

Customer Cravings



Summer 2013

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**An industry built
on innovation**

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This publication is a product of WATT Global Media

Welcome



Eleanor Roosevelt once said, “You must do the thing you think you cannot do.” While most of us need to hear this at some time in our lives, I believe this is also true for the pet food and pet food ingredient industry.

This industry constantly faces different challenges - the availability and pricing of raw materials, the rising importance of utilizing sustainable ingredients and production processes, and the increasing need for comprehensive quality systems are only a few. At Kemin, the challenges faced by our clients give us purpose, and providing solutions inspires us to do more.

This special publication highlights how Kemin will continue to grow and adjust with our clients, ensuring we meet future challenges as a trusted partner. We do not grow for the sake of growth; we grow to serve. We do not avoid challenges for fear of change; we seek them out and are inspired to provide solutions. We continue to work toward our vision of improving the quality of life by touching half the people, and pets, of the world with our products and services.



Giuseppe Abrate

President, Nutrisurance Division
Kemin Industries

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Pet food: An industry built on innovation

The industry of formulating, processing and marketing pet food has always been one of innovation. Understanding the history of modern pet food manufacturing and production can further inspire improvement and invention. The concerns influencing the industry 50 years ago have evolved right along with the food itself.

It started with a biscuit

The modern global pet food industry descended from a bone-shaped biscuit that came to be known as Milk-Bone. And in many ways, the evolution of this product reflects the evolution of the pet food industry. In the early 1920s, the industry introduced canned dog food



More than 100 years of innovation

The pet food industry has gone through major changes over the past 100 years, and the innovation shows no signs of slowing down.

James Spratt's Dog Cakes start the commercial dog food industry

1860

The F.H. Bennet Biscuit Co. creates the precursor of Milk-Bone

1908

The Chappel brothers introduce Ken-L Ration, the first canned dog food in the US

1922

Dehydrated pet food is developed with slogan to "just add water"



Pet food sales hit \$50 million worldwide

1943

in the U.S. A dry formula called dog meal was pioneered in the 1930s by Clarence Gaines; extruding pet food began in 1950; and by the mid-1970s superpremium pet foods began to make their mark on the shelf and have continued to dominate much of today's market.

The 1990s saw the rise of natural antioxidants being added to pet foods, and, although these are fairly new additives to pet diets, they now must meet longer shelf-life requirements, satisfy consumer health expectations for their pets, and evolve as pet food formulations continue to change. Pet food certainly has undergone immense change in a relatively short period of time.

Where pet food stands today

Like any other industry, pet food is largely driven by consumer demand. And consumers

are not shy about what they want for their pets. Pet owners' desire to treat their pets especially well has led to numerous niches, including ultrapremium, natural, holistic, raw, organic, freeze dried, free range, grain free, human-quality ingredients and protein-focused diets. There are also niche products for functional benefits including skin health, gut health, dental health, urinary tract health, hairball prevention, allergen reduction, joint maintenance and weight management. And, of course, these products must maintain freshness, taste good and offer quality nutrition.

These many demands present many business opportunities. A manufacturer's dream? Maybe. Formulating pet food for these various niches, to meet demand and ensure safety standards is no simple task. So the need for manufacturers to partner with a supplier



Pet food has undergone immense change in a relatively short period of time.

providing freshness, palatability and nutrition products is more important than ever. Ensuring pet foods have the desired shelf life, are tasty and nutritious is paramount for being profitable

First extruded dog food was introduced for grocery distribution

1957



Kemin Industries founded

1961



Pet food sales surpass \$2 billion in the US with over 1,500 dog foods on the market. (Packaged Facts)

1975

Big Box Specialty Pet Store opens

1986



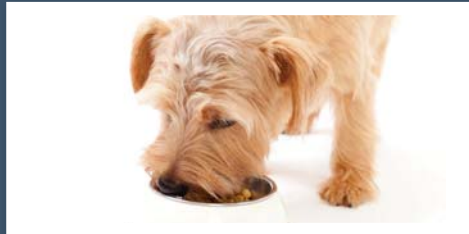
Kemin Introduced Naturox® natural antioxidant for pet foods

1992

in this competitive and ever-changing industry.

