



Meats and animal products



Beef



High quality ingredient with abundant beneficial nutrients

In pet food, beef can be used as a fresh meat (fresh beef, deboned beef, freshly prepared beef) or as a pre-prepared, dry meat meal (beef meal, dried beef, dehydrated beef). When the ingredient is listed simply as 'beef' it usually refers to the fresh form.

Although the quality of beef used in pet foods can vary, it is generally regarded as a highly digestible, highly palatable meat source for dogs. In the past, some pet food manufacturers had labelled beef as a problematic meat for dogs but solid evidence is hard to come by.

Red meats like beef do, however, contain higher levels of cholesterol which should be kept to a minimum if your dog has a history of health problems. Red meats also contain higher levels of purines and other minerals (especially in the 'meal' form due to the higher bone content) which are best avoided in dogs with urinary conditions.

Bone meal



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Bone meal or ground bone is added to some dog foods as a natural calcium and phosphorous supplement. Its definition is very vague as it could come from any animal so if your dog is intolerant to a specific meat, bone meal is probably best avoided.



Chicken



High quality ingredient with abundant beneficial nutrients

In pet food, chicken can be used as a fresh meat (fresh chicken, deboned chicken, freshly prepared chicken) or as a pre-prepared, dry meat meal (chicken meal, dried chicken, dehydrated chicken). When the ingredient is listed simply as 'chicken' it usually refers to the fresh form.

Chicken is the most popular meat found in dog foods. It is highly palatable, relatively inexpensive and provides an excellent source of protein. For most dogs, chicken is very easy to digest but its widespread usage in dog foods has led to a higher rate of intolerance to chicken than to any other meat so if your dog is particularly prone to dietary intolerance, chicken may not be the best choice.

As with all meats, the quality of the chicken used in pet foods can vary considerably so for more details on the chicken found in your dog's food, please contact the manufacturer directly.

Colostrum

High quality ingredient with abundant beneficial nutrients

Colostrum is the form of milk produced by the mammary glands of all mammals around the time of birthing. In order to start the baby off on the right foot, colostrum is rich in antibodies, vitamins, minerals and amino acids. It is widely regarded as a very healthy supplement for both humans and animals. Colostrum for pets is harvested from dairy cattle.

Although colostrum is lower in lactose than normal milk, it nevertheless contains some and should therefore be avoided if your dog is dairy intolerant.

Dairy products

Low grade, controversial or vague ingredient we usually recommend avoiding

Although milk contains several beneficial nutrients, it also contains a high proportion of the sugar lactose. As in humans, many dogs have real difficulties digesting lactose and as a result milk products can bring on stomach pains, flatulence, diarrhoea and even vomiting. This condition is known as lactose intolerance. Lactose is also present in virtually all dairy products including cheese, yogurt, cream, whey and ice cream. If your dog has a sensitive stomach, dairy products are generally best avoided.



Digest

Low grade, controversial or vague ingredient we usually recommend avoiding

Digest is widely used to improve the taste of dog foods. It is formed from the breakdown of animal tissue through chemical or enzymatic hydrolysis and is therefore sometimes listed as **hydrolysate**.

Digest is a controversial ingredient mostly due to the way it is produced. The process of chemical/enzymatic hydrolysis is far from what most people would regard as 'natural' and it is therefore widely criticised by natural feeding advocates. It is also usually unclear what products of what animals the digest is derived from. Where digest is present, we would recommend looking for both the animal and the part of the animal to be specified (e.g. 'chicken liver digest' instead of just 'digest').

Please note that digest is not always declared by dog food manufacturers on the ingredients list. If you are unclear of whether or not your dog food contains digest, you should give the producer a call and put these questions to them.

Duck

High quality ingredient with abundant beneficial nutrients

In pet food, duck can be used as a fresh meat (fresh duck, deboned duck, freshly prepared duck) or as a pre-prepared, dry meat meal (duck meal, dried duck, dehydrated duck). When the ingredient is listed simply as 'duck' it usually refers to the fresh form.

Duck meat is a good source of high quality protein. It is easy for dogs to digest and also scores well in taste tests. Duck meat is also a good source of vitamin A and B3 as well as several minerals.

As with all meats, the quality of the duck used in pet foods can vary considerably so for more details on the duck found in your dog's food, please contact the manufacturer directly.



Egg

High quality ingredient with abundant beneficial nutrients

Eggs are a good source of low-cost, high-quality protein, fat and various minerals and micronutrients. Some of the fat is however cholesterol which should be kept to a minimum if your dog has high blood pressure or a history of heart problems.



Fresh Meat

High quality ingredient with abundant beneficial nutrients

'Fresh meat' is a highly nutritious and palatable protein source for dogs. It usually consists of animal viscera (the internal organs and connective tissues) which is left over from the processing of human-grade animals. Despite not being exactly what most people have in mind when they think of fresh meat, it remains a high quality ingredient and is, after all, a very natural food for dogs.

Fresh meat is widely used in wet dog foods and is also becoming increasingly popular in dry foods. When comparing the meat contents of dry foods it is important to remember that since fresh meat contains roughly 70% water (compared to just 8% in meat meal) it is far less nutritionally concentrated than meal and so more is required. For example, in order to provide the same levels of protein and fat as 20% meat meal a dry food would need 72% fresh meat!

Hydrolysed animal proteins



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Hydrolysed animal proteins are proteins which have been broken down into their constituent amino-acid building blocks. These molecules are then so small that they are not recognised by the dog's immune system and therefore cannot trigger an allergic response. For this reason hydrolysed proteins are often recommended for allergy prone dogs.

The ingredient is controversial for several reasons: Firstly, the hydrolysis process uses acids or enzymatic

action which are roundly criticised by natural feeding advocates. Secondly, during the breakdown of proteins monosodium glutamate (MSG) can be formed. MSG is classified as a food additive and flavour enhancer and has been linked with food addictions in humans but when added to foods in this way it does not need to be declared.

The final issue with hydrolysed animal proteins is that you have no way of knowing what parts of what animals the protein comes from.



Lamb



High quality ingredient with abundant beneficial nutrients

In pet food, lamb can be used as a fresh meat (fresh lamb, deboned lamb, freshly prepared lamb) or as a pre-prepared, dry meat meal (lamb meal, dried lamb, dehydrated lamb). When the ingredient is listed simply as 'lamb' it usually refers to the fresh form.

Lamb is an excellent meat source for dogs. It is both highly palatable and easily digested. Most of the lamb found in British pet foods comes from the UK (typically Wales) or is imported from countries like New Zealand.

Red meats like lamb do, however, contain higher levels of trans-fats and cholesterol which should be kept to a minimum if your dog has a history of health problems. Red meats also contain higher levels of purines and other minerals (especially in the 'meal' form due to the higher bone content) which are best avoided in dogs with urinary conditions.

As with all meats, the quality of the lamb used in pet foods can vary considerably so for more details on the lamb found in your dog's food, please contact the manufacturer directly.

Liver



High quality ingredient with abundant beneficial nutrients

The nutritional properties of liver do vary from species to species but in general liver is widely recognised as an exceptionally beneficial, nutrient-dense food for dogs. It is rich in vitamin B12, vitamin A, copper, folate, riboflavin, and selenium and contains good levels of zinc, vitamins C, B5 and B6, protein, niacin, phosphorous and iron. It is easily digested and highly palatable.



Meat and Animal

Derivatives



Low grade, controversial or vague ingredient we usually recommend avoiding

According to European law, 'meat and animal derivatives' is defined as "All the fleshy parts of slaughtered warm-blooded land animals, fresh or preserved by appropriate treatment, and all products and derivatives of the processing of the carcass or parts of the

carcass of warm-blooded land animals".

Clearly this is very loose and does not provide any clues as to what parts or even what animals are being used.

It must be said that the presence of this ingredient is not necessarily a bad thing as it encompasses all meats, from the very best, to the very worst. For example, some producers of good foods use broad terms like this in order to not give away their 'secret formula' and some imported foods list very high quality meat as 'meat and animal derivatives' simply because the laws or customs in their home country are different. At the opposite end of the scale, the term can be used for very low-grade animal products including some that are nutritionally very poor. Also, because the species isn't specified, manufacturers are able to change their meat source between batches depending on what is available at the time.

The problem with broad, vague terms like this is that you just don't know. Where you do see it, make sure it states what animal it comes from, and ideally what parts of the animal. If your dog is prone to food intolerance, it is certainly wise to steer away from meat and animal derivatives and all other non-specific ingredients.



