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Protein Powders Tested for Pesticides, Heavy Metals, PFAS and Phthalates — Guide

Analysis by Mamavation | September 25, 2024

STORY AT-A-GLANCE

- Mamavation tested 11 popular chocolate protein powders for contaminants including PFAS, heavy metals, pesticides and phthalates. Most products contained concerning levels of at least one contaminant
- 91% of tested protein powders had lead levels exceeding California's Prop. 65 warning threshold. Other common contaminants included cadmium, PFAS chemicals, pesticides and phthalates
- Vegan and pea-based protein powders were more likely to contain PFAS chemicals compared to animal-based products. One USDA organic brand contained detectable levels of glyphosate
- The study categorized products into "not our favorite," "better," and "best" based on contaminant levels. Only one product passed all tests without requiring Prop. 65 warnings
- Contaminants found in protein powders can potentially cause various health issues, including hormone disruption, developmental problems, cancer risks and impacts on reproductive health

Which popular protein powders have the least amount of contaminants like PFAS "forever chemicals," phthalates, heavy metals, glyphosate, and other pesticides? Mamavation sent eleven popular (mostly organic) chocolate protein powders to two

EPA-certified laboratories to find out which brands were the "cleanest" from certain toxic contaminants.

Which brand of protein powder came out on top? You've trusted Mamavation to bring you topics like **cinnamon tested for heavy metals and glyphosate**, **salt tested for heavy metals and microplastics**, **olive oils tested for toxic phthalates**, and **safest cookware**, now join us for another consumer study revealing results of protein powders tested for glyphosate, 500+ additional pesticides, heavy metals, PFAS, and phthalates.

Disclosure: *This consumer study is released in partnership with **Environmental Health News**. Scientific reviews were performed by (1) **Terrence Collins**, Teresa Heinz Professor of Green Chemistry and Director of the **Institute for Green Sciences** at Carnegie Mellon University, (2) **Linda S. Birnbaum**, Scientist Emeritus and Former Director of the National Institute of Environmental Health Sciences and National Toxicology Program and Scholar in Residence at Duke University, Adjunct Professor at the University of North Carolina, and Yale University, and (3) **Scott Belcher**, Associate Professor with the **Center for Environmental and Health Effects of PFAS at North Carolina State University**.*

This post was medically reviewed by Sondra Strand, RN, BSN, PHN. Donations were provided by Environmental Health News and Mamavation community members. Note that Mamavation has only "spot-checked" the industry and thus we cannot make predictions about brands and products that we have not tested. Products and manufacturing aides can change without notice so buyer beware.

*This post contains affiliate links, with most to Amazon, which means Mamavation will receive a portion of those sales and we will use that to pay ourselves back for the testing. You can also give a tax-deductible donation to our consumer studies **here** through Environmental Health Sciences. Thank you!*

Heavy Metals, PFAS, Pesticides and Phthalates Found in Popular Protein Powders

Mamavation sent eleven popular chocolate-flavored (mostly organic) protein powders to two EPA-certified laboratories testing for PFAS analytes including PFOA/PFOS, phthalates, heavy metals, glyphosate, and 500+ additional pesticides.

The contamination results were surprising considering how expensive most of these products were. (We also did a breakdown of the costs per serving at the bottom of this post with the results.) Here's the outcome of contaminants that were found according to our labs:

91% of protein powders had levels of lead that would require a Prop. 65 warning in California — That's 10 out of 11 protein powders with lead above 0.5 ug/day. Ranges from 0.2567 ug/day to 1.7848 ug/day of lead. Therefore using one serving size of protein powder would exceed the recommended amount of lead per day.

19% of protein powders had levels of cadmium that would require a Prop. 65 warning in California — That's 2 out of 11 protein powders with cadmium above 4.1 ug/day. Ranges from 0.411516 ug/day to 6.5512 ug/day of cadmium.

100% of protein powders did not require a Prop. 65 warning in California for arsenic.

100% of protein powders did not have detectable mercury.

One protein powders had detectable levels of glyphosate — That's 1 USDA organic brand out of 11 organic and conventional brands tested. Ranges from non-detect to 42 ppb.