Twenty years ago raw material sourcing for pet foods was relatively simple. A typical pet food formula consisted of one grain source, one fat source and one carbohydrate source. Today's sophisticated pet foods are quick to mimic human food trends, and there is high demand for novel protein sources, vegetable oils, fish oils and new grain sources, which aren't as stable. Kemin has adapted its research and product lines to solve these problems.

The oxidation process cannot be stopped – but you can slow it down or control it with a well-managed stability assurance program. Formulating a stability assurance program specific to each of the pet diets you produce is critical. Kemin offers both natural and synthetic alternatives to provide the right antioxidant for every application and formulation.



Palatability depends on factors such as the freshness of raw materials.

“To meet customer needs, we’re primarily looking at developing natural antioxidants,” says Jim Mann of Kemin. “As the market for natural antioxidants grows, that market struggles to find availability of raw materials,” Mann says. “Changes in pet food formulation change the type of antioxidant we might use or recommend.

For example, a switch to vegetable oils or marine oils might require a different antioxidant than what’s traditionally been used.”

The palatability of pet food depends on many factors such as the freshness of raw materials through the entire manufacturing process and application of the palatant. Every pet food manufacturer knows that making food highly palatable to dogs and cats is a very complex process requiring expertise and research to build knowledge and continue improvement. Fortunately, that research exists and is going strong.

Suppliers must understand and control the chemistry of what happens to the key molecules contained in the palatants from the time of manufacture to the time pets consume the food. Kemin’s PALASURANCE palatability enhancers are made from a wide variety of the fresh

Kemin established South American regional headquarters in Brazil

1999

Pet food sales reached \$28 billion in the US alone (Packaged Facts)

Kemin established pet food division

2000



Global number of new pet food products hit a record high of 728 (Datamonitor)

2007

PALASURANCE
brand palatants

Kemin introduced PALASURANCE™ brand palatant

2008

FDA warned about tainted dog treats from China

2009



Needs for innovation require a partner that thrives and is built on change.

ingredients providing superior flavor and aroma performance. The company draws from their stability expertise and a broad range of other technology platforms from diverse businesses, such as fermentation for the production of enzymes for agricultural applications.

The future of pet food

If history is any indication, pet food will continue to evolve at a rapid pace and demand will continue to grow. It's difficult to say for certain what changes are in store for this industry, but some things are clear:

- Continuing investigation in fields such as nanotechnology and nutrigenomics will allow future pet foods to be even more tailored to specific breeds, age groups and to an animal's genetic needs.
- Additive and nutrition suppliers must work together with the industry's forward-thinking pioneers to remain on top of trends, optimize pet food quality and focus on the science of oxidation control, microbial growth control and palatability.

- Food safety is an increasingly major concern of feed and pet food manufacturers, animal producers, food processors and consumers. The pressure to reduce foodborne pathogens and the effects of fat oxidation has increased and will likely continue to do so.

The need for innovation and adaptation to a constantly changing industry will require a partner that thrives and is built on change – a partner that will lead the way. Through its scientific research and industry expertise, that's what Kemin has always done and will continue to do.

Learn more about Kemin's continuing advancements in nutrition and palatability. Visit www.kemin.com/petfood.

Pet food Sales reached \$63 billion globally
(Euromonitor)

Kemin acquired encapsulation technology and expanded in Brazil and Verona, Italy, with palatant manufacturing facilities

2010

Food Safety Modernization Act, intended to be a complete overhaul of US food safety regulation, was signed into law

Kemin acquired spray-dried protein technology and manufacturing facility in Verona, Missouri

2011

Verdilox™
brand antioxidant

Kemin introduced Verdilox™ natural antioxidant for pet foods

2012

PALFRESH™
brand palatants

Introduced PALFRESH™ palatants for pet foods

2013

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At Kemin, change is viewed as a key value and a way of life.