Meat Meal



High quality ingredient with abundant beneficial nutrients

Meat meal is essentially ground meat (including offal, connective tissues and in some cases bones etc) which has been heated at high pressure until virtually all moisture has evaporated. The result is a fine, dry powder which is used in the vast majority of dry dog foods in the UK. It is usually listed with the animal source - i.e. 'chicken meal', 'lamb meal' etc. or occasionally 'chicken meat meal'.

According to UK Feed Stuffs Regulations, meat meal "should be virtually free of hair, bristle, feathers, horn, hoof and skin and of the contents of the stomach and viscera".

Because meat meal is only around 5-7% water, it is far more nutritionally concentrated than fresh meat which contains roughly 70% water. For this reason far less meat meal is needed - for example, 20% fresh meat would only equate to around 6.5% meat meal. This is an important consideration when comparing the meat contents of dry dog foods.

If the source animal is not specified, the general term 'meat meal' can come from any animal. Broad terms like this are often used by dog food manufacturers instead of naming each ingredient either because the recipe regularly changes or because naming the ingredients would put customers off.

Pork



High quality ingredient with abundant beneficial nutrients

In pet food, pork can be used as a fresh meat (fresh pork, deboned pork, freshly prepared pork) or as a pre-prepared, dry meat meal (pork meal, dried pork, dehydrated pork). When the ingredient is listed simply as

'pork' it usually refers to the fresh form.

Although pork was once thought of as a problem ingredient for dogs, it is now widely recognised as a good, highly palatable meat source. Nevertheless, it is still rarely found in dog foods making it a 'novel protein' for a lot of dogs. This can make pork-based foods particularly useful for allergy-prone dogs as it is impossible to be allergic to a food that you have never been exposed to.

Pork, like most mammalian meats, does, however, contain higher levels of purines and other minerals (especially in the 'meal' form due to the higher bone content) which are best avoided in dogs with urinary conditions.

Uncooked pork also carries a higher risk of parasitic infection than most meats so it is always best to cook and raw pork thoroughly prior to feeding. Dry, tinned and all other cooked commercial dog foods are always parasite free.

As with all meats, the quality of the pork used in pet foods can vary considerably so for more details on the pork found in your dog's food, please contact the manufacturer directly.

Poultry  Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

In pet food, poultry can be used as a fresh meat (fresh poultry, deboned poultry, freshly prepared poultry) or as a pre-prepared, dry meat meal (poultry meal, dried poultry, dehydrated poultry). When the ingredient is listed simply as 'poultry' it usually refers to the fresh form.

As a food group, poultry provides a good quality, relatively low-cost source of highly palatable protein. The category includes products from any domestic fowl such as chicken, turkey or duck.

Since the term 'poultry' doesn't specify which animal species the meat comes from, it is frowned upon by many canine nutritionists. Ambiguous terms like poultry allow the manufacturer to change the recipe from batch to batch and make it very difficult to identify problem foods with dogs that are prone to dietary intolerance.

As with all meats, the quality of the poultry used in pet foods can vary considerably so for more details on the poultry found in your dog's food, please contact the manufacturer directly.

Poultry Fat  Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Dogs, like all animals, need fats to survive and as carnivores, they are best suited to animal fats.

In general, animal fats are produced as a by-product of meat meal production. When the meat is heated and ground, the fats melt and are drained away. The resulting dry meat meal powder is therefore relatively low in fat so most dog foods that use meat meal have added fat to bring the levels back up.

Dogs also really like the taste of fat so it is tempting for manufacturers to add a little more than is strictly needed to make their foods that little bit more appealing. Unfortunately, as we all know, too much fat can cause all sorts of problems so if you notice your dog is starting to put on a little too much weight, you may

want to consider a food with a lower fat content.

Although not as bad as the general term 'animal fats', 'poultry fat' does still leave some ambiguity as it could refer to any fat from any fowl species including chickens, turkeys and ducks. This allows the manufacturer to alter the recipe between batches depending on what fats are cheaper at the time. As always, we recommend looking for foods where the sources of the fats and oils are clearly stated.



Rabbit



High quality ingredient with abundant beneficial nutrients

In pet food, rabbit can be used as a fresh meat (fresh rabbit, deboned rabbit, freshly prepared rabbit) or as a pre-prepared, dry meat meal (rabbit meal, dried rabbit, dehydrated rabbit). When the ingredient is listed simply as 'rabbit' it usually refers to the fresh form.

Although, like all meats, the quality of rabbit used in pet foods can vary, it is generally regarded as an excellent meat source for dogs. It is a great source of protein, it is highly digestible and it is completely bio-appropriate - i.e. it closely resembles the natural diet of the dog.

Rabbit meat is used fairly rarely in dog foods making it a 'novel protein' for a lot of dogs. This can make rabbit-based foods particularly useful for allergy-prone dogs as it is impossible to be allergic to a food that you have never been exposed to.

The rabbits used in pet food can be farmed or caught from the wild.

Specified Animal Fats and Oils



High quality ingredient with abundant beneficial nutrients

Dogs, like all animals, need fats to survive and as carnivores, they are best suited to animal fats. Specified animal fats (ones where the animal species is named - for example, chicken fat, duck oil etc.) are particularly good as they ensure the recipe remains the same from batch to batch.

In general, animal fats are produced as a by-product of meat meal production. When the meat is heated and ground, the fats melt and are drained away. The resulting dry meat meal powder is therefore relatively low in fat so most dog foods that use meat meal have added fat to bring the levels back up.

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Tripe

High quality ingredient with abundant beneficial nutrients

In pet food, tripe can be used in its fresh form (fresh tripe, freshly prepared tripe) or as pre-prepared dry meal (tripe meal, dried tripe, dehydrated tripe). When the ingredient is listed simply as 'tripe' it usually refers to the fresh form.

Tripe is the stomach of ruminating animals - usually from cows but also from sheep, goats, pigs and deer. It is highly nutritious and easy for dogs to digest. Tripe is rich in protein and fat and is a good source of essential oils.

'Green tripe' is tripe that has not been cleaned, bleached or otherwise processed. Green tripe is unique because it contains high levels of probiotics including friendly bacteria and digestive enzymes that can enormously benefit a dog's digestion.

As with all meats, the quality of the tripe used in pet foods can vary considerably so for more details on the tripe found in your dog's food, please contact the manufacturer directly.

Turkey

High quality ingredient with abundant beneficial nutrients

In pet food, turkey can be used as a fresh meat (fresh turkey, deboned turkey, freshly prepared turkey) or as a pre-prepared, dry meat meal (turkey meal, dried turkey, dehydrated turkey). When the ingredient is listed simply as 'turkey' it usually refers to the fresh form.

Turkey meat is easy to digest, highly palatable and provides an excellent source of protein. It is lower in calories and fat than chicken and is therefore often used in light and senior diets.

As with all meats, the quality of the turkey used in pet foods can vary considerably so for more details on the turkey found in your dog's food, please contact the manufacturer directly.



Unspecified Animal Fats and

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Oils

Dogs, like all animals, need fats to survive and as carnivores, they are best suited to animal fats.

In general, animal fats are produced as a by-product of meat meal production. When the meat is heated and ground, the fats melt and are drained away. The resulting dry meat meal powder is therefore relatively low in fat so most dog foods that use meat meal have added fat to bring the levels back up.

Dogs also really like the taste of fat so it is tempting for manufacturers to add a little more than is strictly needed to make their foods that little bit more appealing. Unfortunately, as we all know, too much fat can cause all sorts of problems so if you notice your dog is starting to put on a little too much weight, you may want to consider a food with a lower

fat content.

The problem with ambiguous terms like 'animal fats' or 'animal oils' is that they could refer to literally any fat of any quality from any animal. This allows the manufacturer to alter the recipe between batches depending on what fats are cheaper at the time. As always, we recommend looking for foods where the sources of the fats and oils are clearly stated.



Venison



High quality ingredient with abundant beneficial nutrients

In pet food, venison can be used as a fresh meat (fresh venison, deboned venison, freshly prepared venison) or as a pre-prepared, dry meat meal (venison meal, dried venison, dehydrated venison). When the ingredient is listed simply as 'venison' it usually refers to the fresh form.

Venison is the general term for deer meat. Most of the venison that is used in European pet foods comes from New Zealand but due to a global shortage, the price of venison has shot up over the last few years making it one of the most expensive meat options found in dog foods.

Although the quality of venison used in pet foods can vary, it is generally regarded as a highly digestible, highly palatable meat source for dogs and unlike most meats, venison provides a good source of B vitamins.

