clean label PROJECT®
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CLP Insights:

Extremely High Levels of Lead, Mercury, Arsenic, and Cadmium Found in Dry Dog Food

The Clean Label Project® analyzed 79 leading dog food products for **contaminants**, including heavy metals (arsenic, cadmium, lead, and mercury), bisphenols (BPA, BPS), phthalates (DBP and DEHP), glyphosate, pesticides, and more.

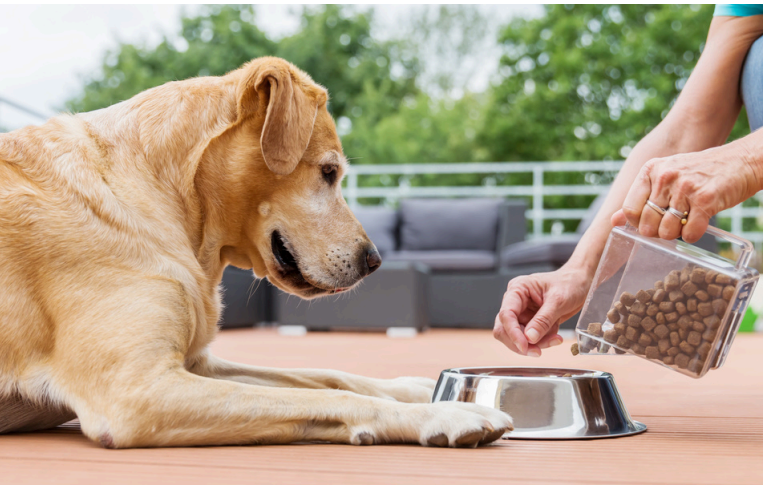
Introduction

The Clean Label Project® was established with the mission to uncover the often-overlooked risks associated with environmental contaminants and toxins found in everyday products. The guiding principle is clear: reducing contaminants is critical to safeguarding long-term health. While we know these toxins can be harmful, the long-term effects are only beginning to be understood. Clean Label Project® urges all stakeholders - brands, consumers, retailers, the medical community, and regulators - to address these critical concerns. This report details key findings on industrial contaminants found in popular dry, air-dried, freeze-dried, and fresh/frozen dog foods. Clean Label Project® is committed to exposing the limitations of traditional nutrition labels and setting elevated safety standards for consumer products.

Executive Summary:

Key Data and Findings from Dog Food Category Refresh Insights Report

The global dog food market size was valued at $72.58 billion in 2024, with North America representing over 35% of the market.[1] Many pet owners care for their dogs as deeply as parents care for their children, hoping to ensure long, happy, and healthy lives, and trusting that the food they give their dogs meets their nutritional needs. However, the *Clean Label Project's*® *Dog Food Category Report* reveals that many popular dog foods fall short - and may even be harmful - containing dangerous levels of heavy metals, acrylamide, and plastic contaminants. This report, which tested 79 top-selling dry, freeze-dried, and fresh/frozen dog food products, raises concerns that call into question current assumptions about product safety and purity.



The Clean Label Project® conducted **11,376 individual tests on contaminants**, including heavy metals (lead, cadmium, arsenic, and mercury), bisphenols (BPA, BPS), phthalates (DBP and DEHP), acrylamide, pesticides, glyphosate and more. These chemicals, known for their potential health risks, can be introduced into dog food through environmental exposure, ingredients, manufacturing processing, or packaging materials. The report findings underscore that, despite an increasingly health-conscious market, many products may contain unsafe levels of contaminants that are not listed or disclosed on conventional nutrition labels.