Partnering with Kemin is partnering with a culture of change

In some organizations, the idea of change is feared, often regarded as a challenge or hurdle to meet organizational goals. At Kemin, continuous

change is not only embraced, but is viewed as a key value and a way of life. Change at Kemin brings about new questions, challenges and opportunities, allowing Kemin to create new product and service solutions to assist its customers — pets and pet parents around the world. To continue to satisfy customer requests,

driven by increased consumer demand for pet food, Kemin has expanded its operations in recent years.

In 2011, Kemin acquired a manufacturing facility in Verona, Missouri which included additional spray drying technology. Prior to that, Kemin expanded its palatant manufacturing capacity — opening a new facility in Veronella, Italy, and purchasing a controlling interest in a facility in Brazil.

In May of 2012, Kemin began construction of a new research and development facility in Des Moines, Iowa. The new facility includes two general labs, six shared laboratories and three pilot laboratories, which will accompany an existing 1,200-square-foot Innovation Center



Kemin's new Des Moines, Iowa, research and development facility includes two general labs, six shared labs and three pilot labs, in addition to an existing 1,200-square-foot Innovation Center laboratory.

laboratory. The state-of-the-art facility will provide 1,215 linear feet of laboratory bench space for approximately 60 scientists. There are several unique features in the new building, including a sensory lab and test kitchen for the company's food technologies division.

"If you want to know what inspires scientists and researchers to do their best work, all you have to do is ask them – and that's exactly what we did," said Dr. Chris Nelson, president and CEO of Kemin. "They helped create the design for the new R&D facility which is an open-concept approach and includes shared laboratories. It is the best possible environment for encouraging collaboration and new product breakthroughs."

The new research facility is part of a global expansion plan Kemin announced in October of 2010: a five-year \$40 million expansion of its Des Moines operations, designed to add six new manufacturing facilities, three new research facilities and a new corporate headquarters building, creating hundreds of jobs at the Kemin campus over that time. The research facility, which is scheduled for completion in the summer of 2013, will eventually connect to the new global headquarters building.

Whether it is acquisitions, product launches or new technology or service offerings, change at Kemin brings about innovation that transforms the



pet food industry. Change allows Kemin to move closer to its vision of improving the quality of life by touching half the people, and pets, of the world every day with its products and services. "Our business is about the future," Nelson said. "We've got 7 billion people on the planet, and many pets. The burning question for anybody is: How are we going to feed everyone on a planet that is reaching its capacity in agriculture?" Partner with change, and Kemin, to find out.

About Kemin



The Kemin vision: *We strive to improve the quality of life by touching half the people of the world every day with our products and services.*

Since its founding in 1961, Kemin has used science and research to enhance nutrition and health for humans and animals.

Founded by RW and Mary Nelson, Kemin is a privately held and family-owned company with nearly 2,000 employees worldwide. Based in Des Moines, Iowa, it operates in more than 90 countries.

The pet food division at Kemin offers natural and synthetic antioxidants, palatability enhancers and spray-dried protein products. In addition, Kemin also offers a wide-range of tailored customer support including application equipment, technical support and customer laboratory services. By offering a complete solution portfolio, which links product and application expertise, Kemin is able to assist customers in creating safe and nutritious food for companion animals worldwide.

Shelf-Life Solutions — Kemin offers both natural and synthetic alternatives to provide the right antioxidant for every application and premier freshness

protection. The comprehensive Kemin portfolio of antioxidants includes NATUROX®, PARAMEGA®, PET-OX®, RENDOX®, Termox™ and most recently Verdilox™.

Palatability — Kemin's PALASURANCE® palatability enhancers are made from a wide variety of fresh ingredients, providing superior palatability and aroma performance. The newest product, PALFRESH™, improves both palatability and shelf-life of low-fat petfood diets.

Spray-Dried Protein — To complete its portfolio and complement its superior selection of natural and synthetic preservatives and palatability enhancers, Kemin offers a line of spray-dried protein products.

