



Natures Menu

Freeze Dried Advisor

Introduction

Freeze drying is an exciting and emerging technology in the world of pet food. As the UK's number one raw pet food producer, Natures Menu are developing our freeze dried range to complement our raw meals, under one trusted and familiar brand. However, we understand that freeze drying technology can be confusing and misunderstood as a preserving process. Without using high temperatures, freeze drying is the closest thing to raw food but with the final product not requiring any special storage techniques or preparation before feeding.

During this short course, we will aim to explain the process of freeze drying, the benefits and what the technique can offer to the UK pet food market. By taking part in our Freeze Dried Advisor course, you will be able to confidently explain the preservation process, the benefits of the final product and answer frequently asked questions.

Whether a seasoned raw feeder looking for a convenient alternative for travel or everyday use, or a customer confused about feeding raw or freeze dried food, this course contains all the information needed to help answer queries and clear up misconceptions.



What is freeze drying?

Freeze drying is technically known as lyophilization and is a dehydration process commonly used to preserve perishable materials or make them more convenient for extended storage and transport. The technology involves minimal processing and starts by freezing the material, then removing the ice (water) content through a process called sublimation.

History of freeze drying technology

The freeze drying process was first developed in the early 20th century by a group of researchers led by Jacques-Arsène d'Arsonval in France. In 1905, d'Arsonval and his team successfully lyophilized a small amount of blood serum, demonstrating the feasibility of the freeze drying process.

In 1940s and 50s, the technique became more commercialised due to the need for preserving blood plasma and other biological materials during World War II. The process was then adopted further by various industries for preserving not only pharmaceutical goods, but also food items due to the ability to remove the moisture from sensitive materials whilst preserving the structure and original properties.

Common freeze dried products

Many everyday items are preserved using freeze drying that you may not even be aware of. The most common association is space food. Food for astronauts is often freeze dried as it makes the products lightweight, easy to transport and prolongs the shelf life whilst still preserving essential nutrients and tasty flavours and can be rehydrated easily with water – anywhere!

Freeze drying is also commonly used to preserve ingredients in supermarket food items such as fruits in cereals and cereal bars, vegetables in stock cubes and dried meats in ready meals (commonly, the



noodle-based pot variety!). Freeze drying is also used to make instant coffee granules, an everyday product which we all know retains the natural flavour, taste and smell of the original coffee bean for a prolonged period.

