

HOT TOPIC

Cooking processes & commercial pet foods



In focus

Various cooking processes are used in preparing commercial pet foods to ensure delivery of highly nutritious, palatable products. The methods used are determined by the final form (e.g., a dry or wet food), desired texture and visual properties, and packaging. Common forms of pet food include dry extruded kibbles and canned wet food.

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takeback
the conversation.

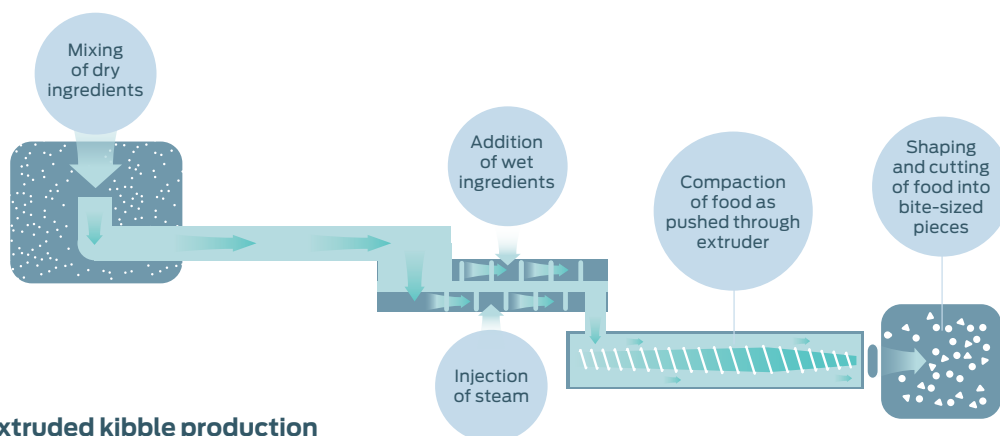
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How are extruded kibbles developed?

Depending on the recipes, dry ingredients are typically ground and mixed before adding 'wet' ingredients (meats, liquids, and fats). The mixture then enters a machine known as an extruder, where it undergoes a relatively fast cooking process using steam, pressure, and heat. The mixture is compacted under pressure as it moves through the extruder. Exiting the extruder, it passes through a die, which creates the food's unique shape(s), and the food is then cut into kibble-sized pieces. Once reaching air pressure, the kibble expands, is dried, coated, cooled, and packaged. Typically dry extruded kibbles contain less than 12% moisture which helps preserve the food.

EXTRUSION INFLUENCES THE KIBBLE'S PHYSICAL CHARACTERISTICS:

- Size
- Shape
- Color
- Uniformity
- Texture



Typical steps in extruded kibble production

How are wet pet foods created?

The ingredients are ground, mixed and pre-cooked before adding the gravy or jelly, where part of the recipe. The mixture is then packaged in the final container, e.g., can, pouch, or tray, which is closed with an airtight seal before entering a machine known as a retorter. Commercial retorters are essentially oversized pressure cookers, and help sterilize the food, preventing it from spoiling before opening. In wet pet food manufacturing, the final product can be made into a variety of forms and textures from simple loafs or paté, chunks with or without gravy or jelly to more ‘culinary inspired’ products.



How does the cooking process affect the nutrients in pet foods?

Purina food scientists and other experts in manufacturing processes (e.g., expert engineers in extrusion technology) provide critical input when formulating recipes. They understand how the cooking process affects the ingredients and nutrients in a specific recipe, and this is addressed during development to ensure the finished product contains all the nutrients in the optimal quantities and balance.

When properly controlled, the cooking process can actually enhance the nutritional value of the food, e.g., improve protein and starch digestibility.¹ While some nutrients, e.g., water soluble vitamins, may be partly broken down during cooking, this is highly regulated and compensated for in the original recipe. All Purina pet food recipes are formulated so the nutrient levels declared on the label are present in the food through the best before date.

Additional benefits from the cooking processes used in manufacturing of pet food

- Carefully controlled cooking can **enhance both flavor and aroma** by inducing a Maillard reaction (similar to cooking human foods when ‘browned’ food acquires its distinctive flavor, e.g., seared steaks).² Different flavors and aromas are obtained from the ingredient reactions with key amino acids.
- The cooking processes also help **ensure safety and quality** of the food. In addition:
 - All ingredients in each formula meet Purina’s rigorous safety and quality standards and meet or exceed nutrition standards for dogs and cats.
 - From arrival at the factory, throughout manufacturing until the food leaves the factory, multiple safety and quality checks are performed on each batch of food.

>65,000 quality checks are conducted per day in Purina factories worldwide

- Packaging scientists design packaging to ensure food is kept fresh and maintains guaranteed levels of nutrients for the food’s shelf life (typically 12-18 months for dry foods; canned foods, 24 months from the date of manufacture).

Purina pet foods meet or exceed the highest industry standards for pet food manufacturing. All foods are formulated so the finished product provides all essential nutrients in the optimal amounts and balance to meet a pet’s special needs or life stage requirements.

References

1. Carmody, R. N., & Wrangham, R. W. (2009). The energetic significance of cooking. *Evolutionary Anthropology*, 57(4), 379-391.

2. Cerny, C. (2007). The aroma side of the Maillard reaction. *Annals of the New York Academy of Sciences*, 1126, 66-71. doi: 10.1196/annals.1433.011