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YOU'RE INVITED



PETFOOD INSIGHTS: NEW APPROACHES TO QUALITY & TECHNOLOGY

September 10-11, 2013 | The Peabody Memphis | Memphis, Tennessee

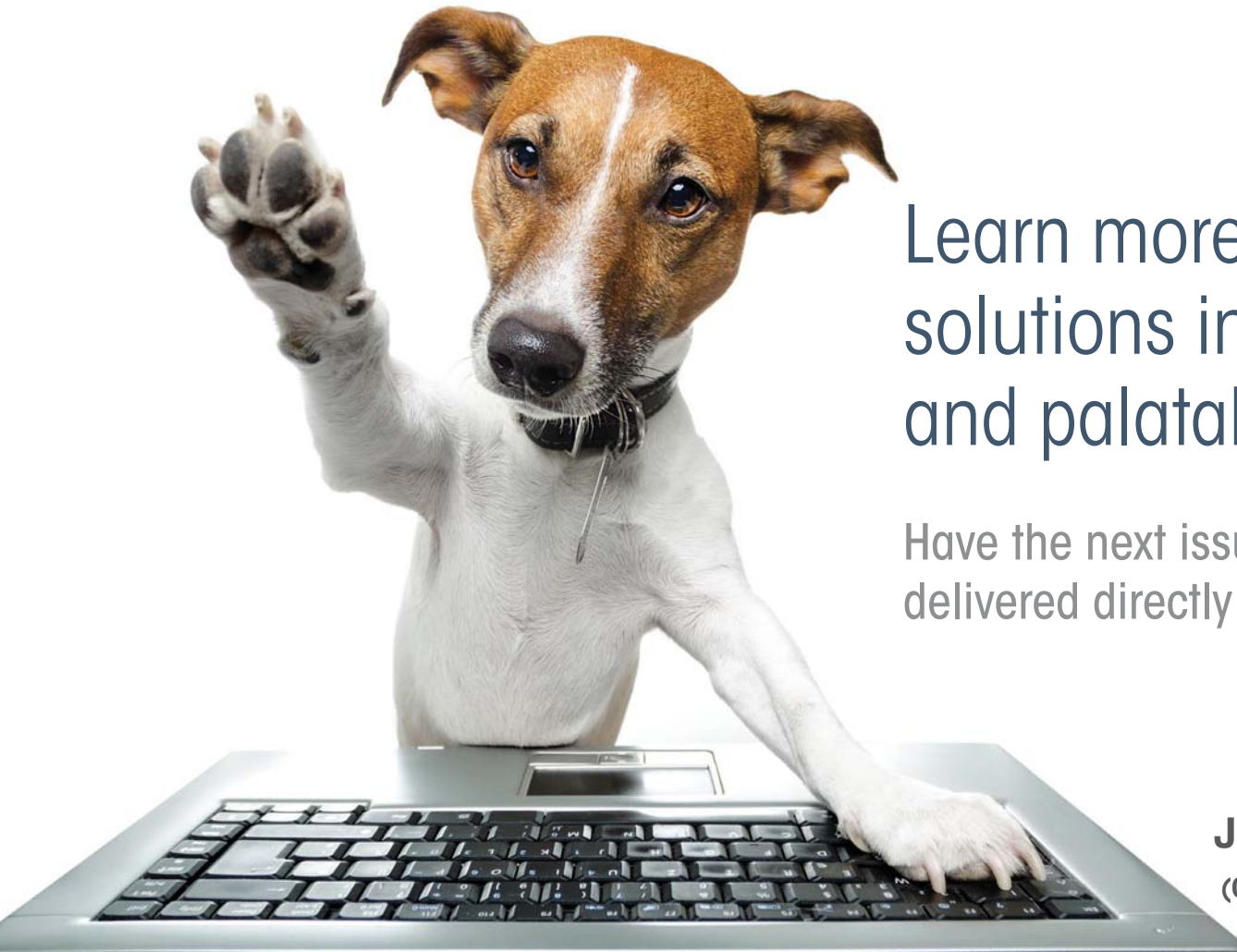
Join Kemin and a collection of industry experts in a technical discussion regarding the changing landscape of pet food manufacturing. Learn how new technology and quality initiatives are impacting today's petfood diet formulations and how quality standards will continue to increase to meet consumer demands.

Visit WWW.KEMIN.COM/SYMPOSIUM for more information and to register today!



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