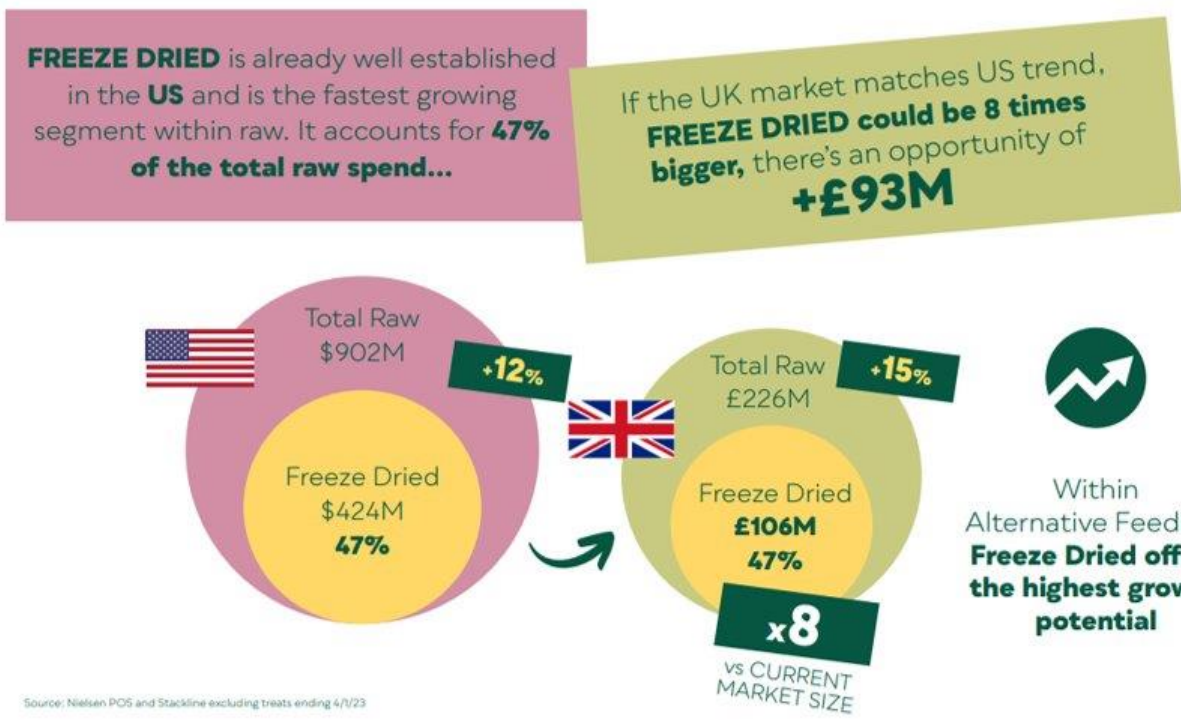


Images: Freepik.com

The freeze dried pet food market

Freeze dried pet food, treats, snacks and toppers are already well established in the US, with freeze dried being classified as the fastest growing segment in raw. It accounts for 47% of the total raw spend. If the UK follows the current market trend, freeze dried could become 8 times bigger than the current market size.

As the UK market leaders in raw food for awareness, conversion and market share, Natures Menu understands we are the company that can deliver confidence in a range of products to satisfy all our customer's needs when looking for naturalness, high-quality ingredients, and extreme product convenience.



Source: Nielsen POS and Stackline excluding treats ending 4/1/23



The process of freeze drying

When making Natures Menu complete & balanced raw products, the raw ingredients are first weighed, minced, and mixed according to the specific recipe. They are then formed into the desired shape by using a mould or press. If the product is to be sold as frozen raw food, it is frozen, packaged and stored, ready for distribution. However, if freeze drying is required to produce a more convenient, but still raw, pet food product which requires no refrigeration or frozen storage, the production process takes a little longer:

1. Pretreatment

The ingredients are weighed, minced, and mixed then formed into the required shape and size.

2. Freezing

The products are placed on trays in single layers and loaded into the freeze drying machine. The machine then drops the temperature inside the chamber to well below freezing, approximately -20°C to -25°C , so the water content in the raw material solidifies i.e., turns to ice.



One of Natures Menu's freeze drying machines

3. Primary Drying

This stage is where the process known as sublimation takes place. The pressure in the chamber is reduced to a level where the frozen moisture turns directly from a solid into a gas, without becoming a liquid. This process removes the majority of the water content from the product.