27% of protein powders had other detectable pesticides present — Two of these brands were USDA organic, while 1 was not USDA organic. Ranges from non-detect to 128 ppb.

55% of protein powders contained specific PFAS chemicals — That's 6 out of 11 protein powders had detectable levels of specific PFAS chemicals, such as PFOA, PFBA, or PFHpA. Ranges from non-detect to 1.942 ng/g (ppb).

71% of vegan protein powders contained specific PFAS chemicals — PFOA, PFBA, and/or PFHpA. That's 5 out of 7 vegan protein powders.

67% of pea protein powders contained specific PFAS chemicals — PFOA, PFBA, and/or PFHpA. That's 6 out of 9 pea protein powder products. (Note: Most protein powders containing animal-based ingredients also contained pea protein, so there was overlap.)

75% of animal-based protein powders did not contain specific PFAS chemicals — That's 3 out of 4 products containing whey or bone broth protein.

64% of protein powders contained ortho-phthalates — That's 7 out of 11 protein powders. Ranges from non-detect to 377 ppb.

Only ONE product we tested passed all product testing — It had detectable levels of lead, cadmium, and arsenic, but not high enough to set off a Prop. 65 warning in California. This was the product we will recommend at the end of this post, which also ironically was not the most expensive.

Linda S. Birnbaum, Scientist Emeritus and Former Director of the National Institute of Environmental Health Sciences and National Toxicology Program and Scholar in Residence at Duke University, Adjunct Professor at the University of North Carolina, and Yale University had this to say after her scientific review: "I'm very disappointed in the protein powder category.

So many people, including pregnant women, rely heavily on protein powder every day. Knowing what we know now about these premium brands, you can safely assume protein powders are potential sources of many contaminants like PFAS, lead, and phthalates."

Contaminants Included in Mamavation's EPA Certified Laboratory Testing

Mamavation sent eleven popular chocolate-flavored (mostly organic) protein powders to two different EPA-certified laboratories looking for specific problematic contaminants that would not be listed on an ingredient panel.

These ingredients are never found on an ingredient label because they are not considered "intentionally added" and would instead be considered more of a contaminant from manufacturing, transportation, storage, and/or farming practices. However, just because these contaminants are not "intentionally added" doesn't mean they won't impact your health over time and usage.

Our labs tested for the following contaminants and found most of them present in most of the chocolate protein powders we tested to varying degrees:

40 specific PFAS "forever chemical" analytes	Glyphosate	500+ additional pesticides	Phthalates
Lead — heavy metal	Arsenic — metal	Cadmium — heavy metal	Mercury — heavy metal

Terrence Collins, Teresa Heinz Professor of Green Chemistry and Director of the Institute for Green Sciences at Carnegie Mellon University had this to say after his scientific review:

> *"The brightest perspective of this superb multifaceted study is that one protein powder came through clean of all tested contaminants. Consumers could send a powerful message by shifting their buying preferences to this brand. But this Mamavation study invokes broader questions for American food and for the meaning of the 'organic' label.*
>
> *Do we want to be ingesting health food products that we think are good for us while being unsure about possible contamination by toxic metals, pesticides and industrial chemicals that can impair the development of our children and instead harm our health? How can we better police organic labeling — shouldn't some government agency be following up and regulating better?*
>
> *Many of the Mamavation — identified toxic contaminants are deliberately commercially applied or may sneak into products through nonorganic agricultural methods — so how can we better promote authentic organic foods? Should we institute wider government-funded testing and subsidize the expansion of organic farming to neutralize the pricing advantages of nonorganic food products?"*

- **PFAS "forever chemical" analytes tested including PFOA and PFOS —** PFAS "forever chemicals" are per- and polyfluoroalkyl substances used as stain-resistant, water-resistant, and oil-resistant chemicals in commerce. They have been used for decades in consumer products, manufacturing, and building materials. Here are some of the health effects associated with different PFAS "forever chemicals:"

Reduction in immunity	Reduced vaccination response
Increased risk of allergies and asthma in young children	Affected growth, learning, and behavior of infants and older children

Increase cholesterol levels	Metabolic diseases like obesity and diabetes
Cardiovascular disease	Lowered a woman's chance of getting pregnant
Lowered male fertility	Increased risk of kidney and testicular cancers
Causes endocrine disruption	Disrupted normal thyroid function
Increases risk of acute lymphoblastic leukemia in children	Cancer

It's also very clear based on biomonitoring evidence from the Center for Disease Control (CDC) that PFAS are in virtually all Americans. Therefore, these exposures can harm most Americans.