Red meats like venison do however contain higher levels of trans-fats and cholesterol which should be kept to a minimum if your dog has a history of health problems. Red meats also contain higher levels of purines and other minerals (especially in the 'meal' form due to the higher bone content) which are best avoided in dogs with urinary conditions.

Fish & shellfish and their products



Crustaceans



High quality ingredient with abundant beneficial nutrients

Crustaceans (shrimps, crabs etc) are the most popular source of the joint supplement glucosamine due to the very high concentration found in their shells. They are sometimes added directly to dog foods, in which case they are labelled simply as '**crustaceans**' or the glucosamine can be extracted through hydrolysis in which case it will appear on the label as '**glucosamine**', '**glucosamine sulphate**' or '**hydrolysed crustaceans**'.



Fish and fish derivatives

Low grade, controversial or vague ingredient we usually recommend avoiding



The EC defines 'fish and fish derivatives' as "Fish or parts of fish, fresh or preserved by appropriate treatment, and derivatives from the processing thereof".

Although broad terms like this attract a lot of criticism, it must be noted that they do not necessarily indicate the presence of low grade ingredients. Fish and fish derivatives for example encompasses all fish products, from the very best to the very worst. For example, some producers of good foods use broad terms in order to not give away their 'secret formula' and some imported foods list very high quality fish as 'fish and fish derivatives' simply because the laws or customs in their home country are different. At the opposite end of the scale, the term can be used for very low-grade fish derivatives including some that are nutritionally very poor. Also, because the type of fish isn't specified, manufacturers using this term are able to change their fish source between batches depending on what is available at the time.

Because it is impossible to know what this refers to, we would suggest assuming the worst and avoiding foods with this ingredient. This is particularly important if your dog is prone to dietary intolerance as identifying and eliminating problem ingredients is impossible unless you know exactly what you are feeding.

Fish Meal



High quality ingredient with abundant beneficial nutrients

Fish meal is an excellent source of high-quality protein and is very easily digested by dogs. It is a powder formed by rendering and grinding both whole fish and the bones and offal from processed fish. Fish meal usually carries a strong smell which dogs love but some dog owners dislike.

Fish meal from oily fish (as opposed to whitefish) also contains abundant fish oils including several omega-3 and omega-6 oils as well as numerous vitamins and other micronutrients.



Fish Oil



High quality ingredient with abundant beneficial nutrients

Fish oil comes from the processing of oily fish like tuna, sardines, salmon and mackerel. As well as providing energy, fish oil contains abundant essential omega-3 and omega-6 oils which have wide ranging health benefits. Fish oils are have been recommended for the prevention and treatment of a whole host of health conditions including joint problems, skin conditions, cardiovascular disease and even cancer. Fish oil is also rich in several vitamins including vitamins A, B3 and D.



Fresh Fish



High quality ingredient with abundant beneficial nutrients

'Fresh fish' is a highly nutritious and palatable protein source for dogs. It can be made of any parts of any fish but usually consists of the leftovers from human-grade fish, such as viscera, which is minced into a fine paste before being added to the food. All fish, but particularly oily fish like tuna, mackerel, herring and salmon, contains fish oils, which is high in health promoting omega-3 essential oils.

Fresh fish is widely used in wet dog foods and is also becoming increasingly popular in dry foods. When comparing the fish contents of dry foods it is important to remember that since fresh fish contains roughly 70% water (compared to just 8% in fish meal) it is far less nutritionally concentrated than meal and so more is required. For example, in order to provide the same levels of protein and fat as 20% fish meal a dry food would need 72% fresh fish!

Green-Lipped Mussel



High quality ingredient with abundant beneficial nutrients

Green lipped mussels contain a wide range of nutrients but their rare combination of omega-3 oils are what they are famous for. These oils, usually called green-lipped mussel extract, are widely recognised as having an anti-inflammatory effect and are often recommended as a source of natural pain relief for arthritis sufferers.

Grains



Barley



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Barley is commonly used in dog food in a variety of forms. Once cooked it is easily digested by dogs and provides abundant fibre and several micronutrients including selenium and copper. Whole grain barley is the best form as it retains most of its nutrients.

In humans, barley gluten has been indicated as a problem ingredient for celiacs so if you are looking for a gluten free food, it would probably be best to steer clear of barley as well as wheat.



Cereals



Low grade, controversial or vague ingredient we usually recommend avoiding

The general terms 'cereals' and 'grains' can refer to any product of any cereal including wheat, rice, oats, barley, maize etc.

Although the term 'cereals' attracts a lot of criticism, it must be noted that it does not necessarily indicate the presence of low grade ingredients as it encompasses all grains,

from the best to the very worst. For example, some producers of good foods use broad terms like this in order to not give away their 'secret formula' and some imported foods list very high quality grains as 'cereals' simply because the laws or customs in their home country are different. At the opposite end of the scale, the term can be used for very low-grade grain products including some that are nutritionally very poor and others that have been linked to dietary intolerance. Also, because the type of cereal isn't specified, manufacturers are able to change their grain source between batches depending on what is available at the time.

Because it is impossible to know what 'cereals' refers to, we would suggest assuming the worst and avoiding foods with this ingredient. This is particularly important if your dog is prone to dietary intolerance as identifying and eliminating problem ingredients is impossible unless you know exactly what you are feeding.



Maize / Corn



Low grade, controversial or vague ingredient we usually recommend avoiding

Maize (or corn to us Brits) is widely used in dry dog foods as an alternative to grains like rice, oats and barley. Of all of the grains used in dog food, maize is certainly amongst the most controversial, with vocal critics and supporters in equal measure.

It has to be said though that many of the most ardent supporters of maize are from within the pet food industry. They correctly argue that maize is a good quality, nutritious carbohydrate source with a comparable nutritional profile to grains like oats and barley.

Critics of maize, on the other hand, claim that it is harder for dogs to digest and is therefore much more likely to lead to food intolerance or allergies. Many canine nutritionists and some vets now recommend avoiding maize based diets altogether.



Maize germ



High quality ingredient with abundant beneficial nutrients

Like wheat germ and rice germ, maize germ is the part of the grain that would grow into the new plant. Relative to the whole maize grain, the germ is tiny making up only about 10% of the total weight, but it contains the vast majority of the grain's non-carb nutrients including a very high level of essential omega-6 oils and other healthy unsaturated oils along with a good dose of vitamin E, A and K.

Many canine nutritionists believe that the carbs in maize are more difficult to digest than those in many other grains making it more likely to lead to dietary intolerance. Maize germ, on the other hand, does not include any of the starchy endosperm (the source of virtually all of the grain's carbohydrates and gluten) which makes it much less likely to lead to any adverse reaction.

Maize gluten

Low grade, controversial or vague ingredient we usually recommend avoiding

Maize gluten (sometimes called maize gluten meal, corn gluten or prairie meal) is a by-product of maize processing and can be used to top-up the protein levels of dog foods, usually as an alternative to more expensive meat-proteins. Unfortunately, maize gluten protein is not as easy for dogs to deal with as protein from meat sources and as a result it can lead to health issues like skin problems and hyperactivity. For this reason, we would recommend steering clear of maize gluten, especially with sensitive dogs.

Millet

High quality ingredient with abundant beneficial nutrients

Millet is a grain that is relatively easy for dogs to digest and is rich in B vitamins, iron and potassium. Millet is also gluten free and so makes a useful carbohydrate choice for hypoallergenic diets.



Oats

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Oats are used very widely in dog foods. They are a good source of dietary fibre as well as a host of micronutrients including manganese, selenium, vitamin B1, magnesium and phosphorus. Once cooked, oats are relatively easily digested by dogs.



Rice - brown / whole grain

High quality ingredient with abundant beneficial nutrients 

Rice comes in many forms, from long grain and basmati varieties to shorter forms like pearl rice and short-grain rice. The nutritional characteristics of most forms of rice is very similar, and most varieties can be found in both their whole, brown form and their polished, white form.

Brown rice (or whole-grain rice as it is also known) is widely regarded as a 'superfood' for humans and as long as it is well cooked, it is easily digested by dogs. It contains a whole host of natural nutrients including three B vitamins, iron, manganese, selenium, magnesium and omega-3 oils. It is also a good source of dietary fibre which is important in maintaining intestinal health. It is the grain of choice for most British natural dog food producers.



Rice - white



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Rice comes in many forms, from long grain and basmati varieties to shorter forms like pearl rice and short-grain rice. The nutritional characteristics of most forms of rice is very similar, and most varieties can be found in both their whole, brown form and their polished, white form.

White rice is simply brown rice that has been milled and polished to remove outer bran, germ and aleurone layers. Unfortunately, these layers contain the vast majority of the grain's nutrients and once removed the remaining white rice is almost entirely starch.