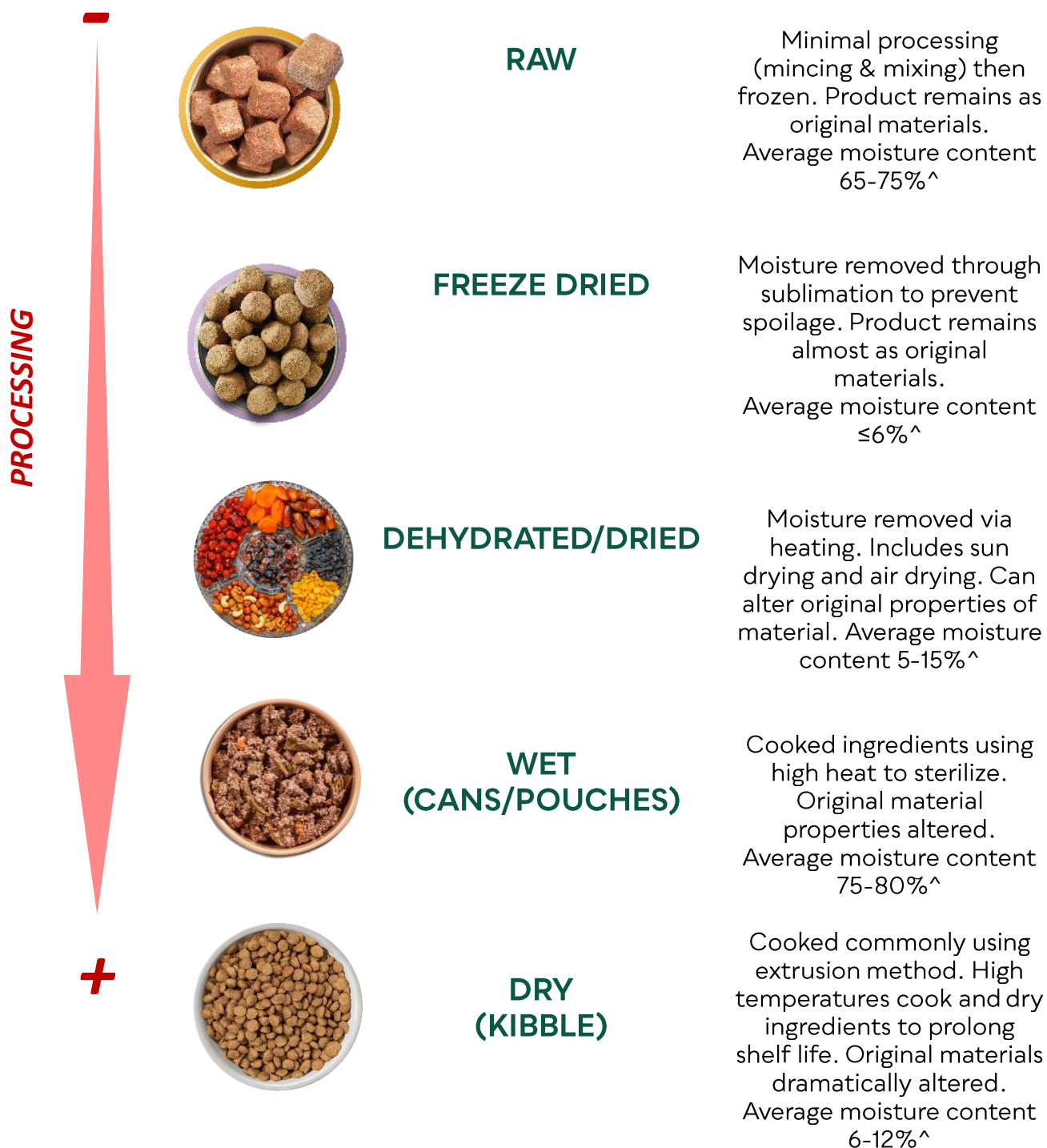
4. Secondary Drying

This stage involves slightly raising the temperature within the vacuum chamber to remove any water-bound molecules that did not undergo sublimation in the initial drying stage. This secondary drying stage is called desorption.

5. Sealing

Once the material is sufficiently dried, it is sealed in moisture resistant packaging to prevent reabsorption of moisture from the surrounding environment. Natures Menu test our freeze dried products to ensure the moisture content is $\leq 6\%$.

Pet food preservation techniques



[^]see FAQs section for more information on moisture content of pet foods

Dehydrated Image: Freepik.com

Length of the freeze drying process

Generally, the freeze drying process is not a rapid one and the length of the process will depend on several factors, such as;

Type of material – different ingredients have different freezing and drying characteristics which can also depend on their overall moisture content i.e., an apple slice would take longer in the freeze drying process over oats.

Size of product – the size and thickness of the product will also affect the freeze drying time. Thicker products will generally take longer than thinner ones.

Equipment and technology – the efficiency and design of the freeze drying machine can affect the time it takes to freeze dry. As Natures Menu is fully equipped and experienced in producing raw frozen food for pets, all products which are to be freeze dried are pre-frozen before entering the machine to help speed up the process.

At Natures Menu, we produce a number of products using freeze drying technology. Below, you will see a list of products and the approximate time the freeze drying process takes for each of these:

- Complete & Balanced Freeze dried Raw Nuggets – apx.12hrs
- Meat Chunks – apx.12hrs
- Meat Bites – apx.18hrs
- Freeze dried Toppers – apx.18hrs

Natures Menu's freeze drying machines

Natures Menu is based in Snetterton, Norfolk, and is a company well-known for being the UK's number 1 raw pet food producer. We know how important it is to keep abreast of new technologies in pet food production and how we can make raw feeding convenient for everyone - anytime, anywhere. As well as on site manufacturing facilities to produce and safely store our Natures Menu raw foods in their many formats, we have also invested in our own in-house freeze drying machines. These run almost 24hrs a day making our delicious and nutritious freeze dried foods.