For this investigation, we elected to test for forty specific PFAS analytes listed below using EPA method 1633:

Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)
Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)
Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)
Perfluorotridecanoic acid (PFTriA)	Perfluorotetradecanoic acid (PFTeA)	Perfluorobutanesulfonic acid (PFBS)

Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonic Acid (PFHpS)
Perfluorooctanesulfonic acid (PFOS)	Perfluorononanesulfonic acid (PFNS)	Perfluorodecanesulfonic acid (PFDS)
Perfluorododecanesulfonic acid (PFDoS)	Perfluorooctanesulfonamide (FOSA)	NMeFOSAA
NEtFOSAA	4:2 FTS	6:2 FTS
8:2 FTS	NEtFOSA	NMeFOSA
NMeFOSE	NEtFOSE	9Cl-PF3ONS
HFPO-DA (GenX)	11Cl-PF3OUdS	ADONA
3:3 FTCA	5:3 FTCA	7:3 FTCA
NFDHA	PFMBA	PFMPA
PFEESA		

Scott Belcher, Associate Professor with the Center for Environmental and Health Effects of PFAS at North Carolina State University, had this to say about the consumer study after his scientific review:

> *"Unfortunately, PFAS are essentially everywhere, and it is not surprising, based on my scientific experience, that they are increasingly found in food products. Regardless of the source of protein in these supplements, be it dairy or plant-based protein, PFAS from contaminated water and biosolids from sewage sludge, are taken up into plants and animals where they interact with proteins.*

The findings shown here show clearly that the processing used to produce purified protein products does not eliminate the presence of these toxic chemicals and that food, in addition to our water, is a clear source of exposure.

Increasingly, I keep coming back to the 1964 Stanley Kubrick film Dr Strangelove and the quote of General Jack D. Ripper: Fluoridation is the most monstrously conceived and dangerous communist plot we have ever had to face.

Based on the increasing body of scientific and consumer-based research I believe that history is going to look back and find that General Ripper was only wrong about the perpetrators of the plot."

- **Glyphosate —** Glyphosate [N-(phosphonomethyl) glycine] is the active ingredient in glyphosate-based herbicides (GBH) and is the **most popular herbicide in the world**. Environmental exposure to this broad-based herbicide has increased dramatically since the introduction in 1996 of "Round-up Ready" genetically modified (GMO) crops for soybean, maize, and cotton varieties.

  "Round-up Ready" genetically modified crops made it possible to utilize glyphosate as a broadcast herbicide while not killing the crops they were sprayed on. Glyphosate is also extensively used for deforestation efforts, such as killing brush in fire zones, and is also relied on heavily by landscapers to kill weeds on green belts and golf courses.

  Ultimately, glyphosate is used for eliminating weeds and shrubs, such as annual and perennial grasses, broadleaf weeds, and woody species.

  Glyphosate was originally patented as a chelator and an antibiotic, which means it has the ability to stop nutrient absorption and decimate delicate gut flora. These two simple facts explain why glyphosate is so damaging to the overall health of your body and has been **linked to spreading antibiotic-resistant bacteria**.

Glyphosate has also been deemed a "probable carcinogen" by the World Health Organization and added to the Prop. 65 list of carcinogens and reproductive toxins in California.

Mamavation sent eleven chocolate protein powders to our EPA Certified lab to test for glyphosate, glufosinate, and AMPA (metabolites or breakdown products) using liquid chromatography and mass spectrometry (LC-MS/MS) at 10 parts per billion (ppb) detection limit. This is the standard test going as low as possible in a commercial lab. (University labs or experimental labs using non-standardized testing may be able to go lower.)