This study was segmented into three separate dog food product groups:

- Dry Dog Food: 50 samples
- Air-Dried and Freeze-Dried Dog Food: 11 samples
- Fresh/Frozen Dog Food: 18 samples

The Bad News – Dry Dog Food: The Clean Label Project found an exceedingly high amount of arsenic, cadmium, mercury, and lead in dry, air-dried, and freeze-dried dog food. Because there are few regulations for dog food related to contaminants, Clean Label Project® compared these findings to data from 3,280 food, beverage, and supplement samples tested over the past 10 years, using the averages to illustrate the elevated contaminant levels in dog food compared to human-consumable products. Over 85% of dog food owners feed their dog dry dog food.

The Good News – Fresh/Frozen Dog Food: Fresh/Frozen dog food samples we tested were lower in contaminants than our human consumables benchmark from over 3,280 products. Furthermore, on average, fresh/frozen dog food was found to have exponentially lower contaminants than dry dog food.

To illustrate the difference in heavy metals levels in dry dog food vs. fresh/frozen dog food and human consumables is striking.

Arsenic	Cadmium	Mercury	Lead
Dry dog food has	Dry dog food has	Dry dog food has	Dry dog food has
5.7x more arsenic than human consumables and	**3.2x** more cadmium than human consumables and	**2.7x** more mercury than human consumables and	**12.7x** more lead than human consumables and
13.3x more arsenic than fresh/frozen dog food	**6.1x** more cadmium than fresh/frozen dog food	**20.7x** more mercury than fresh/frozen dog food	**21.2x** more lead than fresh/frozen dog food

This study underscores the urgent need to address the lack of federal regulations on heavy metals in dog food. Clean Label Project's® findings call for increased transparency and stricter safety standards to protect man's best friend.

This report aims to ignite a critical conversation about dog food safety and help consumers to make more informed choices, while urging manufacturers to prioritize ingredient quality. By exposing these hidden risks, Clean Label Project® advocates for an industry-wide commitment to cleaner and safer products.

Key Data and Findings from the Dog Food Study

Clean Label Project® tested 79 of the top-selling dog food products

The dog foods are separated into three categories

Dry dog food
50 samples

Air-dried and Freeze-dried dog food
11 samples

Fresh/Frozen dog food
18 samples

Dry dog food had the highest heavy metals, acrylamide, and DEHP results

Arsenic average of 184.6 ppb	**5.7x**	higher in arsenic than average human consumables
Cadmium average of 68.5 ppb	**3.2x**	higher in cadmium than average human consumables
Mercury average of 3.8 ppb	**2.7x**	higher in mercury than average human consumables
Lead average of 180.1 ppb	**12.7x**	higher in lead than average human consumables
Acrylamide average of 48.3 ppb	**24.1x**	higher in acrylamide than average fresh/frozen dog food
DEHP average of 53.5 ppb	**10.8x**	higher in DEHP than average fresh/frozen dog food

Air-dried and freeze-dried dog food was a close second in heavy metals

Arsenic average of 148.5 ppb	**4.6x**	higher in arsenic than average human consumables
Cadmium average of 69.3 ppb	**3.2x**	higher in cadmium than average human consumables
Mercury average of 2.4 ppb	**1.7x**	higher in mercury than average human consumables
Lead average of 53.9 ppb	**3.8x**	higher in lead than average human consumables
Acrylamide average of 27.7 ppb	**13.9x**	higher in acrylamide than average fresh/frozen dog food
DEHP average of 27.7 ppb	**8.6x**	higher in DEHP than average fresh/frozen dog food

Good news, fresh/frozen dog food was by far the lowest in heavy metals and lower than the average of our 3,280 human consumables

- **Arsenic** average of 13.9 ppb
- **Cadmium** average of 11.3 ppb
- **Mercury** average of 0.2 ppb
- **Lead** average of 8.5 ppb
- **Acrylamide** average of 2 ppb
- **DEHP** average of 4.9 ppb

For perspective, the Clean Label Project® used the average of all category data from previous reports, where we have tested 3,280 human consumable products.

