



FIRST IN NATURAL

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CONSUMERS PREFER “NATURAL” PET DIETS

Independent market research among purchasers of premium brand pet diets indicates an overwhelming preference for diets made from natural ingredients. To consumers, natural ingredients equate to superior nutritional value, product freshness and overall better quality. In fact, 97 percent of the consumers surveyed were interested in natural ingredients that contribute to increased freshness of the diet. They also ranked natural ingredients as one of the two most important product attributes to be considered when purchasing pet food.

NATURAL ANTIOXIDANTS - PLANT-BASED PROTECTION

The natural, mixed tocopherols present in NATUROX® brand antioxidants can be found in virtually all vegetable oils, grain, seeds and legumes. Tocopherols provide natural protection to the poly unsaturated fats in plants from oxidative damage. Natural antioxidants containing mixed tocopherols, such as NATUROX products, provide this same excellent natural protection to the unsaturated fats in premium quality pet diets. Your Kemin Technical Support team can customize a freshness protection program for pet diets with fat contents that range from 4 percent to 40 percent.



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The “total system” partnership approach to natural freshness protection is a unique service for Kemin customers.

THE HIGHEST RATIO OF DELTA:GAMMA HOMOLOGUES

- The delta homologue is the most potent antioxidant
- Delta homologues have the greatest resistance to the heat involved in the processing and extrusion processes
- The delta homologue has the greatest retention through the stress of diet storage, giving your pet diets greater stability and longer shelf life
- The alpha and beta homologues are not significant contributors to antioxidant activity

THE NATUROX BRAND ANTIOXIDANT ADVANTAGE

Not all “natural” antioxidants are created equal. NATUROX products are formulated with:

- A natural chelator, lecithin, that helps prevent the formation of free radicals that start the autoxidation process
- Lecithin also acts as a natural surfactant in liquid NATUROX products to facilitate the dispersion of the antioxidant molecules through the substrate being treated
- A synergistic blend of mixed tocopherols or superior free radical absorption

A TOTAL SYSTEMS APPROACH TO NATURAL FRESHNESS PROTECTION

The key to the successful use of natural antioxidants in pet foods is achieving an adequate residual level of the antioxidant in the finished diet. Diets with increased fat content require a higher residual level of antioxidant in the finished product. In fact, each one percent increase in the fat content of the diet increases the residual NATUROX antioxidant level needed for protection by 20 ppm (parts per million). The Kemin Technical Services team will custom-design a freshness protection program for you on a diet-by-diet basis. They will recommend the correct products, the necessary amounts and the point of application to reach the targeted residual level.

Target Residual Level of NATUROX® Antioxidant based on fat content in the diet (100 ppm = 0.01%)

| % Fat | NATUROX Level (ppm) |
|-------|---------------------|
| 8 | 160 |
| 10 | 200 |
| 12 | 240 |
| 14 | 280 |
| 16 | 320 |
| 18 | 360 |
| 20 | 400 |

The chart above is confidential CLS data.

YOUR FRESHNESS PROTECTION PARTNER

The Kemin Technical Support and Customer Laboratory Service (CLS) teams are your freshness protection partners throughout the petfood manufacturing process. In addition to your account manager and technical service manager, we provide ingredient specialists to ensure that the correct amount of NATUROX antioxidant is applied to your incoming ingredients before they reach your plant. If changes or modifications to application equipment are needed, our ingredient and equipment design specialists will work closely with you and your vendors to make sure the appropriate NATUROX product formulation is provided at the correct rate throughout the manufacturing process. Product sampling with statistical analysis is your assurance that NATUROX brand antioxidants are being applied at consistent levels to provide optimum protection for your products, from raw ingredients to finished diets.



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