On ingredient lists, white rice is often listed simply as 'rice'. In general, unless it specifically says that the rice is brown or whole grain, it is usually safe to assume the rice being used is white.

Rice bran



High quality ingredient with abundant beneficial nutrients

During the production of white rice, the outer layers of the grain are removed as a by-product known as rice bran. Without the starchy white part of the rice, rice bran is incredibly nutritious, with abundant vitamins B1, B3 and B6, iron, manganese, selenium, magnesium and omega-3 oils as well as health-promoting natural antioxidants. Rice Bran is an excellent source of high-quality fibre which is important for over-all digestive health.

Rice germ



High quality ingredient with abundant beneficial nutrients

Before processing, rice grains are made up of four parts: the hard outer hull, the inner seed coat or pericarp, the starchy endosperm (which goes on to make white rice) and the embryo or germ. The germ is a fairly insubstantial part of the whole grain, comprising only about 2% of the whole, but it is this tiny bud that would grow into a new rice plant, using the endosperm as its food source.

Despite it's small size, the germ contains a very large proportion of the rice grain's vitamins and is very rich in several B vitamins, particularly thiamine.

Rice bran is made up of the pericarp and the germ.



Rye



High quality ingredient with abundant beneficial nutrients

Rye is a high quality grain with a nutritional profile fairly similar to that of barley. It is one of the three 'gluten-grains' (the others being wheat and barley) making it unsuitable for celiac dogs or many dogs with grain intolerance. As with all grains, rye is best in its

whole grain form as it retains much more of its nutrients.



Sorghum



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Sorghum is a grass and its grain is widely used in dog foods as an inexpensive alternative to traditional grains. Sorghum grain is high in starch and has a similar nutrient profile to maize. Like maize, it does not compare well against higher-quality grains like rice, oats and barley. Unlike maize though, sorghum is gluten free so it is often recommended for dogs that are prone to food intolerance.

Spelt



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Spelt is an ancient variety of wheat which has been cultivated by people since the bronze age. It provides a much broader range of nutrients than common wheat and is a good source of B vitamins, magnesium and fibre. Probably because it has been with us and our dogs for so long, many dogs and people that are intolerant to wheat seem to have no problems with spelt. Spelt does however contain wheat gluten and so should not be fed to coeliac dogs.

Spelt protein



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Spelt is an ancient variety of wheat which has been cultivated by people since the bronze age. It is about 17% protein and contains a broad range of amino acids. For this reason, isolated spelt protein is sometimes used to top up a food's protein content. Probably because it has been with us and our dogs for so long, many dogs and people that are intolerant to wheat protein seem to have no problems with spelt protein. Spelt protein does however include gluten and so should not be fed to coeliac dogs. As always, we recommend sticking with foods with a good source of meat proteins as, from our experience, vegetable and grain proteins can be harder for dogs to digest.



Wheat



Low grade, controversial or vague ingredient we usually recommend avoiding

Wheat is a common staple in many lower-grade dry dog foods as it is inexpensive and is ideal for forming biscuits and kibbles. It is, however, regularly linked with dietary intolerance in dogs which makes it a highly controversial ingredient.

In wheat intolerant dogs (also called celiacs), the gluten protein contained in the grain damages the lining of the small intestine and prevents it from absorbing parts of food that are important for staying healthy. Wheat intolerance can therefore lead to wide-ranging health problems most commonly affecting the skin, coat and digestive system.

Wheat feed



Low grade, controversial or vague ingredient we usually recommend avoiding

Although finding a strict definition is quite difficult, wheat feed appears to be the general term used for wheat that does not meet the standards necessary for human consumption. It is therefore only suitable for animal feed - usually for farm animals like horses, cows and pigs.

Since wheat is widely regarded as a problematic ingredient for dogs and since this is the dregs of the wheat industry, wheat feed is certainly well worth avoiding.

Wheat germ



High quality ingredient with abundant beneficial nutrients

Like maize germ and rice germ, wheat germ is the part of the grain that would grow into the new plant. Relative to the whole wheat grain, the germ is tiny making up only about 3% of the total weight, but it contains the vast majority of the grain's non-carb nutrients including a very high level of essential fatty acids and other healthy unsaturated oils along with a good dose of B vitamins, vitamin E, phosphorous, zinc and magnesium.

The carbohydrates found in wheat are more difficult for dogs to digest than those in many other grains making it more likely to lead to dietary intolerance. Wheat germ, on the other hand, does not include any of the starchy endosperm (the source of virtually all of the grain's carbohydrates and gluten) which makes it much less likely to lead to any adverse reaction.

Vegetables and vegetable products



Alfalfa / Lucerne

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems



Alfalfa (or lucerne as it is more commonly known in the UK) is part of the legume family of plants making it a cousin of clover, peas and beans and, depending on how much there is in a food, it can be good or bad.

In its whole form, alfalfa is widely regarded as a *superfood* for humans and, in small amounts, can be very beneficial for our dogs. It is a good, natural source of a whole host of nutrients including plenty of vitamins and minerals - most notably iron, magnesium, manganese, vitamin A, C, E and several B vitamins, as well as good quality fibre.

Since alfalfa also contains a fairly high proportion of protein, it can also be used in larger amounts as a protein supplement. Since dogs generally do a lot better on meat proteins than vegetable-derived forms, this is not something we recommend.

As a rule of thumb, if you see alfalfa listed in the top half of the ingredients list, chances are it is there as a cheap source of protein and is probably best avoided. In the bottom half, it is much more likely that it is just a small amount to provide valuable

micronutrients and is no cause for concern.

Barley grass

High quality ingredient with abundant beneficial nutrients

Barley grass is made from the leaves of barley plants and is becoming popular as a health supplement for both humans and dogs. It contains a high density of a wide range of nutrients and is sometimes suggested as a natural anti-oxidant and anti-inflammatory. Like oat grass and wheatgrass, barley grass does not contain the sometimes problematic proteins found in barley grains and so it can be given to cereal sensitive dogs.



Carrots

High quality ingredient with abundant beneficial nutrients

Carrots are excellent sources of vitamin A (which is used in the eye to maintain healthy vision), as well as numerous minerals, soluble fibre and abundant natural anti-oxidants. Once cooked, carrots are relatively easily digested by dogs.

Chicory

High quality ingredient with abundant beneficial nutrients

Chicory is a plant with bright blue flowers that grows wild across Europe and North America. Various forms are cultivated for their leaves or their buds but the form most often used in dog food is grown for its large tuberous roots.

Chicory root is rich in simple sugars and the polysaccharide inulin. Studies suggest that inulin can have a beneficial effect on the gut's 'good bacteria' which is making it increasingly popular as a prebiotic and as a source of soluble dietary fibre. Inulin is also fairly sweet making it a popular natural dog food flavour enhancer.

Inulin is often extracted from the chicory root and may therefore be listed as **chicory extract**, **chicory root extract** or occasionally as **chicory syrup**.

It has also been suggested that some of the oils naturally found in chicory can help to eliminate a dog's intestinal worms.



Derivatives of vegetable

origin

Low grade, controversial or vague ingredient we usually recommend avoiding

Defined as "derivatives resulting from the treatment of vegetable products, in particular cereals, vegetables, legumes and oil seed", 'derivatives of vegetable origin' can refer to an extremely wide range of ingredients, from some of the best to some of the worst.

Although 'derivatives of vegetable origin' does not necessarily refer to a bad ingredient, it could and there's no way of knowing. It's vagueness also allows the manufacturer to change formula from one batch to another depending on what vegetable products are available at the time.

Because it is impossible to know what 'derivatives of vegetable origin' refers to, it is usually best to assume the worst and treat it with caution. This is particularly important if your dog is prone to dietary intolerance as identifying and eliminating problem ingredients is impossible unless you know exactly what you are feeding.



Garlic

High quality ingredient with abundant beneficial nutrients

As many dog owners know, very large doses of garlic can be dangerous for dogs - a fact that has led to garlic being omitted from most dogs' diets for decades, but what most dog owners don't know is that small amounts of garlic can actually be extremely beneficial.

Basically, garlic helps to keep your dog free from all sorts of nasties: it is an effective anti-fungal and anti-bacterial, it helps to eliminate intestinal worms and it acts as a deterrent to skin parasites like ticks. For these reasons, garlic can be a real help for dogs with all sorts of ailments and infections caused by bacterial, fungal or parasitic infection. And its benefits don't stop there. Garlic has been linked with lowering blood sugar in diabetics, to aiding joint mobility and even to lowering blood cholesterol!