- **Arsenic** average of 32.45 ppb
- **Cadmium** average of 21.44 ppb
- **Mercury** average of 1.41 ppb
- **Lead** average of 14.21 ppb

Heavy Metal Findings

Heavy Metals (in ppb)	Dry (50 Samples)	Air & Freeze Dried (11 Samples)	Fresh/Frozen (18 Samples)
Arsenic Highest Sample	785.7	362.6	57.0
Arsenic Average	184.6	148.5	13.9
Cadmium Highest Sample	246.1	247.9	20.6
Cadmium Average	68.5	69.3	11.3
Mercury Highest Sample	55.3	7.9	0.9
Mercury Average	3.8	2.4	0.2
Lead Highest Sample	1,576.5	194.4	16.9
Lead Average	180.1	53.9	8.5

Phthalate (DEHP) Findings

Phthalate (DEHP) (in ppb)	Dry (50 Samples)	Air & Freeze Dried (11 Samples)	Fresh/Frozen (18 Samples)
Highest Sample	570.0	173.5	26.4
DEHP Average	53.5	42.7	4.9

Acrylamide Findings

Acrylamide (in ppb)	Dry (50 Samples)	Air & Freeze Dried (11 Samples)	Fresh/Frozen (18 Samples)
Highest Sample	780.0	103.8	24.7
Acrylamide Average	48.3	27.7	2.0

Does serving size matter?

When a test result is typically applied to a serving size, the contamination result will often change to some degree. However, when it comes to dog food, we found that the impact of serving size doesn't demonstrate much variation in the level of heavy metal contamination. Dog food, in general, has a very large serving size compared to human food. As the following serving size results table demonstrates, there was no significant difference in the test results variances between dry and fresh/frozen.

Heavy Metals (in ppb)	Dry (50 Samples)	Air & Freeze Dried (11 Samples)	Fresh/Frozen (18 Samples)
Arsenic Highest Sample	442.3	201.2	40.7
Arsenic Average	93.4	76.4	7.9
Cadmium Highest Sample	153.8	154.9	12.9
Cadmium Average	42.8	43.3	7.1
Mercury Highest Sample	34.6	4.9	0.06
Mercury Average	2.4	1.5	0.1
Lead Highest Sample	985.3	121.5	10.6
Lead Average	112.6	33.7	5.3

When we adjusted the raw data (above) to the recommended serving size, dry dog food is still exponentially higher in heavy metals than fresh/frozen.

With the recommended serving size, **dry dog food** has the highest heavy metal result:

Arsenic average of 93.4 ppb — **11.8x** higher than fresh/frozen

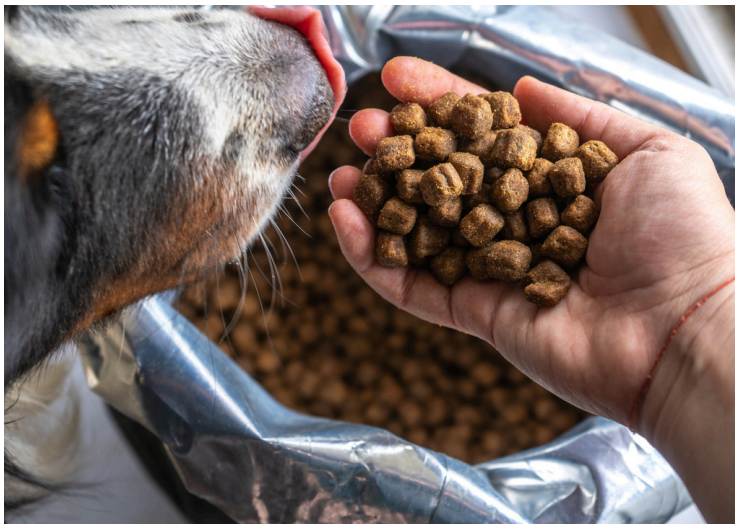
Cadmium average of 42.8 ppb — **6.0x** higher than fresh/frozen

Mercury average of 2.4 ppb — **24.0x** higher than fresh/frozen

Lead average of 112.6 ppb — **21.2x** higher than fresh/frozen

Why dog food?

