



Opti-Cook - Loyall Pet Food Cooking Process

Opti-Cook® – What does it mean?

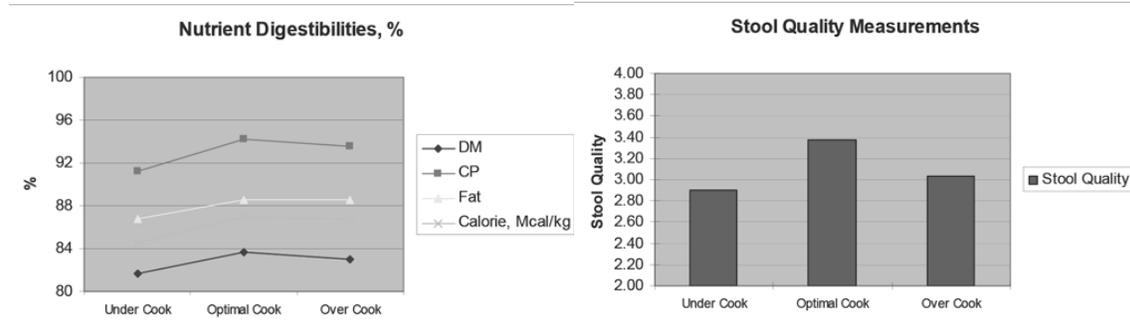
The Opti-Cook® process is a patent pending process to properly manufacture and monitor the “cook” of pet foods. To understand the process, we first have to know what is meant by the term “cook.” Cooking pet foods is something that was started many years ago by accident by a company that was tossing cooked corn out behind a plant. They noticed that dogs started to come and eat the cooked corn product and decided there must be something to this, thus cooking pet foods began. Pet foods are cooked in different ways, but by far the most common is the extrusion process. In this process, the food is heated by steam, water, and friction to cook the product to the desired level. This process breaks down complex starch to gelatinized starch that makes it much easier for digestion. This is important for dogs because they have less pancreatic function (thus the enzymes that break down starch) as compared to some other species, so improving opportunity for enzymatic attack through cooking of the starch is key for proper digestion. If a product is under cooked, starch may go through the small intestine and not be completely absorbed leading to starch leaking to the hindgut. Once in the hindgut, the residual starch is rapidly fermented by the normal microbes of the gut causing digestive upset and possible loose stools. If a product is over cooked, resistant starch can be formed (resistant to normal starch enzymes) again resulting in starch that can pass into the hindgut and be rapidly fermented.

It is important to note that different formulas may need to be cooked differently depending on the ingredient makeup to reach its optimal cook. The keys are the amount and type of starch in the formulas. With this in mind, it goes without saying that the way we cook our Senior formula is much different than the way we cook our Pro formula. A great example of how this technology can work is in the debate about corn in pet foods. Corn itself is not a bad ingredient for dogs, but under cooked corn can be. Corn has gotten a bad perception in pet foods because corn, in a lot of cases, was not cooked properly and dogs had digestive upsets. The Opti-Cook® process aims to avoid this problem by cooking the starch in the corn to the proper, or “optimal”, point.

Monitoring cook is not something new in the industry. For example, measuring density of the product has some correlation to cook, but to be most accurate you need to measure starch

gelatinization. All companies can measure this, but the process takes a lot time and money. This is where we have taken it to the next level by developing technology that allows us to monitor cook immediately, accurately, and efficiently. Even when others figure out our method of measuring, we will always have three advantages. One is that we were first in marketing this type of technology. Second, the strength in the process is behind the scenes and our team is continually updating and strengthening this technology to stay ahead of the competition. Third, we filed a patent application on our process, so ideally certain aspects of how we monitor and manage this program will be protected.

The last part of the process is how cooking affects the animal. In the presentation that most of you have seen we were in the process of conducting experiments to show the effect of cook on dog digestibility and stool quality. The results are seen below, and as we expected, getting the proper cook is key to the health of our pets. In this trial the optimum cook level was predicted to be 70%. The levels obtained were 50% for the under cooked, 68% for the optimal cook, and 75% for the over cooked. As you can see, nutrient digestibility was increased from the under to the optimal cooked products and in some cases (crude protein and dry matter digestibility) started to decrease in the over cooked. The main effect in most cases of improperly cooked products is a downgrade in stool quality. Our data indicated that dogs fed the optimally cooked product have optimal stool quality (normal is 3.5).



Our Opti-Cook® technology in Loyall® pet food allows us to more accurately measure cook on our products to reduce the risk of digestive upsets in pets. This technology was not something that happened overnight. It took a lot of teamwork and expertise to develop and we can all be proud and confident that the Opti-Cook® process is a technology will lead the industry in providing better products for our pets.