- **500+ additional pesticide laboratory test for protein powders — testing details —** Eleven chocolate protein powder brands were sent to our EPA-certified lab and analyzed using two different methods which totaled testing for 587 pesticides down to the lowest standardized level. Our laboratory found the following pesticides in those chocolate protein powders:

    - **Fluopyram —** Fluopyram is a fungicide and nematicide used to combat diseases such as gray mold, powdery mildew, sclerotinia, and monilia diseases in agriculture. It's applied on crops like potatoes, sugar beets, dried beans, apples, wine grapes, and strawberries. The EPA determined it's "likely to be carcinogenic to humans."

    - **Propiconazole —** Propiconazole is a fungicide that is commonly used in agriculture on mushrooms, corn, wild rice, peanuts, almonds, sorghum, oats, pecan, and fruit including apricots, bananas, plums, prunes, peaches and nectarines.

      The Environmental Protection Agency (EPA) has classified propiconazole as a possible human carcinogen. Animal studies have linked health impacts to the liver because it has been linked to the increased incidence of benign and malignant liver cell tumors among male laboratory rats.

Even low yet chronic doses were associated with higher incidences of liver tumors. Increased cleft palate malformations were also noted in additional animal studies.

- **Piperonyl butoxide (PBO)** — This chemical is not a pesticide itself, but instead it's an adjuvant used to enhance the potency of certain pesticides like carbamates, pyrethrins, pyrethroids, and rotenone. Acute studies identify potential hazards from exposures such as dermal toxicity, eye irritation, inhalation toxicity, oral toxicity, skin irritation, and skin sensitization.

  PBO was found to be capable of causing brain and face malformations and other birth defects in mice exposed during early development. The EPA has categorized piperonyl butoxide as a group C carcinogen based on limited evidence of cancer in laboratory animals.

- **Tebuconazole** — This fungicide is listed as a possible human carcinogen by the EPA. Tebuconazole was introduced to the market in 1989 by Bayer and was initially used on cereals, but today it's used on peanuts, bananas, and soybeans as a foliar fungicide to control a range of fungal diseases. It's also used as a seed treatment.

  This chemical poses potential developmental toxicity, genotoxicity, reproductive toxicity, mutagenicity, hepatotoxicity, neurotoxicity, cardiotoxicity, and nephrotoxicity via animal studies.

- **Zeta-cypermethrin** — Cypermethrin is a synthetic pyrethroid used as an insecticide in large-scale commercial agricultural applications. It's also used in consumer products as a fast-acting neurotoxin for insects such as ants and cockroaches. Cypermethrin is also toxic to fish, bees, aquatic insects, and cats.

  Cypermethrin is classified as a possible human carcinogen by the EPA, because it causes an increase in the frequency of lung tumors in mice. Animals exposed to Cypermethrin during pregnancy gave birth to offspring with developmental delays, abnormal sperm issues, and genetic damage.

If exposed to cypermethrin during pregnancy, rats give birth to offspring with developmental delays. In male rats exposed to cypermethrin, the proportion of abnormal sperm increases. It is also linked to genetic damage.

- **Phthalates —** Phthalates are linked to many health effects from several studies on both animals and humans. This is very problematic because phthalates are linked with hormone disruption of the endocrine system, which regulates the body's hormones, even in trace amounts in low concentrations.

Epidemiological studies have revealed that exposure to phthalates adversely affects the level of hormones within the body, which can impact several important health functions. Here are some health effects phthalate exposure is linked to.

Weight gain and obesity	Shorter height
Precocious puberty	Asthma
Allergies	Attention Deficit Hyperactivity Disorder (ADHD)
Lower IQ	Social impairment
Type 2 diabetes and insulin resistance	Poor cardiovascular health
Thyroid function and increased risk of thyroid cancer	**Females —** Pregnancy loss and preterm birth, low birth weight, earlier menopause
Males — Genital development, semen quality, reduced "masculine" play, inhibits testosterone production, shortened anogenital distance, or shortened "taint," shortened length of penis	

Mamavation's EPA-certified lab tested for the following phthalates. This is not a complete list of all the phthalates that are allowed to be present as an indirect food

additive according to the FDA, however, this list goes above and beyond what is already restricted by the European Union or the State of California.