Some dog foods are now starting to include garlic in their recipes but if you would like to add your own, roughly one clove per 10kg of body weight per day is a good place to start. Toxic doses really have to be quite huge (as much as two whole bulbs per day for an extended period) so don't be too concerned about over feeding garlic.

Oat grass

High quality ingredient with abundant beneficial nutrients

Oat grass is less well known than barley grass or wheatgrass but nevertheless still offers many of the same beneficial nutrients. Oat grass is rich in a wide range of both vitamins and minerals. Like barley grass and wheatgrass, oat grass does not contain the sometimes problematic proteins found in oat grains making it suitable for cereal sensitive dogs.



Pea flour

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Pea flour is a powder milled from roasted peas. In small amounts, pea flour can be a good dog food ingredient as it is rich in iron and calcium and is also high in fibre.

Pea flour also contains a high proportion of protein and is sometimes used in higher

proportions as a protein supplement. Unfortunately, dogs cannot digest plant proteins as well as those found in meats so, as far as we're concerned, they should never take the place of good quality meat ingredients.

Pea protein

Low grade, controversial or vague ingredient we usually recommend avoiding

Pea protein is a by product of pea processing and is used as a protein source in some dog foods. Although it is far less expensive, we don't think pea protein should be used as an alternative to meat in dog foods since the quality and digestibility of vegetable proteins tend to fall a long way short of those found in meats.



Peas

High quality ingredient with abundant beneficial nutrients

Green peas contain health-promoting antioxidants as well as a wide spectrum of nutrients including vitamins C, K and B1, manganese, fibre and folate.

Potato protein

Low grade, controversial or vague ingredient we usually recommend avoiding

Potato protein is a byproduct of potato processing and is used as a protein source in some dog foods. Although it is far less expensive, we don't think potato protein should be used as an alternative to meat in dog foods since the quality and digestibility of vegetable proteins tend to fall a long way short of those found in meats.

Potato starch

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Potatoes are becoming more popular in dog foods as anti-grain sentiment continues to increase. Potato starch often forms the all important binding agent in grain-free dry foods, without which the biscuits simply wouldn't form.

Unfortunately, while whole potatoes contain a range of healthy nutrients, pure potato starch contains... well, pure starch and many nutritionists still have doubts over whether dogs can digest significant amounts of starches efficiently.



Potatoes



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Potatoes are becoming more popular in dog foods as anti-grain sentiment continues to increase. Potatoes are predominantly made up of starch, although some varieties like **russet potatoes** are especially starchy. There is some debate over the ability of dogs to digest starch efficiently but where it is digested it is broken down into its constituent simple sugars. For this reason, starchy foods like potatoes may not be the best choice for diabetic dogs. Potatoes do however also contain some dietary fibre as well as vitamin C, vitamin B6 and potassium.



Sugar Beet



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Beet pulp (the fibrous material from sugar beets which is left-over after sugar production) is used in dog food as a dietary fibre supplement. The sugar is almost completely removed leaving behind an excellent source of both soluble and insoluble fibre. Fibre helps to promote general digestive health in dogs. Nevertheless, beet pulp continues to be a topic of debate with many critics arguing that it is little more than a filler and an unnatural food for dogs. With little solid evidence either way, the jury is still out on beet pulp.



Sweet Potatoes



High quality ingredient with abundant beneficial nutrients

Not a true potato at all, the sweet potato is nutritionally quite different from common potatoes. It contains much more fibre, it is an fantastic source of vitamin A, and is also rich in vitamins C and B6 and several minerals.

It is also much higher in sugar than common potatoes but despite this, recent studies have shown that sweet potatoes might actually be beneficial for diabetics since they can help to stabilize blood sugar levels and lower insulin resistance.

For both humans and dogs, sweet potatoes are generally regarded as a very high quality carbohydrate source.



Tapioca



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Tapioca is a starch extracted from the root of the cassava plant. It is often used as a carbohydrate source in grain free dog foods but due to its general lack of all nutrients other than starch, it is generally regarded as a low grade filler for dogs.



Tomatoes



High quality ingredient with abundant beneficial nutrients

Tomatoes are an excellent natural source of health-promoting vitamins A, C and K as well as high quality dietary fibre. They also contain plenty of minerals and other micro-nutrients including molybdenum, potassium, chromium and manganese.

Vegetable fibre



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

'Vegetable fibre' can refer to any fibre from a vegetable but is commonly used as a more consumer friendly term for sugar beet pulp. Fibre is a necessary part of a dog's diet and helps to promote general digestive health.

Vegetable oil



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Vegetable oil is a general term used for any oil of plant origin. In general it is used to refer to lower-quality oils like rapeseed, palm or corn oil. It is added to some dog foods as an alternative to more expensive (and more nutritious) fats and oils like animal fat, olive oil or sunflower oil. As always, it is best to look for a food where each ingredient is accurately identified.



Vegetable protein extracts



Low grade, controversial or vague ingredient we usually recommend avoiding

Vegetable protein extract (or isolate) is another term that doesn't shed any real light on what is in the food. It gives no indication of which vegetables are used, nor does it say how the protein is extracted, although the most common methods involve chemical reactions that are far from what most people would regard as 'natural'.

For dogs, vegetable proteins are nutritionally inferior to those found in meat. Common sources of vegetable protein include soya, maize and wheat which have all been linked to dietary intolerance and, in our opinion, should be avoided with sensitive dogs.

Some nutritionists have also speculated that vegetable protein extracts might also be a pseudonym for MSG (monosodium glutamate), the controversial food additive that some believe to be mildly addictive.



Vegetables



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

This general term can be used for all vegetables and legumes. Although most vegetables are excellent additions to dog foods, this term may also be used for less appealing ingredients like sugar beet, potatoes or even soya beans! Broad terms like this also allow the recipe to be altered from batch to batch so it is always best to look for foods that identify each ingredient being used.

Wheatgrass



High quality ingredient with abundant beneficial nutrients

Wheatgrass is packed with beneficial nutrients from vitamins and minerals to amino acids and enzymes. It is a common nutritional supplement for people and has been linked with various curative properties. Although wheatgrass is made from the leaves and stems of the wheat plant, it contains no wheat gluten and so is suitable for wheat sensitive dogs.



Yucca Extract



High quality ingredient with abundant beneficial nutrients

Yucca is a plant that grows mostly in desert areas of the United States and Mexico. Extract from the yucca plant is said to naturally help the body remove toxins and facilitate digestion. Yucca extract may also reduce body odour as well as the smell of the urine/faeces.

Fruits, beans & seeds and their products

Borage oil



High quality ingredient with abundant beneficial nutrients

Like evening primrose oil, borage oil is an excellent source of gamma-linolenic acid (GLA) which has an anti-inflammatory effect and is often recommended in the natural treatment of arthritis as well as certain skin conditions.



Cranberries



High quality ingredient with abundant beneficial nutrients

Cranberries are rich in vitamin C and health-promoting antioxidants. They have also been widely recognised as helping to prevent urinary tract infections (UTIs) by preventing the harmful bacteria and fungi from latching on to the wall of the urinary tract.



Evening Primrose Oil



High quality ingredient with abundant beneficial nutrients

Evening primrose is a plant that is native to North America but now grows wild all over the world. Its name comes from the fact that its yellow flowers tend to bloom in the evening.

Oil from the seeds of the evening primrose is used as a supplement for humans and pets due to its high concentration of the essential oil gamma-linolenic acid (GLA). Essential oils like GLA are needed by the body to remain healthy but since they cannot be made by the body, they have to be obtained from the diet.

Evening primrose oil is most commonly recommended as a natural anti-inflammatory for dogs with skin problems and joint issues and is also sometimes suggested for digestive upsets like colitis and irritable bowel syndrome (IBS).

Grape Seed Extract



High quality ingredient with abundant beneficial nutrients

Grape seed extract is a strong antioxidant that helps to support the immune system. It can also have an anti-inflammatory effect and so is often recommended for dogs with allergic skin conditions.

Unlike whole grapes, grape seed extract is not toxic to dogs.



Linseed



High quality ingredient with abundant beneficial nutrients

Linseed is also known as flax. The seeds contain high levels of good quality dietary fiber, lignans (natural antioxidants), an abundance of micronutrients and omega-3 fatty acids (which have wide ranging health benefits).

Lupini beans



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Lupini beans, or lupin, are a less allergenic alternative to soya beans. They are added to some dog foods as an inexpensive protein source but, like all vegetable derived proteins, lupin is a poor substitute for good quality meat.



Olive oil

High quality ingredient with abundant beneficial nutrients

Olive oil is a high quality food supplement with proven benefits to the coat and coat and to the heart. It contains numerous antioxidants and is a good source of vitamin E.

