

IONOL FEED BLENDS

By OXIRIS Chemicals

OXIRIS CHEMICALS S.A.

Ctra. C-35, Km 59. Pol Ind. Nord Est
08470 Sant Celoni. **SPAIN**

Tel: +34 93 867 49 97
Fax: +34 93 867 41 68

E-mail: info@oxirischemicals.com

www.oxirischemicals.com



YOUR GLOBAL PARTNER FOR ANTIOXIDANTS

COMPANY DESCRIPTION

OXIRIS Chemicals, S.A is a leader in the production of phenolic antioxidants since 1936 through its state-of-the-art manufacturing facilities in Sant Celoni, BARCELONA – SPAIN. The company has more than 40 years of experience in multiple industrial sectors, specially in sectors such as: polymers, gums, human nutrition, animal nutrition, lubricants, fuels, cosmetics and printing inks.

OXIRIS Chemicals, S.A leads a team committed with excellence in innovation, product technology, sales and customer service. The firm has a global activity and operates in more than 70 countries.

OXIRIS products are marketed under the registered trademark **IONOL®**

CORPORATE RESPONSABILITY

OXIRIS Chemicals S.A guarantees that it carries out productive activities in all their products with the aim of improving the life quality. All the products from OXIRIS Chemicals, S.A are manufactured and distributed in a safe and environmental and friendly way as well as guarantees their food safety.

As a responsible company, we are committed on the following:

- Develop and manufacture products for our customers, safely produced and transported.
- Operate our productive plant and facilities in a way that protects the environment, health and safety of our employees.
- Expand our knowledge by conducting and supporting research on health, safety and in environmental effects of our products, process and waste materials.
- Promote responsible principles by sharing experiences and offering assistance to other people who produce, handle, transport or dispose of our products.

OXIRIS has the following certifications:

- KOSHER
- FAMI-QS
- ISO 9001
- ISO 14001
- OSHAS 18001
- Responsible CARE



EXPERTS IN ANTIOXIDANTS

The main effects of an oxidation process are:

1. Ingredient degradation in feeds, such as: fats, oils, vitamins, proteins, pigments and drugs.
2. Loss of palatability and therefore, loss of appetite and weight of animals.
3. Presence of toxic substances, which affect directly the health and welfare of animals.
4. Significant business losses.

Mechanism of oxidation reaction:

1. **Induction period:** Chemical reaction with a slow accumulation of peroxides; slight changes in smell and taste of organic material appears.
2. **Rancid process:** Fast and huge production of peroxides compounds, which increases the substrate degradation very quickly. Development of a strong smell and a quick loss of the nutritional value of the ingredients, such as:
 - 1) Loss of raw material energy (calories).
 - 2) Protein degradation in small compounds.
 - 3) Vitamin loss.
 - 4) Color changes, which affects palatability.
 - 5) Toxic metabolites generation.
 - 6) Reduction in animal daily intake, which reduces productivity.

ANTIOXIDANT NEEDS FOR ANIMAL NUTRITION

The consumption of oxidized fats by animals has been linked to health problems, reduced growth and a loss of animal welfare. The fact has been demonstrated in different animal species. In some cases, additional supplementation with antioxidants may reduce the negative effect.

Through diet, lipid oxidation products could be introduced into the animal body, and they could affect the cells integrity by reacting with proteins, phospholipids and DNA. Animals have a biological protection mechanism that includes endogenous antioxidants and enzyme systems to combat or fight against free radicals. The exogenous antioxidants obtained through diet are also part of this defence system, supporting natural or endogenous antioxidants.

An imbalance between the radical load in the animal and its defence system causes oxidative stress, which has a negative effect on the animal's health and animal growth rate. This imbalance can be caused by oxidized diets or diets high in polyunsaturated fatty acid which are susceptible to be oxidized. In some cases, an excess of free radicals in vivo, need to be covered with an increase of exogenous antioxidants in order to support animal's defence system against free radicals damage.

To ensure optimal health and growth, the diet needs to be low in free radical products. The application of antioxidants can be used to prevent free radicals and therefore oxidation in feed.

THE NEED OF ANTIOXIDANTS FOR THE PACKAGING AND TRANSPORT

The raw materials are not only oils and fats, which being liquid raw materials, can be stored in containers in which oxygen can be easily removed. Protection against oxidation is therefore simple and effective with them. However, a higher sensitivity to oxidation of powdered protein extracts (rapeseed or soybean cake, fish meal, meat meal) can be expected.

All fat oxidation reactions, such as the breakdown of proteins, are preferably exothermic, which causes the temperature of the substrates to rise (+ 5 ° C, then + 10 ° C, + 50 ° C ... above room temperature) to finally achieve a self-combustion temperature. These kind of reactions are exponential.

This behavior is closely related to the profile of fatty acids (soybean cake is more stable than fishmeal), to the year season (a flour produced in summer will easily reach the self-burning temperature) and to the packaging (25 kg bags in a warehouse are more stable than 1,000 kg bulk). International shipping regulations have taken this aspect into account and require that fishmeal be protected by an efficient antioxidant before loading onto the ship (IFFO recommendations).

Significant oxidation generates heat that can cause spontaneous combustion of fishmeal. Antioxidants are added to fishmeal in order to protect these products from self-combustion.

OXIRIS SOLUTION

The use of **approved feed antioxidants** is a must in the fishmeal process. The use of antioxidants that protect the nutritional value of ingredients is crucial to ensure quality and animal health and welfare.

Antioxidants can prevent oxidative deterioration of raw materials and finished feed, ensuring long-term product quality and reducing the effects of lipid oxidation and the formation of harmful products. Chain-breaking antioxidants inhibit or retard lipid oxidation by interfering with the propagation or initiation of the chain by transferring hydrogen atoms and easily donate hydrogen atoms to different peroxy radicals.

Since our clients are concerned about the suspension of ETQ by the European authorities, Oxiris took up the challenge of developing a specially conceived range of liquid antioxidant solutions, **GLOBAL FEED APPROVED**.

OXIRIS offers an alternative, reliable, proven and affordable alternative feed antioxidant solution tailored for **EVERY NEED**.