oil production. We suggest delaying identification methods and gathering data from multiple cultivars from different regions and growing seasons.
Impurities	Heavy Metals by ICP-MS	"Ok" or "Acceptable" or "Yes" or

	Arsenic (1 mg/kg), Cadmium (1 mg/kg), Lead (1 mg/kg), Mercury (0.1 mg/kg)	similar verbiage
Free Fatty Acids	Titration. <1.0% as Oleic acid	Increase limit to 2%. Most hemp seed oils are cold pressed and filtered. It is not improbable that freshly pressed oil is at or slightly greater than 1% FFA. NMT 2% FFA is the common standard found in North American hemp seed oil.
Loss on Drying	<0.2% loss on drying at 102C for four hours and constant weight	"Ok" or "Acceptable" or "Yes" or similar verbiage
Peroxide Value	PV <10 mEq/kg by titration. USP or AOAC or AOCS method.	"Ok" or "Acceptable" or "Yes" or similar verbiage
Cannabinoids - THC	HPLC-MS/MS. <10 mg/kg	"Ok" or "Acceptable" or "Yes" or similar verbiage
Cannabinoids -CBD	HPLC-MS/MS. <75 mg/kg	"Ok" or "Acceptable" or "Yes" or similar verbiage

Suggested Comments - Hemp Seed Protein

Item	Proposed Standard	Suggested Comment
Name	Hempseed Cake, Hempseed Flour, Hemp Protein	Hemp Seed Cake, Hemp Seed Flour, Hemp Protein, Cannabis sativa Seed Protein, Cannabis sativa Seed Flour
Description	Hemp Seed Protein is derived from the seeds of Cannabis sativa L. The protein is obtained using a mechanical cleaning and cold-pressing process to separate the oil followed by milling and sifting to achieve the desired particle size. Hemp Seed Protein may be further processed using aqueous extraction followed by drying to obtain a concentrated protein product; however, extracts and concentrates are not the subject of this standard. Hemp Seed Protein is a fine, light-green powder.	"Ok" or "Acceptable" or "Yes" or similar verbiage

Function	Protein supplement; nutrient	"Ok" or "Acceptable" or "Yes" or similar verbiage
Packaging and Storage	Store in well-closed containers in a dry place avoiding excessive heat.	"Ok" or "Acceptable" or "Yes" or similar verbiage
Identification - A	Amino Acid Profile based on AOAC 2018.16	These profiles do not match samples of hemp seed protein analyzed by AOAC 994.12, AOAC 982.3, or 988.15. We suggest delaying identification methods and gathering data from multiple cultivars from different regions and growing seasons.
Identification - B	Peptide Mapping by trypsin digestion and LC/MS. USP method.	Peptide mapping is not commonly used or understood in the hemp grain industry. We suggest gathering data from multiple cultivars from different regions and growing seasons. It is difficult to obtain third lab services for this method.
Impurities	Heavy Metals by ICP-MS Arsenic (1 mg/kg), Cadmium (1 mg/kg), Lead (1 mg/kg), Mercury (0.1 mg/kg)	"Ok" or "Acceptable" or "Yes" or similar verbiage
Ash	<9% by muffle furnace at ~550°C	It is not uncommon to find more than 9% ash by common analysis methods in hemp seed proteins. Suggest limit to be 15%
Loss on Drying	<0.2% loss on drying at 102°C for four hours and to constant weight	"Ok" or "Acceptable" or "Yes" or similar verbiage
Protein	90% to 110% of labelled amount by USP Nitrogen Content X 6.25 or AOAC992.23 (Dumas) or AOCS Ba 4e-93.	"Ok" or "Acceptable" or "Yes" or similar verbiage
Fat	<18% crude fat by USP Crude Fat Method (Hexane extraction in Butt type extractor)	"Ok" or "Acceptable" or "Yes" or similar verbiage
Cannabinoids - THC	HPLC-MS/MS. <10 mg/kg	"Ok" or "Acceptable" or "Yes" or similar verbiage
Cannabinoids -CBD	HPLC-MS/MS. <75 mg/kg	"Ok" or "Acceptable" or "Yes" or similar verbiage