

## The Quality of Pet Food – ABLE’s Computrac® MAX® 5000XL Moisture, Solids and Ash analyser holds the key

Commercial pet foods are meticulously designed, taking into account the various nutritional requirements of each species and breed.

For dogs, the most popular type of pet food is dry and – as you might expect – each brand tends to vary in moisture and ash content as well as in ingredient composition. Therefore, to ensure the highest quality product, commercial pet food manufacturers must carefully monitor the ingredients, mineral levels and moisture content in their pet foods

to maintain a high level of consistency. Traditionally these measurements have been made using AOAC approved methods that require ovens or furnaces. Although these methods provide reliable and accurate results, they also often require long testing times, which can greatly reduce a manufacturer’s ability to control quality during production.



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**Computrac® MAX® 5000XL Moisture, Solids and Ash analyser**



### Quality Control

In order to help improve quality and consistency during production, new rapid loss-on-drying and loss-on-ignition instruments such as the Computrac® MAX® 5000XL Moisture, Solids and Ash analyser are able to produce the same consistent results as traditional methods in a fraction of the test time – 1/10 of the time for moisture testing and 1/7 of the time for ash testing. These instruments allow for linked testing, meaning that you can perform both moisture and ash testing with just a single sample, and are able to provide measurements while the test is still running. These intra-test measurements give users the opportunity to review a complete profile of the product being analysed while the test is being performed.

The improvements that rapid loss-on-ignition instruments have made over legacy methods are particularly valuable. Ash content testing has traditionally required high temperature furnaces to burn off the organic materials present in the sample. However, even the smallest of errors in sample handling and preparation when performing high temperature testing can lead to poor analysis. Not only can the Computrac® MAX® 5000XL provide more accurate measurements than these older methods, but it is also easier to use and capable of providing in-situ measurements of samples.

### Testing

For moisture and ash analysis, two different brands of dry dog food were tested using the Computrac® MAX® 5000XL high temperature ash analyser. The instrument has a linked test feature which allows for multiple testing types to be performed in series using a single sample. This feature was used to perform both moisture and ash analysis. The reference testing was conducted using a convection oven for moisture analysis and a muffle furnace for ash analysis.

### Sample Preparation

Each brand of dog food was processed using a coffee grinder then stored in a mason jar. This was done to increase surface area and prevent moisture from evaporating, respectively. The sample was evenly transferred to the sample pan using a metal sampling scoop.

### Test Results

PET FOOD 1					
	MAX® 5000XL			Convection Oven	
	% Moisture	Test Time (mm:ss)		% Moisture	Test Time
Average	8.280	13:38	Average	8.200	2 Hours
S.D.	0.070		S.D.	0.040	
	MAX® 5000XL			Muffle Furnace	
	% Ash	Test Time (mm:ss)		% Ash	Test Time
Average	9.350	28:55	Average	8.613	4 Hours
S.D.	0.090		S.D.	0.171	

**Table 1. Moisture and Ash Results for Generic Pet Food**

PET FOOD 2					
	MAX® 5000XL			Convection Oven	
	% Moisture	Test Time (mm:ss)		% Moisture	Test Time
Average	7.252	13:38	Average	7.122	2 Hours
S.D.	00.70		S.D.	0.011	
	MAX® 5000XL			Muffle Furnace	
	% Ash	Test Time (mm:ss)		% Ash	Test Time
Average	7.956	32:54	Average	7.774	4 Hours
S.D.	0.030		S.D.	0.649	

**Table 1. Moisture and Ash Results for Generic Pet Food**

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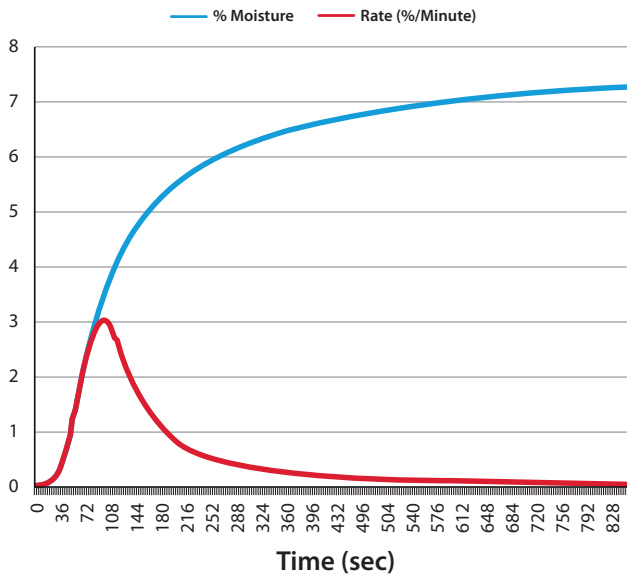
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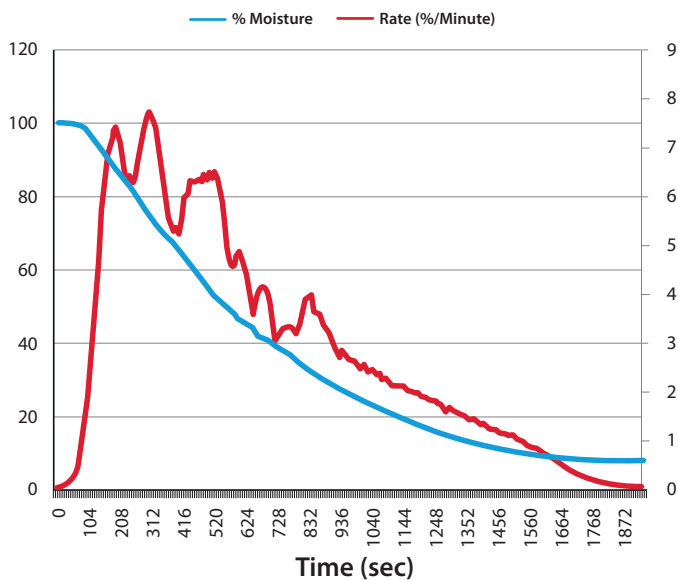


### Moisture Test for Puppy Food Sample



Graph 1. Moisture test results for Puppy Food

### Ash Results for Puppy Food



Graph 2. Ash results for Puppy Food

The results shown in the above tables demonstrate that the Computrac® MAX® 5000XL is able to provide comparable results to those found using traditional methods with greater repeatability in 3 of the 4 sample groups and a significantly reduced time frame. The values reported represent the median values for each of the sample groups.

The graphs opposite illustrate the complete test profile that the Computrac® MAX® 5000XL creates as the test is being performed. Based on the rate graph above, the test moisture testing time could still be optimized since very little moisture is evolving from the sample after 600 seconds. The current testing criteria are designed for high precision results. In the second graph, the ash profile shows multiple peaks as the sample is heated from 120°C to 600°C. This is due to the different organic components of the food evolving off at different temperatures. The ash that remains is the mineral content of the food.

### Conclusion

For measuring moisture and ash content of dry pet food, the Computrac® MAX® 5000XL offers significant advantages over traditional testing methods. The decrease in testing time significantly increases producers' ability to control the quality of their products, and the complete testing profile reporting allows for more in-depth analysis of the food or product sample. This leads to better quality products, more opportunities for product innovation, and happier pets. If you use moisture to test dog food, human food or even other animal food or are interested in learning more about moisture analysis with a Computrac®, contact us today. Our experienced team of factory trained application specialists will help you find the solution that's right for your product and your business.

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