Diethyl phthalate (DEP)	Di-n-propyl phthalate (DPP)	Diisobutyl phthalate (DIBP)
Dibutyl phthalate (DBP)	Dihexyl phthalate (DnHP)	Benzyl butyl phthalate (BBP)
Dicyclohexyl phthalate (DCHP)	Diisononyl phthalate (DINP)	Di-n-octyl phthalate (DnOP)
Diisodecyl phthalate (DIDP)	Bis(2-ethylhexyl) phthalate (DEHP)	Dimethyl phthalate (DMP)
Bis(2-propylheptyl) phthalate (DPHP)	Didecyl phthalate (DDP)	

- **Heavy metals: lead, cadmium, mercury and arsenic —** To test protein powder for metals our EPA-certified lab used 0.5 g of sample weighed directly in a clean microwave vessel or first on a weighing tray and then transferred quantitatively to the microwave vessel. Concentrated nitric acid (10 mL) was added and the sample was allowed to pre-digest for 15 minutes before being subjected to microwave digestion.

  After microwave digestion was completed, the vessels were left to cool for 15 minutes and the caps were loosened to vent any excess red gas (nitrogen dioxide) present. The digested material was subsequently transferred to a 50 mL conical tube (the microwave vessel rinsed twice with reagent water) and diluted to the 25 mL graduation mark.

  The solutions are then shaken, vented, then centrifuged. Samples were then ready for ICP-MS analyses. Our EPA-certified laboratory tested each protein powder for the following metals:

- lead
- arsenic
- cadmium
- mercury

Mamavation then adjusted the result to reflect California Prop. 65 based on serving size into ug/day results.

- **Federal vs. California Prop. 65 "safe harbor" levels for heavy metals like lead and arsenic —** So what levels of lead, arsenic, mercury, and cadmium are concerning to public health officials? According to the **Food and Drug Administration**, the levels inside your food that you are allowed to be exposed to are as follows:
  - *"Heavy metals as lead (as Pb), should not be in your food or supplements at more than 10 parts per million (ppm)*
  - *Arsenic (as As), should not be in your food or supplement at more than 3 parts per million (ppm)*
  - *Mercury (as Hg), should not be in your food or supplements at more than 1 part per million (ppm)*
  - *Cadmium levels (as Cd) in bottled water should not exceed 0.005 parts per million (ppm)"*

When it comes to protecting consumers, California has far more stringent health protective levels, but instead of banning products, they require manufacturers to use label warnings instead.

California's Prop. 65 established "safe harbor levels" for most of the heavy metals we tested: arsenic, cadmium, lead, and mercury. Prop. 65 requires businesses to provide warnings to consumers living in California about significant exposures to **chemicals that cause cancer, birth defects, or other reproductive harm**.

These chemicals can be in the products they purchase, in their homes or workplaces, or released into the environment. By requiring this information to be provided, it enables consumers in California to make informed decisions about their exposure to these chemicals.

Here are the No Significant Risk Levels (NSRL) and the Maximum Allowable Dose Levels (MADL) established by the State of California for the heavy metals we tested:

- **Arsenic —** 0.06 ug/day (inhalation), 10 ug/day (except inhalation)
- **Cadmium —** 0.05 ug/day (inhalation), 4.1 ug/day (oral)
- **Lead —** 0.5 ug/day level for reproductive toxicity, 15 ug/day (oral) for carcinogens
- **Mercury —** No established levels in California, so the Federal maximum contaminant level for mercury would be followed instead.

Mamavation's Raw Data from Our EPA-Certified Laboratory Ranked

Mamavation sent two sets of eleven brands of premium chocolate protein powders to different EPA-certified laboratories looking for traces of contaminants:

- 500+ pesticides (which is more comprehensive than other testing we've seen)
- Glyphosate
- 40 PFAS "forever chemical" analytes like PFOA and PFOS. (This is different from our other studies where we measured total organic fluorine.)
- Heavy metals (lead, cadmium, mercury and arsenic)
- Phthalates

All products were sent to the laboratory in original packaging and purchased between November 2023 and March 2024. Products were selected by Mamavation community members representing what they are already buying and using in their homes to feed their families.