**RAW FREEZE DRIED
FOR EXTREME CONVENIENCE**

Ingredients used in Natures Menu Freeze Dried

Our ingredients are sourced from the same trusted suppliers we use for making our raw products. Many of our suppliers we have had relationships with for over 40 years and they understand our requirements for high quality and safe materials. Using selected meats, fish, fruits, and vegetables, we carefully select ingredients we know dogs love, to deliver the same quality and taste found in our raw meals to make our freeze dried options with no compromises.

Bacteriological awareness

The substantially lowered water content in freeze dried products inhibits the action of micro-organisms and enzymes that would normally cause the product to spoil, degrade, or develop mould.

As a DEFRA registered manufacturer, all of our raw materials used for our freeze dried products are subjected to the same strict legislations as our raw pet food ingredients, including a zero tolerance for salmonella.

However, as Natures Menu freeze dried products are made from raw ingredients and do not undergo any heat treatment or cooking process, it is important to still handle our freeze dried products in the same way you would our raw foods. This involves washing hands following contact, washing feeding areas, bowls and serving utensils, and wiping down surfaces and areas which may have come into contact with the food.



Department
for Environment
Food & Rural Affairs



Animal &
Plant Health
Agency

DEFRA registered pet food manufacturer, approved and monitored by the Animal Plant Health Agency (APHA).



UK Pet Food
members.
Raw Pet Food
Certified.



Working to
FEDIAF
nutritional
standards for
complete &
balanced foods.

The benefits of freeze dried

Although the freeze drying process is time consuming and expensive, it is often the preferred technique for preserving the quality of heat sensitive materials and maintains the structure and properties of the original ingredients. For our pets, this is important to preserve the taste of the high-quality ingredients used to make Natures Menu products, such as selected cuts of meat, fresh fruits and vegetables, making the final product irresistible!

As well as the benefits already mentioned such as prolonged shelf life and little change to the original materials used, freeze drying offers a whole host of positives when producing food for dogs:



RAW WITH NO THAW!

Freeze drying allows customers to raw feed without the hassle of ensuring the products remain frozen until use and defrosting in a refrigerator before feeding. It's raw food, made even more convenient. Plus, unlike raw food, customers can leave freeze dried food in the feeding bowl for prolonged periods until their dog is ready to eat their meal – although, this rarely happens due to the superior taste! Often, the bowl doesn't even have time to touch the floor before the delicious nuggets are consumed by excited, waggy dogs.



MORE SPACE

As freeze dried products can be stored at room temperature, this frees up space in both the customer's freezer and fridge at home. Freeze dried complete food also offers the perfect alternative for when we forget to defrost our dog's usual raw, or the freezer is bare!



RAW TRAVEL MADE EASY

As we now know, freeze dried food requires no special storage such as refrigeration or freezing, therefore, it's easy to store and take away when on holiday or out on a walk with your dog. It's lightweight so can be easily transported and used when traditional raw feeding may not be convenient, such as whilst travelling, camping, hiking or a stay at the dog sitters or kennels.



A TASTE LIKE NO OTHER

As explained, the freeze drying process removes almost all of the water content from the product which can alter the final taste.....but only for the better!

Intensified flavour – freeze drying naturally intensifies the flavours of the ingredients. Because the moisture content is almost completely removed, this concentrates the natural taste, especially when it is reintroduced to moisture.

For dogs, when they lick or take freeze dried food into their mouths, it is mixed with their saliva releasing the intense flavours of our recipes made from meat, fish, fruits, and veggies, making freeze dried irresistible to even the fussiest of hounds!

Preservation of aromas – natural aromas of meat and fish are preserved during the freeze drying process. This helps to encourage appetite and olfactory-induced salivation. In other words, freeze dried products produce mouth-watering smells for dogs!

Retention of nutrients – freeze drying is known for preserving the nutritional content of ingredients and recipes better than some other dehydrating methods. The retention of vitamins, minerals and other nutrients helps to contribute to the overall taste and smell and helps to keep Natures Menu's freeze dried raw products as natural as possible.



