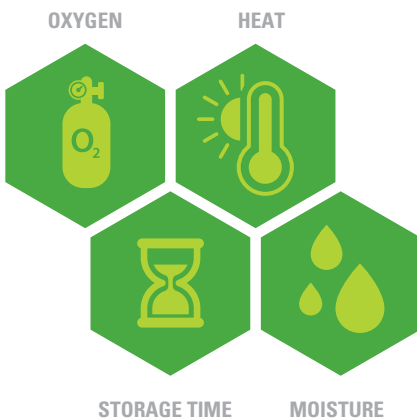


ENDOX[®] Dry Antioxidants

Oxidation reduces the nutritional value of energy-rich lipids and increases fat-soluble vitamin susceptibility to destruction, thereby leaving animals vulnerable to disease and performance losses.^{1,2}

FACTORS INFLUENCING OXIDATION IN FEED INCLUDE:

ENVIRONMENTAL:



BIOCHEMICAL:



ONCE OXIDATION STARTS IT CANNOT BE UNDONE.

That means managing oxidation in premixes and in feed is critical to maintaining the energy and nutritional value of feed.

ABOUT ENDOX

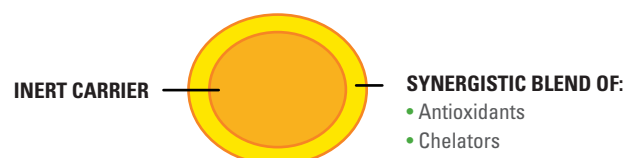
ENDOX[®] Dry Antioxidants are complete antioxidant systems formulated specifically to stabilize complete feeds and protect fat-soluble vitamins from degradation in concentrated mineral premixes.

FEATURES AND BENEFITS:

- Antioxidant systems formulated for use in premixes and complete feed
- Synthetic antioxidant blends to absorb free radicals before they destroy fatty acids
- Citric acid to bind metal ions, which may promote free radical oxidation
- Mono and di-glycerides to ensure homogeneous distribution in feed matrices

ENDOX UNIQUE MANUFACTURING PROCESS

ENDOX is manufactured using a proprietary process where an inert carrier is coated with a synergistic blend of antioxidants and metal chelators. This ensures active components are distributed throughout the feed mixture.



ENDOX Dry Antioxidant systems are specifically designed to CLEAN UP and protect premixes and feed from oxidation. Containing a unique combination of an inert carrier, coated with a synergistic blend of synthetic antioxidants, metal chelators and surfactants, each ENDOX product can help improve shelf-life by protecting premixes and complete feeds from oxidation.

ENDOX Prevents Vitamin Loss in VTMs

Over 90 days, ENDOX retained 30% and 20% more Vitamin A as compared to the untreated and BHT-treated vitamin/mineral premix, respectively.³

VITAMIN A LOSS DURING VTM STORAGE (%)			
Time (Days)	Control	ENDOX®	BHT
60	52%	28%	46%
90	64%	34%	53%

ENDOX PREVENTS VITAMIN LOSS IN FEEDS

Over three trials, ENDOX consistently improved Vitamin A retention in feed by 6 to 9% compared to unprotected feed stored for 30 days.⁴

ENDOX® DRY ANTIOXIDANT SYSTEMS

Product	Active Ingredients	Matrix	Standard Inclusion Rate		
			Feed	Dairy Cattle ¹	Beef Cattle ²
ENDOX® Dry	EQ, BHA, BHT and citric acid	Complete Feeds	0.25 lb/ton	3.4 g/h/d	1.7 g/h/d
ENDOX® 5X Concentrate	EQ, BHA and citric acid	Vitamin/Mineral Premix	27 g/ton	1.3 g/h/d	0.6 g/h/d

^{1,2} Inclusion rates for dairy and beef cattle are calculated rates. Consult your Kemin representative for more details.

Managing oxidation in fats, oils and feed is critical for optimal livestock and poultry health and performance. With over 50 years of research and development experience in antioxidant formulation, ENDOX Dry Antioxidant systems are designed specifically to protect essential nutrients from degradation thereby maximizing the nutritional value and quality of feed.



A COMPREHENSIVE APPROACH TO GUT HEALTH

Our Gut Health Triple Check program serves as a support system to **CLEAN UP** contaminants in feed and water prior to animal exposure, **BUILD UP** intestinal strength to reduce leaky gut and **KNOCK OUT** harmful pathogens for healthier livestock and poultry.

1-800-752-2864 • kemin.com/endox-dry • kemin.com/guthealth

References:

1. Shurson, J. and B. Kerr. Fat, oxidation and the swine diet. National Hog Farmer. July 18, 2018.
2. Hung, Y.T., et al. 2017. Peroxidized lipids reduce growth performance of poultry and swine: A meta-analysis. Animal Feed Science and Technology, 231:47-58.
3. Improve vitamin A retention within a vitamin/mineral premix, BB-03-00318.
4. Jones, F. T., J. B. Ward, and C. E. Brewer. "Antioxidant use in broiler feeds." Poultry Science 65.4 (1986): 779-781.