Psyllium

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

The husks of psyllium seeds are sometimes added to dog foods as a source of soluble fibre which is important for maintaining digestive health.

Quinoa

High quality ingredient with abundant beneficial nutrients

Quinoa is a pseudo-grain. Unlike true grains, it is not part of the grass family but is made from the seeds of a spinach like plant. It is rich in protein, but like all vegetable proteins, they are not as easy for dogs to digest as those found in meats. Quinoa contains a balanced set of essential amino acids making it a 'complete protein'. It also contains magnesium, fibre, manganese and copper.

Quinoa is becoming increasingly popular in sensitive diets since most dogs have never eaten it which means they have had no opportunity to develop any kind of reaction. The rule is, you can't be allergic to something you have never been exposed to.

Rapeseed oil

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Rapeseed oil, or canola as it is sometimes called, is a controversial ingredient in dog foods. Many manufacturers claim that it is a healthy option because it is mono-unsaturated and because it contains omega-3 oils, but critics argue that its relatively high content of the known toxin, erucic acid may be a real cause for concern. Unfortunately, there is as yet little solid evidence to confirm or deny such claims.



Soya

Low grade, controversial or vague ingredient we usually recommend avoiding

Soya beans (soya, soybean protein, soya meal) are high in protein and are often added to foods as a low-cost meat substitute. Unfortunately, the proteins in soya are much less bio-available to dogs than normal meat proteins meaning that far less can be digested and used. Soya has also been consistently linked by veterinarians to food intolerance and allergies and is therefore best avoided if your dog is very sensitive.

Soybean oil

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Soybean oil, like all vegetable oils, is cholesterol free but as it contains more saturated fat than most other vegetable oils it is generally regarded as a lower-grade option. Soya oil is free from soya proteins and therefore does not upset dogs with soya intolerance.



Sunflower oil

High quality ingredient with abundant beneficial nutrients

Sunflower oil is pressed from sunflower seeds and is generally regarded as one of the healthier oils in dog foods. It is low in saturated fat and is rich in the natural anti-oxidant vitamin E.

Herbs

Devil's Claw

High quality ingredient with abundant beneficial nutrients

Harpagophytum, or devil's claw as it is more commonly known, is a plant that grows in the deserts of southern Africa. It has been used in the treatment of arthritis for centuries and clinical trials have shown that it is as effective as many arthritis medicines in reducing joint pain and easing mobility. It is, however, rarely used in dog foods due to its relatively high cost.



Green Tea

High quality ingredient with abundant beneficial nutrients

Green tea and its extract contains powerful health-promoting antioxidants called catechins which have wide-ranging benefits but are particularly good for the cardiovascular system.



Herbs

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

The general terms 'herbs', 'culinary herbs', 'herbal mix' and so on can refer to any plants with leaves, seeds, or flowers used for their flavour, aroma, nutritional constituents or medicinal properties. This obviously includes a great number of ingredients with very different attributes and qualities. General terms like these are often used by dog food manufacturers to disguise the true contents of the food. This may be because the mixture changes from batch to batch or because an accurate list would put customers off or occasionally to prevent competitors from getting hold of the recipe.



Rosemary



High quality ingredient with abundant beneficial nutrients

Rosemary is sometimes used in dog foods in its whole form which has a number of uses in herbal medicine, but more often its oil is used as a natural preservative. Rosemary oil (or as it is also known, rosemary extract) is a powerful antioxidant which is able to slow down the oxidation process that turns fats rancid. As an antioxidant, rosemary oil may also help to reduce the risk of cancer.

Rosemary is widely regarded by herbalists as a natural stimulant. Although this is fine for most dogs, it is often suggested that it should not be given to epileptic dogs as it may increase the incidence or severity of seizures. Some nutritionists have also proposed that, because rosemary can effect uterine function and menstrual flow, it may be dangerous during pregnancy. Although there is some anecdotal evidence to support these claims, there haven't yet been any scientific studies on either issue in dogs so I'm afraid the jury remains out for now. In the meantime, I generally recommend avoiding rosemary if your dog is pregnant or prone to seizures, just to be extra safe, although it must be said that I haven't personally encountered any dogs that have definitely reacted badly to the herb.

Supplements

Calcium Carbonate



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Calcium carbonate is widely used in dog foods as a calcium supplement and less frequently as an acidity regulator, colouring, anti-caking agent or stabiliser. It can be derived from a number of sources including bone meal, oyster shells, limestone, and dolomite (clay). Calcium carbonate can also help to ease symptoms of irritable bowel syndrome (IBS) but excessive calcium can have serious side effects so adding extra to a complete food is generally not recommended.

Calcium phosphate



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Calcium phosphate refers to a family of minerals that are usually derived from cow milk and are added to dog foods as a source of calcium and phosphorous. Calcium phosphate is the primary constituent of bone and tooth enamel.

Chondroitin



High quality ingredient with abundant beneficial nutrients

Chondroitin sulphate is a naturally occurring molecule which is well known for easing the symptoms of osteoarthritis and other joint conditions. It acts as a natural anti-inflammatory and also blocks the enzymes that attack the joints during osteoarthritis.

Chondroitin is a component of animal cartilage and meat and is therefore present in small amounts in virtually all dog foods. Many dog foods, especially those designed for older dogs or large breed dogs, have

added chondroitin to provide additional joint support. Supplemented chondroitin sulphate is manufactured from animal sources, such as cow cartilage.

Copper sulphate  Low grade, controversial or vague ingredient we usually recommend avoiding

Copper sulphate (all forms including pentahydrate) is a controversial ingredient in dog food. It widely used as a copper supplement in pet foods and is AAFCO approved but in the EU, pure copper sulphate is classified as 'harmful' and 'dangerous to the environment' as well as being an 'irritant'.

Dogs need copper but they cannot make it themselves so it must be taken in through the diet. Although all dog foods naturally contain a certain amount of copper from the raw ingredients, additional copper is routinely added as part of the multi-mineral supplement found in almost all dog foods. For this reason it is often listed as 'minerals' and may not necessarily feature on the ingredients list. The levels of copper sulphate used in dog foods are far below those generally regarded as dangerous and *should* therefore not cause any problems. Of course, copper sulphate also has a lot of critics including a number of pet food manufacturers that choose to avoid copper sulphate by using alternative copper supplements like copper gluconate or copper carbonate. Chelated copper (often listed as copper amino acid complex or copper proteinate) is widely regarded as the safest and most absorbable copper supplement.

D,L-methionine  Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Methionine is an amino acid - a building block of protein. It is naturally found in a wide range of foods but extra is sometimes added to dog foods as it reduces the pH of the urine which helps prevent damage to lawns.

FOS  High quality ingredient with abundant beneficial nutrients

Fructo-oligo-saccharide (FOS) is a nutritional supplement which is becoming more popular in dog foods due to its beneficial pre-biotic effect. It encourages the growth of 'friendly bacteria' in the large intestine which promotes over-all gastro-intestinal (GI) health. FOS is extracted from fruits and vegetables such as chicory and some grains like barley and wheat.



Glucosamine  High quality ingredient with abundant beneficial nutrients

Glucosamine sulphate (often just called glucosamine) is widely recommended for sufferers of joint problems (especially osteoarthritis) and is one of the most common non-vitamin, non-mineral, dietary supplements for both humans and dogs.

Although it's not clear exactly how glucosamine works, or even if it works, most

scientists believe that it helps to prevent the break down of the joint cartilage. Unfortunately, in clinical trials, results have been mixed and glucosamine's effectiveness is still in question.

Glucosamine can be found naturally in animal bones and bone marrow and so is present in small amounts in all meat-based dog foods. Nevertheless, many dog foods, especially those designed for older dogs or large breed dogs, have added glucosamine to provide additional joint support. Commercially manufactured glucosamine usually comes from the hydrolysis of the shells of crustaceans (shrimps, crabs etc) where it is particularly abundant.

L-Carnitine  Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Carnitine (L-Carnitine) is an amino acid (one of the building blocks of proteins) which as a supplement is widely recommended for dogs with heart disorders and dogs on weight loss programs. It is naturally produced by animal cells and is therefore found in small amounts in virtually all dog foods. L-carnitine has a central role in the metabolism of fats and so extra carnitine is often added to weight-loss diets as it helps to break down body fat while maintaining lean muscle mass.

Lysine  Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

L-Lysine is a necessary building block for all protein in the dog's body. It is an essential amino acid which means that it cannot be made by the dog and so must be eaten. Lysine is present in a wide range of foods, particularly meats, and so is present in all dog foods. Nevertheless, some dog food manufacturers top up the lysine levels with a nutritional supplement.