Some protein powder was donated by community members, however, most products were purchased by Mamavation directly. We could not purchase and test all the recommended brands because we had a limited budget for this testing.

After analyzing the results of each product, we decided to categorize products into three categories.

- **Not our favorite protein powders —** These protein powders had detectable levels of specific PFAS analytes that were quantifiable and/or had detectable pesticides. Most of these products also had heavy metals that were above warning levels for Prop. 65 in California and phthalates.
- **Better protein powders —** Our lab did not find quantifiable PFAS or pesticides in these products, but it did find at least one heavy metal at Prop. 65 warning levels for California, and/or detectable phthalates, and/or detectable PFAS that were not quantifiable. PFAS which was not quantifiable means the instrumentation was able to detect specific PFAS but was not able to say how much of it was there because it was so little.

- **Best protein powders —** This product did not have any detectable contaminants such as PFAS, phthalates, glyphosate, or 500+ other pesticides, and had levels of heavy metals that did not require a Prop. 65 warning.

If you would like to donate to our efforts, you can do so by giving a tax-deductible donation here through Environmental Health Sciences. You can also support our efforts by shopping our affiliate links. Please note that links below are affiliate in nature and any purchases will pay us back for the testing and allow us to do more testing in the future.

- **Not our favorite protein powders —** These protein powders had detectable levels of specific PFAS analytes and/or detectable pesticides. Most of these products also had heavy metals that were above warning levels for Prop. 65 in California. We are also including for you all the ingredients and how much per serving each product was.
    - Four Sigmatic Plant-Based Organic Protein Nourish and De-Stress Creamy Cacao Made with Real Cacao — Ingredients: Organic pea protein (pisum sativum) powder (seed), organic coconut protein (cocos nucifera) powder (fruit), organic chia protein (salvia hispanica) powder (seed), organic pumpkin protein (cucurbita pepo) powder (seed), organic hemp protein (cannabis sativum) powder (seed), organic ashwagandha (withania somnifera) extract (root), organic eleuthero (eleutherococcus senticosus) extract (root), organic chaga (inonotus obliquus) extract (fruiting body), organic cordyceps (cordyceps militaris) extract (fruiting body), organic reishi (ganoderma lucidum) extract (fruiting body), organic turkey tail (trametes versicolor) extract (fruiting body), organic lion's mane (hericium erinaceus) extract (fruiting body), organic cocoa powder, organic coconut milk powder, organic coconut palm sugar, pink himalayan salt, organic monk fruit extract.
        - Our lab detected specific PFAS — 0.324 ng/g (ppb) PFOA, 1.942 ng/g (ppb) PFBA.
        - Our lab also detected 6.5512 ug/serving of cadmium and 1.5876 ug/serving of lead.

- Our lab detected 211 ppb total sum phthalates.
- Cost — $2.20 per serving.

- **Garden of Life Organic Creamy Protein with Oatmilk Powder Chocolate Brownie Flavor** — Ingredients: Sprouted organic protein blend (sprouted and fermented pea* and brown rice protein*, sprouted amaranth*, quinoa*, buckwheat*, millet* and chia*), organic chocolate blend (erythritol*, natural flavors*, cocoa powder*, stevia leaf extract*, sea salt), creamy organic blend (coconut MCT oil powder*), organic plant-based milk blend (oatmilk powder*, coconut milk powder*), organic prebiotic and probiotic blend (inulin*, acacia gum*, xanthan gum, guar gum, bacillus subtilis DE111 [250 million CFU at time of expiration]). *Indicates USDA organic ingredients.
  - Our lab detected specific PFAS — 0.462 ng/g (ppb) PFOA and 0.8 ng/g (ppb) PFBA.
  - Our lab also detected pesticides — Propiconazole 0.016 mg/kg (ppm).
  - Our lab detected total sum phthalates 181 ppb.
  - Finally, our lab detected lead above Prop. 65 warning levels — 1.7848 ug/serving.
  - Cost — $1.80 per serving.