Freeze dried.
Raw food, anywhere, anytime,
with no compromise on
quality or taste.

The unfamiliarity of freeze dried

As the freeze drying technique is relatively new to the pet food market in the UK, many dogs have not experienced the intense taste and spongy texture of such products. Most dogs when offered a freeze dried raw product will happily accept it without hesitation, but for those who may be a little more suspicious, it can take a short time for them to become comfortable. In Natures Menu's experience, some dogs may take the freeze dried morsal offered and then spit it out due to the unfamiliar texture experienced when it touches their tongue. Following this, they can then often be seen licking their lips as the tastes develop after being mixed with their saliva. They are then seen picking the morsal back up and chewing with glee as the meaty flavours explode in their mouths, soon coming back for more after that first taste sensation!



Image: Freepik.com

FAQs

What if my dog doesn't like the Natures Menu Freeze dried Complete & Balanced Raw food and I want to use it when I am on holiday instead of raw?

As freeze dried foods can have a different mouthfeel and overall sensory experience, some dogs may be a little more hesitant to try it straight away. To help encourage their appetite for freeze dried, we have developed several products which may help, such as our Toppers which can be added on top of their normal dry biscuit meal, wet food, or raw food to help familiarise them with the new format whilst consuming their normal meals. Sprinkling freeze dried nuggets on top of normal food or using them in mental stimulation toys, such as 'Snuffle Mats' can also help to encourage appetite.

Finally, you can always add a small amount of warm water to our Freeze dried Complete and Balanced Raw food to help release the aromas and encourage appetite. Rehydration isn't always necessary and can just be used as an interim to help with familiarisation.

Does freeze dried food require any preparation before feeding?

Freeze dried is made for extreme convenience. It can be fed straight from the pack without the need for rehydration. Just pour and serve freeze dried complete & balanced raw food in your dog's usual bowl.

Does the moisture content of the food I'm feeding my pet matter?

All foods designed to be fed to dogs as a complete & balanced diet, no matter the moisture content, will contain all the nutrients required to sustain life. The moisture level generally relates to either the palatability of the food i.e., wet/canned food, the properties of the original ingredients, required texture of the final product and how long the shelf life will be. Feeding a food with a lower moisture content may cause your dog to drink more when compared to feeding a higher moisture content food. This can be compared to us consuming dry cream crackers to a juicy apple – one of these will make us far thirstier than the other. In a similar fashion, freeze dried food may increase thirst if your dog is used to eating raw or wet foods. Regardless of what type of food is chosen, fresh, clean drinking water should always be available.

How do you transition a dog onto Natures Menu Complete & Balanced Freeze dried Raw food?

Because freeze dried complete is the same as our raw nuggets, just with the moisture removed, raw fed dogs should be able to safely switch between formats without any gradual transition. For more fussy or sensitive dogs, it might be advisable to mix a few freeze dried nuggets in with the normal food for a few days, gradually increasing the freeze dried portion and reducing the raw portion, to help ease transition.

For dogs who are fed a traditional dry food (kibble), wet food or a mixed diet, we would suggest following our 7-day transition advice:

Feeding in two meals per day, swap one meal of the day for the freeze dried portion and keep the other meal the same. Feed in alternative meals (i.e., one meal freeze dried and one meal usual food) for 7 days. On day 8, both meals can be fed as freeze dried.

Will I notice any difference in my dog's poops if I switch to complete freeze dried raw whilst I'm on holiday?

As freeze dried complete food is just raw with the moisture almost entirely removed, the digestive system should not be affected to notice a significant difference in the consistency of dog's faeces. The only small change which may be noted by long term raw feeders is, due to the lack of bone content, the stools maybe slightly softer than the owner is used to seeing. Bone cannot be included in freeze dried food as removing the moisture makes their structure too brittle to be fed safely. In summary, dog's faeces should be well formed (potentially slightly softer than when on raw food) and easy to pick up when switched to being fed freeze dried raw.

How do I know how much to feed of freeze dried food?