MOS  High quality ingredient with abundant beneficial nutrients

Mannan-oligo-saccharide (MOS) is a nutritional supplement which is becoming more popular in dog foods due to its beneficial pre-biotic effect. It encourages the growth of 'friendly bacteria' in the large intestine which promotes over-all gastro-intestinal (GI) health. MOS is derived from the cell wall of yeasts.

MSM  High quality ingredient with abundant beneficial nutrients

Methyl-sulphonyl-methane (MSM) is a natural derivative of pine bark which has been recommended for the treatment and prevention of osteoarthritis and other joint problems due to its anti-inflammatory effect. Studies on the medicinal effects of MSM have, however, been inconclusive.

Nucleotides

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Nucleotides are the building blocks of DNA and RNA and are essential for all kinds of life. They are found in all foods and are readily synthesised within the dogs body. Some dog food producers do however add additional nucleotides to there foods with the claim that they are beneficial to digestion and help recovery after an injury.

Potassium Chloride



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Potassium chloride is a naturally occurring mineral that is sometimes added to dog foods as a potassium supplement.

Sodium selenate & sodium selenite



Low grade, controversial or vague ingredient we usually recommend avoiding

Selenium is essential for our dogs' good health. Its deficiency can be extremely damaging so complete foods must contain at least some selenium. It can come as a natural part of the ingredients (for example, sunflower seeds, many whole grains and most meats contain some selenium) but much more commonly, it is added as a supplement.

Selenium supplements come in many forms but by far the most commonly used are sodium selenate and sodium selenite, largely due to their low production costs. Unfortunately, both are classified by the European Union as toxic chemicals and in high enough concentrations, both can cause severe lung, kidney and liver damage and can even be deadly.

Of course, the dosages in pet foods are supposedly far lower than should cause problems but with plenty of less hazardous selenium supplements out there (selenium yeast, for example) we don't think these ingredients are worth the risk.

Please note that sodium selenate and sodium selenite are both mineral supplements and can therefore be listed under the general term 'minerals' or may not be listed at all. If in doubt, contact your manufacturer for clarification.

Taurine

High quality ingredient with abundant beneficial nutrients

Taurine is an amino acid (one of the building blocks of proteins) that can be found naturally in all sorts of foods and especially in seafood and meat. Even when it is not found in abundance in a dog's diet, the dog can produce its own making it a non-essential nutrient for most dogs.

A number of studies have, however, shown that taurine supplementation can help in the treatment of heart problems. For this reason some dog food manufacturers have started to add extra taurine to their foods as a

health supplement.

Threonine

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Threonine is a necessary building block for many of the protein in the dog's body. It is an essential amino acid which means that it cannot be made by the dog and so must be eaten. Threonine is present in a wide range of foods, particularly meats, and so is present in all dog foods. Nevertheless, some dog food manufacturers top up the threonine levels with a nutritional supplement.

Vitamins and minerals



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Virtually all dog foods add vitamin and mineral supplements to ensure that everything your dog needs is present. They come together in a multi-vitamin/mineral complex in the form of a white powder that is nutritionally exactly the same as the multi vitamins and mineral supplements you would find in your local pharmacy. Some of the supplements' constituents are, however, artificially produced which has criticism from some natural feeding advocates.

Additives



Artificial colourings

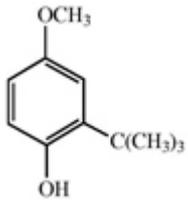


Low grade, controversial or vague ingredient we usually recommend avoiding

As any parent will testify, certain foods can have a dramatic effect on a child's behaviour. As early as the 1950's, artificial colourings were being linked with behavioural issues amongst other health problems in people and several recent scientific trials have shown a clear link between food additives and ADD (attention deficit disorder) and hyperactivity in children. Unfortunately, the effects of these ingredients seem to be exactly the same for our dogs with reduced attention spans and hyperactivity regularly reported.

Common artificial colourings found in dog foods include sunset yellow, tartrazine, ponceau 4r, patent blue V and titanium dioxide, although they may also be listed by their E numbers or simply as 'colourings'. They are often derived from petroleum products and often persist in the environment for many years or even decades.

It is also worth mentioning that most studies indicate that dogs are largely colourblind so the only role of the colourings is to appeal to the owner and not to the dog.



Artificial preservatives and antioxidants

Low grade, controversial or vague ingredient we usually recommend avoiding

A preservative is any ingredient added to a food to slow down spoilage. Antioxidants are an important branch of preservatives as they inhibit the oxidation process which turns fats rancid. Both preservatives and antioxidants can come from natural sources (such as vitamin E and rosemary oil) or be artificially created. Here we will talk only about artificial preservatives and antioxidants.

Although artificial preservatives certainly work at slowing down decomposition, there are wide ranging concerns over their effects on health. **Ethoxyquin** (E324), for example, has been linked to the development of allergic reactions, skin disease, behaviour problems and far worse conditions. Likewise, the antioxidants **BHA** (E320), **BHT** (E321) and Propyl Gallate (E310) have long been suspected of contributing to cancer. Another common preservative, **potassium sorbate** (E202), is listed as a skin, eye and respiratory irritant.

Needless to say, while there is any uncertainty over their side effects, these ingredients are certainly best avoided.

If a food contains artificial preservatives or antioxidants it must be stated somewhere on the label. They may be listed in a number of ways and are not always easy to spot: 'preservatives'; 'EU permitted additives'; 'BHA and BHT'; and 'E320 and E321' are all ways of listing the same preservatives. They may also not appear on the ingredients list at all but be found at the end of the typical analysis. If you want to be completely sure, look for foods that clearly state 'no artificial preservatives'.



EC permitted additives

Low grade, controversial or vague ingredient we usually recommend avoiding

The EU has listed over 4000 artificial additives which may be added to foods and 'EU permitted additives' covers them all. Although many are harmless or even beneficial, it also includes chemical flavourings and colourings (many of which have been linked to behavioural problems and other health concerns) and artificial preservatives like BHA and BHT which have been identified as possible causes of cancer. For many nutritionists, 'EU permitted additives' is the number one ingredient to avoid.

Natural colourings

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Despite the fact that numerous studies have indicated that dogs are largely colourblind, many manufacturers feel the need to add colours to their foods. Although many pet food manufacturers still use artificial colours more and more are turning to natural alternatives as the anti-additives movement gains ground.

Natural colours are much less vibrant than their synthetic counterparts and are much more sensitive to environmental conditions like heat, light and pH. Common natural colorants include beetroot, caramel,

paprika, grape and turmeric and although none are at all harmful to dogs, they also aren't at all beneficial.

Natural preservatives and antioxidants



High quality ingredient with abundant beneficial nutrients

A preservative is any ingredient added to a food to slow down spoilage. Antioxidants are an important branch of preservatives as they inhibit the oxidation process which turns fats rancid. Virtually all dry foods contain some form of preservatives. Some continue to use highly controversial artificial preservatives but increasingly, manufacturers are turning to natural alternatives.

The most common natural preservatives are vitamin E (often labelled as mixed tocopherols), vitamin C (ascorbic acid) and rosemary oil, all of which are able to dramatically slow down the rate at which fats go rancid. Of course, natural preservatives will never be as efficient as their artificial counterparts but most naturally preserved dry foods still maintain a shelf life of 12 months.

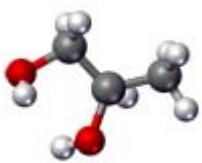
Phosphoric Acid



Low grade, controversial or vague ingredient we usually recommend avoiding

Phosphoric acid (E338) is a clear, colourless liquid that is added to foods primarily as an acidifier but is also used effectively as a flavouring, emulsifier and to prevent discoloration. It is best known as an additive in cola drinks.

Studies have linked phosphoric acid to reduced bone density in humans making it a fairly controversial ingredient for both people and dogs. Although more work is necessary to confirm the link, we would recommend playing it safe in the meantime and steering clear of foods with high levels of phosphoric acid.



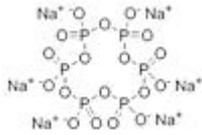
Propylene glycol



Low grade, controversial or vague ingredient we usually recommend avoiding

Propylene glycol is a synthetic compound that absorbs water and can therefore be used to keep semi-moist dog foods and treats semi-moist. It also has anti-bacterial and anti-fungal properties making it suitable as a preservative.