Dog owners worldwide feed their dogs multiple times a day, relying on dog food to provide essential nutrition at every stage of life. They expect the products to be free from harmful heavy metals and industrial chemicals.



At Clean Label Project®, we do not take safety claims at face value — we rely on data and scientific evidence to uncover what contaminants consumers are exposed to. Our mission is to champion and safeguard transparency.

Where are These Contaminants Coming From?

The elevated levels of heavy metals in dry, air-dried, and freeze-dried dog food can originate from multiple sources. Based on our research, we believe three key ingredients are the primary contributors:

Meat by-products	Added vitamin and mineral premix	Seafood and plant-based carbohydrates
Livers, lungs, kidneys, spleens, etc.	Specific vitamins and minerals are necessary for dogs.	Grains, root vegetables, etc.

Meat by-products consist of the parts of an animal that remain after the cuts consumed by humans are removed. This includes organs such as the livers, lungs, kidneys, and spleens, as well as bones, and other tissues. The by-products are then processed to create a meat by-product meal, which is commonly used in many dry dog foods. Heavy metals tend to concentrate in the organs and bones, which leads to higher levels of these heavy metals in dog food.[2]

Vitamin and mineral premixes are added to many dog foods to ensure pets get the essential nutrients they need.[3] Vitamin and minerals can naturally contain or consist of trace metals. It remains unclear whether factors like country of origin, regulatory oversight, inspection practice (announced versus unannounced), and supply-chain complexity - where ingredients change hands multiple times, making traceability more difficult - have any impact. All of these areas merit further study.

Many dog foods include **seafood and plant-based carbohydrates,** but these ingredients can introduce heavy metals. Seafood often contains high levels of mercury, and certain grains and root vegetables can accumulate metals like arsenic from the soil, such as arsenic in rice.[4]

Individually, each one of these ingredients may contribute only minimally to heavy metal levels. However, when all three are combined in a single dry dog food product, their cumulative effect can result in a substantial increase in heavy metals.

What are the health risks from high levels of heavy metals in dog food?

Heavy metals build up in the dog's liver and kidneys[5]. There are recent scientific studies linking cancer in pets to increased exposure to cadmium[6] and lead[7].

Dogs are often used in cancer research because their cancer rates are roughly 10x the rate of cancer in humans.[8] Several factors contribute to this elevated risk, including sex, neuter or spay status, genetics, exercise, diet, and environmental conditions. Since most dogs eat the same food every day, and if dry dog food is all they consume, then the high heavy metal accumulation could be one of the reasons many dogs experience higher cancer rates.

Aren't these contaminants regulated?

There are no comprehensive federal regulations specifically addressing dietary exposure to industrial and environmental chemicals in dog food, as most safety measures concentrate on physical and microbiological contaminants.

What's the Clean Label Project's® methodology?