All of the Natures Menu packs have an advised feeding guide on the back. Whether you're feeding complete & balanced freeze dried food, treats, toppers or snacks, there's approximate amounts to feed found on our packs. Please note that these are guidelines only and are safe to be adjusted to suit an individual dog's lifestyle. Remember, the volume of food may look significantly less than what customers are used to feeding, especially if they have fed wet or raw food previously. This is because the moisture has been removed from the product, concentrating nutrients and therefore, smaller volumes are required and are all in accordance with the European Pet Food Guidelines (FEDIAF).

How do I store freeze dried food?

Freeze dried food requires no special storage. It has undergone a process where almost all of the water content has been removed therefore, it is stable to be stored at room temperature, providing it is kept in a sealed pack.

How long does freeze dried food last for?

Due to the low levels of moisture in freeze dried, it will last longer than traditional dry food (kibble) when stored at room temperature in sealed packs, away from moisture. Freeze dried foods will have a similar shelf life to that of wet cans and pouches.

What can Natures Menu offer me in the current freeze dried range?

Natures Menu have developed a range of Complete and Balanced Freeze dried Raw meals for adult dogs (1yr+). These are available in 250g and 120g bags in turkey, lamb, beef, and chicken. This range is specifically designed for those customers who already raw feed and are looking for something more convenient for trips away or holiday time, rather than needing to take frozen raw food with them. Snacks, treats and toppers can currently be found in our Nature's Variety freeze dried range.



Summary

Freeze dried is as close to raw as possible, whilst preserving the natural ingredients and flavours to enable safe storage at room temperature. Complete and balanced foods offer raw on the go, anytime, anywhere, served straight from the pack – it's raw with no thaw! A convenient, mess free way to feed a raw diet with no freezing or defrosting.

Freeze dried snacks and treats offer intense flavours, great for reward-based training and mental enrichment when used in treat rewarding toys or scent work.

Freeze dried toppers can be used for tempting the fussiest of dogs by adding a new taste, texture, and aroma to everyday mealtimes.

**RAW FREEZE DRIED
FOR EXTREME CONVENIENCE**



**NATURES MENU
FREEZE DRIED**

DELICIOUS for them,
EASY for you.

Now you have completed the Natures Menu Freeze Dried Advisor, why not take part in our short quiz to test your knowledge? Access the quiz [here](#).

Natures Menu Freeze Dried Product Guide Pull Out

Complete & Balanced Freeze dried Food

Suitable for all raw fed adult dogs or owners looking to feed complete and balanced raw in a super convenient format. Only suitable for dogs 12months and over. Available as 250g and 120g resealable bags.

Turkey

Composition: Turkey* 80%, Carrots* 5%, Apples* 5%, Minerals, Pea Fibre*, Butternut Squash* 1%, Sweet Potato* 1%, Cranberries* 0.5%, Blackberries* 0.5%, Flaxseed*, Chicory Root*, Kale* Peppermint*, Coconut Oil*, Green Tea*, Yucca*, Rosemary*, Parsley*, Dandelion Root*, Hawthorn Leaf*



Chicken

Composition: Chicken* 80%, Carrots* 5%, Apples* 5%, Minerals, Pea Fibre*, Butternut Squash* 1%, Sweet Potato* 1%, Cranberries* 0.5%, Blackberries* 0.5%, Flaxseed*, Chicory Root*, Kale* Peppermint*, Coconut Oil*, Green Tea*, Yucca*, Rosemary*, Parsley*, Dandelion Root*, Hawthorn Leaf*

Lamb

Composition: Lamb* 80%, Carrots* 5%, Apples* 5%, Pea Fibre*, Butternut Squash* 1%, Sweet Potato* 1%, Minerals, Cranberries* 0.5%, Blackberries* 0.5%, Flaxseed*, Chicory Root*, Kale* Peppermint*, Coconut Oil*, Green Tea*, Yucca*, Rosemary*, Parsley*, Dandelion Root*, Hawthorn Leaf*



Beef

Composition: Beef* 80%, Carrots* 5%, Apples* 5%, Minerals, Pea Fibre*, Butternut Squash* 1%, Sweet Potato* 1%, Sunflower Oil, Cranberries* 0.5%, Blackberries* 0.5%, Flaxseed*, Chicory Root*, Kale* Peppermint*, Coconut Oil*, Green Tea*, Yucca*, Rosemary*, Parsley*, Dandelion Root*, Hawthorn Leaf*

*Natural ingredients