- **KOS Organic Superfood Plant Protein Chocolate** — Ingredients: KOS organic protein blend (pea protein*, flax seed*, quinoa*, pumpkin seed protein*, chia seed*), KOS organic superfood blend (coconut milk*, inulin*, acacia gum*, apple*, carrot*, cranberry*, orange*, broccoli*, shiitake mushroom extract*, tomato*), alkalized cocoa*, coconut sugar*, sea salt, natural flavor, stevia leaf extract*, monk fruit extract*, vitamins and minerals blend (dl-alpha tocopherol, manganese amino acid chelate, potassium iodine, zinc oxide, selenium amino acid chelate, molybdenum amino acid chelate, niacinamide, copper oxide,

riboflavin, cyanocobalamin, chromium picolinate, folic acid), digestive enzyme blend (proteases, amylase, cellulase, lactase, lipase). *Certified organic.

- Our lab detected specific PFAS — 0.298 ng/g (ppb) PFOA, and <MRL ng/g (ppb) PFHpA.
- Our lab also detected glyphosate 0.042 mg/kg (ppm).
- Finally, our lab detected 1.13841 ug/serving of lead.
- Our lab did not detect any phthalates.
- Cost — $1.07 per serving.

- **Orgain Organic Protein Powder Creamy Chocolate Fudge Flavored Plant-Based Protein** — Ingredients: Orgain organic protein blend (organic pea protein, organic brown rice protein, organic chia seed), orgain organic creamer base (organic acacia, organic high oleic, organic erythritol), organic alkalized cocoa, organic acacia, organic natural flavors, sea salt, organic reb a (stevia extract), organic guar gum, natural flavor, xanthan gum.
  - Our lab detected specific PFAS — <MRL ng/g (ppb) PFOA.
  - Our lab also found specific pesticides — Piperonyl butoxide 0.040 mg/kg (ppm) and Tebuconazole 0.016 mg/kg (ppm).
  - Our lab detected 377 ppb total sum phthalates.
  - Finally, our lab found 1.19278 ug/serving of lead.
  - Cost — $1.20 per serving.
- **Organifi Chocolate Complete Protein Made for Craving Control and Satiety** — Ingredients: Organic pea (seed) protein, organic quinoa (grain) trim, organic pumpkin (seed) protein, digestion blend (organic coconut (fruit) milk powder), digestive enzyme blend (DigeSEB) amylase, protease, lipase, lactase, cellulase, organic agave (prebiotic) powder, organic flax (seed) powder, organic acacia

(prebiotic) powder, organic fruit and vegetable blend (tomato, broccoli, carrot, shitake, cranberry, apple, orange), organic cocoa (fruit) powder, organic coconut sugar, sea salt, organic chocolate flavor, organic stevia (leaf) powder, organic luo han guo (monk fruit) extract.

        - Our lab detected specific PFAS — 0.406 ng/g PFOA, 0.703 ng/g PFBA, and <MRL ng/g PFHpA.
        - Our lab also detected 1.074 ug/serving of lead.
        - Our lab detected 57 ppb total sum phthalates.
        - Our lab did not detect any glyphosate or 500+ additional pesticides.
        - Cost — $2.67 per serving.

    - **Vega Plant-Based Premium Sport Protein Chocolate** — Ingredients: Pea protein, cocoa powder, pumpkin seed protein, organic sunflower seed protein, alfalfa protein, tart cherry, probiotics (bacillus coagulans [provides 1 billion cfu/serving]), bromelain, turmeric extract, black pepper extract, contains less than 2% of: beetroot powder (for color), sea salt, natural chocolate flavor, natural vanilla flavor, natural caramel flavor, stevia extract, xanthan gum.

        - Our lab detected pesticides — Fluopyram 0.012 mg/kg (ppm) and zeta-cypermethrin 0.128 mg/kg (ppm).
        - Our lab also detected 1.50348 ug/serving of lead.
        - Our lab detected 176 ppb total sum phthalates.
        - Our lab did not find any specific PFAS or glyphosate.
        - Cost — $2.30 per serving.