Although propylene glycol has been approved as safe for both humans and dogs (but not cats due to its links to the feline condition Heinz body anaemia), it remains a source of controversy. This is partly due to regular links to asthma and allergic reactions and partly because propylene glycol's other commercial uses (including car antifreeze and in de-icing aircraft) don't inspire too much confidence in dog owners.



Sodium hexametaphosphate



Low grade, controversial or vague ingredient we usually recommend avoiding

Sodium hexametaphosphate (also known as sodium HMP or E452i) is added to some dog foods because of its effect of softening and reducing tooth tartar. Although it is relatively effective at this, sodium HMP is classified as an irritant if eaten and has been criticised by natural feeding advocates.

Worryingly, the cleaning product 'Calgon' used to be made from pure sodium HMP before its formula had to be changed due to environmental concerns!

Sodium Tripolyphosphate (STPP)



Low grade, controversial or vague ingredient we usually recommend avoiding

Sodium Tripolyphosphate (also called STPP or E451) is added to dog foods as a preservative and to help moist foods to retain moisture so that they appear fresher for longer.

Although STPP is generally recognised as safe, it has been listed by the US National Institute for Occupational Safety and Health as a possible neurotoxin and is widely recognised as a mild skin irritant. We therefore recommend steering clear of foods containing STPP, especially if your dog is prone to skin problems.

Tocopherols



High quality ingredient with abundant beneficial nutrients

Tocopherols (part of the vitamin E family of compounds) are powerful antioxidants and are the most commonly used natural preservative in dog food. As antioxidants, tocopherols are able to slow down the spoilage of food by inhibiting the oxidation that turns fats rancid. Their use is extremely widespread in the UK as it provides a convenient, healthy alternative to potentially harmful chemical preservatives.

Other ingredients



Brewer's Yeast



High quality ingredient with abundant beneficial nutrients

Brewer's yeast is one of the best sources of natural B vitamins including B1 (thiamine), B2 (riboflavin), B3 (niacin), B5 (pantothenic acid), B6 (pyridoxine), B7 (biotin) and B9 (folic acid). These vitamins have a wide range of functions in dogs including aiding digestion, supporting of the nervous system and keeping the skin, hair, eyes, mouth, and liver healthy.

Yeast is also a good source of protein. It is known as a 'complete protein' since it contains all nine of the essential amino acids needed by dogs.

Cellulose



Low grade, controversial or vague ingredient we usually recommend avoiding

Cellulose is the scientific term for dietary fibre. It can come from the cell walls of all plants and is almost entirely indigestible to dogs which is good as its undigested form provides a wide range of benefits.

Despite the benefits cellulose can have, it can be a controversial ingredient. As I mentioned above, cellulose is present in all plant cells and is abundant in many vegetables, fruits and grains. Some vegetables like sugar beet contain a very high proportion of fibre and are used as good quality, whole-food fibre supplements. Pure cellulose, on the other hand, is a white, odourless powder most often made from paper or wood pulp! (it really is!).

Cellulose is found in many light diets since it helps to bulk out the diet whilst providing almost zero calories.

As fibre supplements go, cellulose powder is not the best and some nutritionists recommend avoiding it altogether.

Charcoal



High quality ingredient with abundant beneficial nutrients

Charcoal absorbs excess gas and is often recommended for relieving wind and bloating in dogs. Unlike charcoal for barbeques, the edible form must be 'activated' with high temperatures and steam before it can be eaten. Activated charcoal can come from a number of sources including wood, coconut shells, peat and bamboo.

Glycerin



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Glycerin (glycerol or E422) is found throughout nature as an essential part of tri-glyceride fats. It is not, however, found on its own which has led some more ardent natural feeding advocates to label isolated glycerin as 'unnatural'. Pure glycerin is non-toxic and is generally regarded as safe. It is generally produced as a byproduct of soap manufacture and it has found a wide range of applications in the food and cosmetic industries. It is regularly found in pet foods (especially treats) as a humectant - that is it helps keep foods moist without allowing the moisture to speed up the food's decomposition. It also has a sweet taste which makes any foods it is added to more appealing to dogs.



Gravy / broth / sauce



Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

The terms **gravy**, **broth** and **sauce** can be used for a wide range of ingredients in pet foods.

In wet foods the terms generally refer to the water in which some or all of the ingredients have been cooked. Occasionally extra ingredients like salt can be added to the liquid without being listed on the ingredients list.

In dry foods the terms often refer to a natural flavouring that is sprayed on to dry foods at the end of manufacturing. In this case it is usually made up of a combination of meat and oils.

Because there don't seem to be any strict definitions for gravy, sauce or broth in pet foods, the terms are open to abuse and some nutritionists have suggested that they may be used for less attractive ingredients like digest. If you are at all unsure about the ingredients of your dog food, it is always best to contact the manufacturer directly.

Kieselgur

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

Kieselgur (sometimes spelt kieselguhr) is the German word for a form of soft, highly porous, sedimentary rock called diatomite. In dog food it performs a similar function to charcoal in absorbing toxins in the gut and reducing the incidence of wind. It is also mildly abrasive so it may also help to remove tooth plaque.

Natural flavourings

Medium quality ingredient - nutritionally adequate and unlikely to cause any problems

The term **natural flavouring** can be used for any extract from any food whose significant function is flavouring rather than nutritional. This is clearly very broad and could refer to anything from herbs or meat meals to more questionable ingredients like digest..

In dry pet foods, natural flavourings sometimes refers to a combination of fresh meat and oils which is sprayed on to the food in the final stages of manufacturing.

If you are at all unsure about the ingredients of your dog food, it is always best to contact the manufacturer directly.



Oils and Fats

Low grade, controversial or vague ingredient we usually recommend avoiding

In nutritional terms, oils and fats are two words for the same thing. The broad term 'oils and fats' encompass all oils and fats from any plant or animal source.

Like all animals, dogs need a certain amount of fat from their diet to survive. Fat is found naturally in many types of foods but because dogs find fats so irresistible, extra is often added to dog foods. For fussy dogs it is often a good idea to look for foods with higher fat levels but be careful as too much fat can lead to the same kind of problems as in humans.

Umbrella terms like 'oils and fats' can make choosing the right food for your dog difficult as it gives very little indication of what is actually in the food. It could, for example, refer to beneficial oils or high quality animal fats, or it could be used for low grade, potentially harmful or highly processed oils.

Because it is impossible to know what oils or fats are included, we generally recommend assuming the worst and avoiding foods with this ingredient. This is particularly important if your dog is prone to dietary intolerance as identifying and eliminating problem ingredients is impossible unless you know exactly what you are feeding.



Salt

Low grade, controversial or vague ingredient we usually recommend avoiding

Salt, or sodium chloride as it is often listed, is commonly added to pet foods as a flavour enhancer.

While salt is a necessary mineral, it is generally present in sufficient quantities in the raw ingredients of pet foods. However, since dogs, like humans, enjoy the taste of salt, extra is regularly added to dog foods to make them more appealing. Unfortunately, excessive salt has the same health implications for dogs as for us and should be avoided. This is particularly important if your dog has a history of heart problems or high blood pressure.

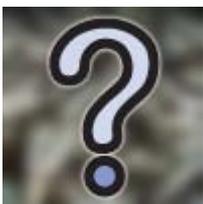


Seaweed

High quality ingredient with abundant beneficial nutrients

Seaweed is a popular nutritional supplement in natural dog foods. Although there are a wide variety of edible seaweeds, kelp is the most common one used in dog food.

Seaweed is a good source of a huge range of minerals including calcium, iron, magnesium and many more. They are also rich in the rare mineral iodine which is necessary for healthy thyroid function (please note that too much iodine can be harmful so large amounts of seaweed should be avoided).



Special ingredients

Low grade, controversial or vague ingredient we usually recommend avoiding

Legally, UK dog food producers are obliged to state roughly what is in their products. However, if divulging some of the ingredients is likely to result in a competitive disadvantage - for example, if it gives away a companies 'secret formula', this obligation can be waived.

The problem for dog owners is that terms like 'special ingredients' could refer to literally anything, which makes choosing the right food very difficult. As always, where

ingredients are unclear, we would recommend assuming the worst and looking elsewhere.



Sugars

Low grade, controversial or vague ingredient we usually recommend avoiding

Sugars are added to dog foods because dogs, like humans, like them. They can come be listed in a number of ways (**sugar, caramel, syrup, sucrose** etc.) and can come from a wide range of sources (corn/maize, wheat, sugar cane, sugar beet etc.). Unfortunately, too much sugar can have the same effects in dogs as it does in people. High sugar diets have been linked to hyperactivity, hypoglycemia, obesity and tooth decay amongst other conditions and should therefore be avoided.