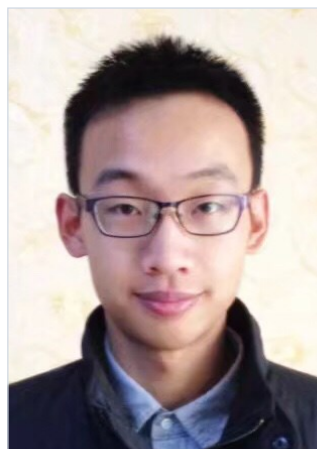




Pet Essential Nutrition Quarterly

Q3 2018



The 21st Asia Pet Fair took place August 22-26 in the New International Expo Centre, Shanghai, China. This event was extended from 4 to 5 days due to the increasing number of attendees and growing passion for this industry.

This year, the fair took place in 10 Exhibition Halls, covering over 140,000 square meters in total, with more than 1,300 exhibitors, 50,000 professional visitors, and 140,000 pet owners in attendance.

Our DSM pet food colleagues Jeff Alix (DSM Global Marketing Manager-Pet), Dr. Yu Shiguang (DSM Global Technical Manager-Pet), Manarath Suntareeporn (DSM Pet Manager for APAC) joined me at the fair. It was no surprise to find that many new domestic and international brands have appeared for the first time, another indication of the pet food market growth and strong attraction to the overseas brands in China.

Regards,

Cyrus Li, Industry Manager, Pet Nutrition, China



What is a vitamin form (formulation)?

In the Q2 issue of Pet Essential Nutrition Quarterly newsletter, we discussed the importance of utilizing a blend or premix of vitamins to ensure a pet food product is safe and effectively fortified with these essential micro-nutrients. Equally important to producing a quality premix is starting with high quality and application appropriate vitamin forms. Forms are the vehicle for accurately delivering small amounts of pure vitamin to a product, for maximizing premix quality, and ensure survivability through the pet product processing and shelf-life.

Vitamin sensitivities

Vitamin stability is influenced by many external factors. Pure vitamin molecules or compounds are often sold in a form that addresses these sensitivities, and appropriate for the intended application. The table to the right, describes how influential these external factors are on stability. Good examples are vitamins A, D3, and C, which can be destroyed by heat, oxygen, moisture (humidity), light, and high or low pH. The majority of pet foods sold worldwide are produced via extrusion, requiring that these essential nutrients survive exposure to high temperatures, oxygen, and moisture during the manufacturing process alone.

Vitamin	Temperature	Oxygen	Humidity	Light	pH	
					Acid	Alkaline
A	XX	XX	X	XX	X	0
D ₃	X	XX	X	X	0	X
E - Acetate	0	X	0	0	0	X
K ₃	X	X	XX	X	XX	XX
B ₁	X	X	X	0	0	XX
B ₂	0	0	X	X	0	X
B ₆	XX	0	X	0	0	0
B ₁₂	XX	X	X	X	0	0
Cal Pan	X	0	X	0	X	X
Nicotinic acid	0	0	0	0	0	0
Biotin	X	0	0	0	0	0
Folic acid	XX	0	X	XX	XX	0
C	XX	XX	XX	X	0	X

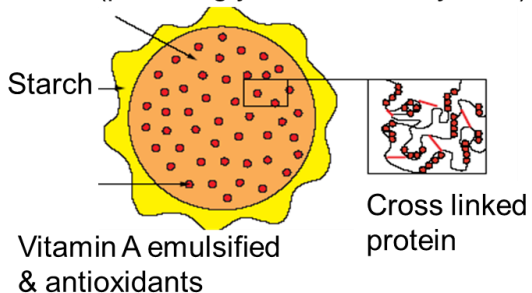
0 = Stable X = Slight Sensitive to Sensitive XX = Very Sensitive

Vitamin formulation technology is the key to high quality

With over 100 years of experience as a manufacturer of vitamins for the human and animal industries, DSM utilizes patented technologies to achieve the following vitamin form quality attributes:

- ◆ Easy to handle, safe for employees, and an acceptable shelf-life
- ◆ Positively contributing to optimum homogeneity, stability, flow, and safe handling of premix
- ◆ Contributes to optimum distribution throughout the pet product during manufacturing
- ◆ Improves the survivability of the active nutrient through pet product processing and shelf-life
- ◆ Assures the nutrient is bioavailable to the animal after consumption of the pet product
- ◆ Allows a nutrient guarantee on the pet product package

Matrix (protein, glycerine, carbohydrate)



One example of our superior vitamin form technology is the cross-linked beadlet used to make our Rovimix Vitamin A products. Tiny droplets of high-quality vitamin A oil is emulsified with a special antioxidant system in a mixture of protein, glycerine, and carbohydrate. This emulsion is formed into a small diameter dry beadlet via a patented drying process, creating uniformly sized spherical particles, each particle containing equal concentration of vitamin A. These particles are coated with starch to improve flowability.

Vitamin forms are the building blocks for a high-quality premix, and therefore a high-quality pet product. DSM is uniquely qualified to produce high-quality premix due to our technology, experience, and control of the entire premix supply chain.

A vitamin premix is one ingredient in a formulation, yet it is easy to forget that they too are complex recipes, sometimes containing more raw materials than the base pet food.

Traditional Recipe Example	Humanized Style Recipe Example	The Vitamin Premix *
Wheat Maize Meat Meal Soya Protein Wheat Midlings Poultry Fat Flavor Vitamin Premix Blend * Mineral Premix Blend	Fresh Free-Range Chicken Fresh Duck Fresh Salmon Sweet Potato Tapioca Lentil Chick Pea Salmon Oil Chicken Fat Dried Carrots Dried Papaya Dried Apples Seaweed Dried Algae Prebiotic FOS Glucosamine Vitamin Premix Blend * Mineral Premix Blend	Vitamin A Vitamin D Vitamin E Vitamin K3 Vitamin B1 Vitamin B2 Vitamin B6 Niacin Pantothenic Acid Biotin Folic Acid

There is also the growing trend of simplifying pet food formulas. Fortunately, vitamins are not only the most recognized nutrient ingredients, with 100% consumer awareness, consumers see them as critical to managing health and well-being.

David Sprinkle, publisher and research director at Packaged Facts, reviewed a list of terms food shoppers want, as determined by a Packaged Facts survey, during his presentation at Petfood Forum 2018. He specifically listed scientific/functional terms. These were the top three on that list:

1. High protein - 40%
2. High fiber - 36%
3. High vitamin/mineral - 28%

Even though there is a growing trend of natural and whole-food brand positioning, nutritional claims and other messages related to vitamins often appear at the top of the list of those most desired by consumers. The good news is that vitamins are one of the most extensively researched class of nutrients for companion animals. They are both attractive to consumers and deliver functionality that is backed by species appropriate research. Many of the trendy new ingredients you see in pet foods today have limited or no scientific evidence proving they deliver a true benefit to dogs and cats.

So when you are formulating your next pet nutritional product with fancy new ingredients, don't forget to ask your DSM representative how to take advantage of the halo of good health associated with vitamins.