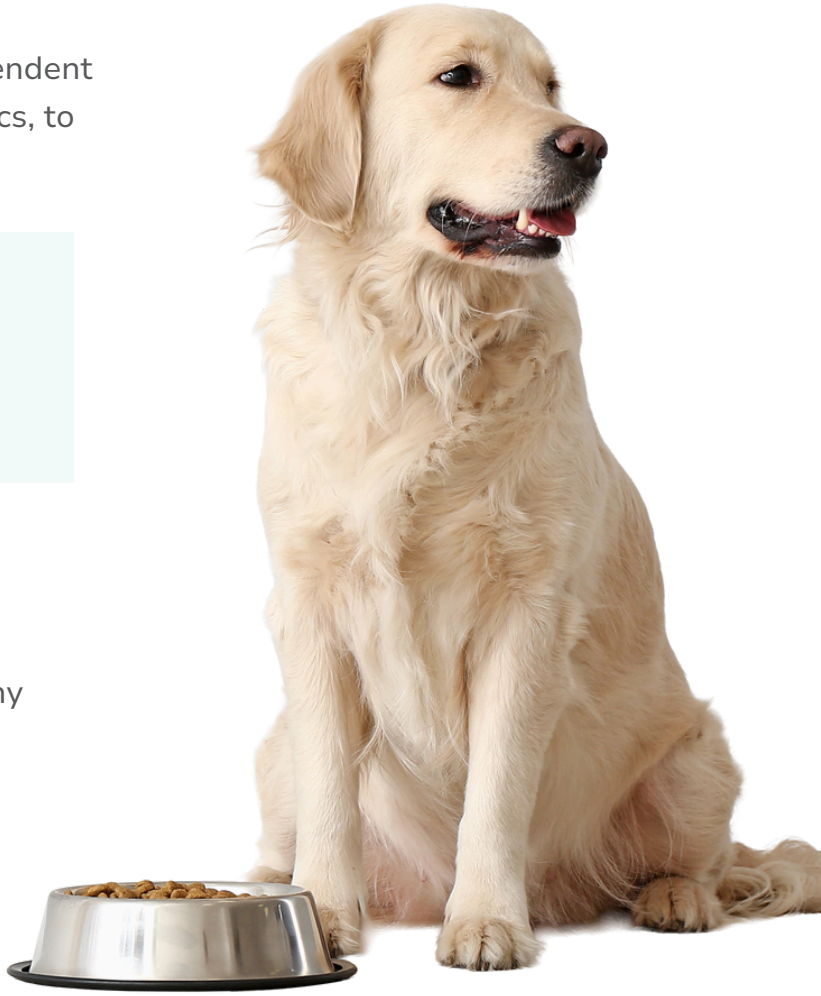
Clean Label Project® purchased and rigorously evaluated 79 of the top-selling dry, air-dried, freeze-dried, and fresh/frozen dog foods. The scope of testing assessed multiple panels of industrial and environmental contaminants. Collaborating with Ellipse Analytics, an ISO 17025-accredited analytical chemistry laboratory, Clean Label Project® amassed over 11,376 individual data points from those 79 products to benchmark the findings.

How does Clean Label Project® measure these contaminants?

Clean Label Project® partnered with the independent analytical chemistry laboratory, Ellipse Analytics, to test six panels of industrial chemicals:

- Bisphenols
- Heavy Metals
- Phthalates
- Pesticides
- Glyphosate
- Acrylamide

The heavy metals (arsenic, cadmium, lead, and mercury), were tested by Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS); Phthalates were tested by Gas Chromatography – Mass Spectroscopy (GC-MS/MS); and Bisphenols, glyphosate, and pesticides were tested by Liquid Chromatography – Tandem Mass Spectroscopy (LC-MS/MS).



What dog foods did we test?

Dry dog food brands and products:

- Acana - Red Meat Recipe
- Amazon - Wag Wholesome Grains
- Badlands Ranch - Superfood Complete
- Blue Buffalo - Life Protection Formula Natural Adult
- Blue Buffalo - Wilderness Natural
- Canidae - All Life Stages
- Cesar - Small Breed
- Cuddly - Salmon & Rice Recipe
- Diamond Naturals - Skin & Coat - Salmon & Potato
- Fromm - Four-Star Nutritionals
- Health Extension - Little Bites
- Hill's - Science Diet Small & Mini
- Hill's - Science Diet Sensitive Stomach & Skin
- Hill's - Science Diet Perfect Weight
- Hill's - Science Diet Puppy Premium
- I and love and you - Nude Food Red Meat Medley
- IAMS - Proactive Health Minichunks
- Jiminy's Cravin Cricket - Crickets, Sweet Potato, & Quinoa
- Kibbles n' Bits - Mini Bits
- Natural Balance - Limited Ingredient
- Nature's Recipe - Grain Free
- Nutri Source - Wild Range Grain Free
- Nutrish - Whole Health Blend
- Nutro - Natural Choice
- Ol' Roy - Roasted Chicken & Rice
- Open Farm - Wild Caught Salmon & Brown Rice
- Open Farm - Wild-Caught Salmon & Ancient Grains
- Pawco - LuxBites
- Pedigree - Complete Nutrition
- Petaluma - Baked Pumpkin & Peanut Butter
- Pure Balance - Wilde & Free Salmon & Pea Recipe
- Purina - Pro Plan Sensitive Skin and Stomach Salmon & Rice
- Purina - One Lamb and Rice
- Purina - Pro Plan Complete Essentials Shredded Blend w/ Probiotics
- Purina - One True Instinct
- Purina - One Chicken and Rice
- Purina - Dog Chow Chicken Adult Complete
- Royal Canin - Health Nutrition Small
- Solid Gold - Nutrient Boost
- Supreme Source - Super Premium Salmon Meal & Sweet Potato
- Taste of the Wild - High Prairie Canine
- The Honest Kitchen - Beef Recipe
- The Honest Kitchen - Chicken Recipe Grain-Free Dehydrated
- The Honest Kitchen - Whole Grain Turkey Recipe Dehydrated
- The Pets Table - Dry
- Victors - Hi-Pro Plus 30/20 Active Sporting High Protein
- Wellness - Complete Health
- Wild Earth - Veggie Supreme Flavor
- Zignature - Limited Ingredient
- Ziwi Peak - Original recipe

Air-dried and freeze-dried dog food brands and products:

- Orijen: Original
- Ultimate Pet Nutrition: Nutra Complete
- Spot & Tango: Unkibble
- Red Bar: Small Breed
- Maev: Raw Food - Variety
- Sundays for Dogs: Turkey
- Nextrition: All-Natural Chicken Recipe
- Lone Wolf Ranch: Beef Formula
- Tally's Ranch
- Raised Right: Air Dried Turkey
- Farmland Traditions: The Good List - Chicken & Bone Broth

Fresh/Frozen dog food brands and products:

- Farmer's Dog: Beef
- Ollie: Pork
- We Feed Raw: Chicken
- Pet Plate: Barkin Beef Entree
- A Pup Above: Turkey Pawella Recipe
- JustFoodForDogs: Turkey & Whole Wheat Macaroni Recipe Frozen Human-Grade
- JustFoodForDogs: Lamb & Brown Rice Recipe Frozen
- Nulo: Gently-Cooked Meals Duck & Quinoa Recipe Wet
- Nulo: Gently-Cooked Meals Turkey & Green Beans Recipe
- Caru: Real Turkey Stew Grain-Free Wet Dog Food
- Caru: Real Beef Stew Grain-Free Wet Dog Food
- Raised Right: Beef & Pumpkin Pate
- Jinx: Homemade Beef & Chicken
- Freshpet: Select Chunky Beef, Vegetable & Rice
- Freshpet: Custom Meals Beef & Chicken Recipe
- Freshpet: Select Grain Free Roasted Meals
- Freshpet: Homestyle Creations Chicken & Turkey
- Freshpet: Select Fresh From The Kitchen Home Cooked Chicken

What should ingredient-conscious consumers look for?

Our mission is to empower consumers by delivering accurate and reliable product information based on our testing and analysis of the products they purchase.
This data enables consumers to make informed choices that prioritize safety and quality in the dog food they purchase.

“The love and joy a dog brings to a family are immeasurable,” said Molly Hamilton, Executive Director of Clean Label Project®. “Every dog owner should feel confident that the food they give their pup is nutritious and free from harmful substances.”

The following companies have dog foods that are Clean Label Project® Certified:

- Freshpet

Sources

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For a full list of products Clean Label Project® evaluated, please visit the website at www.cleanlabelproject.org