- **Better protein powders —** Our lab did not find quantifiable PFAS or pesticides in these products, but it did find at least one heavy metal at Prop. 65 warning levels for California, and/or detectable phthalates above 100 ppb, and/or detectable PFAS

that were not quantifiable. We have also included a cost analysis per serving for your convenience.

- **Ancient Nutrition Bone Broth Protein Chocolate** — Ingredients: Chicken bone broth protein concentrate, beef bone broth protein concentrate, natural chocolate flavor with other natural flavors, organic cocoa powder processed with alkali, xanthan gum, and stevia leaf extract.
  - Our lab detected 0.784728 ug/serving of lead.
  - Our lab detected 213 ppb total sum phthalates.
  - Our lab did not find any glyphosate, 500+ additional pesticides, or PFAS analytes in this product.
  - Cost — $2.22 per serving.
- **FlavCity Protein Smoothie Chocolate** — Ingredients: Whey protein concentrate (grass fed, undenatured), organic banana powder, organic cocoa, collagen (grass fed), organic coconut milk powder, organic pea protein, unrefined sea salt, organic cordyceps powder, organic reishi powder, organic stevia leaf extract, organic monk fruit extract.
  - Our lab found 1.58973 ug/serving of lead and 5.02398 ug/serving of cadmium.
  - Our lab did not find any phthalates, specific PFAS, 500+ pesticides or glyphosate.
  - Cost — $3.00 per serving.
- **Just Ingredients Organic Chocolate Protein Powder** — Ingredients: 100% grass fed non-denatured whey protein isolate, pea protein*, pumpkin seed protein*, chia seed protein*, coconut milk*, cacao*, grass fed collagen, sea salt, stevia leaf*, monk fruit*. *Organic ingredient.

        - Our lab detected specific PFAS — <MRL ng/g (ppb) PFBA.
        - Our lab also detected lead above Prop. 65 warning levels in California — 1.3682312 ug/serving.
        - Our lab did not detect any detectable phthalates, glyphosate, or 500+ additional pesticides in this product.
        - Cost — $2.00 per serving.
    - Truvani Certified Organic Plant-Based Protein Chocolate Flavored Protein Powder — Ingredients: Organic pea protein concentrate, organic alkalized cocoa, organic vanilla powder, organic pumpkin seed concentrate, organic monk fruit extract, organic chia seed protein concentrate.
        - Our lab found 0.90651 ug/serving of lead.
        - Our lab found 127 ppb total phthalates.
        - Our lab did not detect any glyphosate, 500+ additional pesticides, or PFAS in this product.
        - Cost — $2.25 per serving.
- **Best protein powders —** Our lab did not detect PFAS analytes, glyphosate, 500+ additional pesticides, phthalates, or any heavy metals at warning levels for Prop. 65. We have also included a cost analysis per serving for your convenience.
    - Paleovalley 100% Grass Fed Bone Broth Protein Chocolate Flavor Made from Grass Fed Beef Bone Broth — Ingredients: 100% grass fed bone broth protein, organic coconut milk powder, organic cacao bean, organic chocolate flavor, organic maltodextrin (from tapioca root), organic luo han guo (monk fruit) fruit extract, himalayan pink salt, organic acacia fiber, contains: tree nut (coconut). (This link with automatically deduct 15% off your purchase.)
        - Our lab did not find any PFAS analytes, glyphosate, 500+ additional pesticides, phthalates, or heavy metals above Prop. 65 thresholds.

- Lead and cadmium under Prop. 65 thresholds — 0.2567 ug/serving for lead and 1.32787 ug/serving for cadmium.
- Cost — $2.23 per serving.

About the Author

Leah Segedie is the President and Founder of Mamavation.com. Mamavation produces award-winning content and independent consumer studies examining the intersection of endocrine-disrupting chemicals (EDCs) and everyday products brought into American households. She's been referred to by many as "the real FDA."

Since 2008, Mamavation has been helping everyday moms navigate the grocery store by commissioning consumer studies on food, beverages, personal care products and other such products and thus democratizing science and testing for everyone.