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## TECHNICAL DATA SHEET

### CAPTURE-ANTIOX COMPLEX

#### Natural antioxidant for fats

/ A /

#### OVERVIEW

Fats, both animal and vegetable origin, have a limited life, because with time and assistance of certain factors, undergo a series of changes that are known by the generic name of rancidity.

They have, therefore, limited stability, depending on the unsaturation purification process they have had, the biological action of microorganisms and enzymes, water and oxygen.

The phenomenon of rancidity is thus, a set of reactions that lead to the formation of aldehydes and fatty acids that also alter other properties and confer to the fats the typical rancid odour.

The oxidation process is initiated by the absorption of oxygen molecules into double bonds and the subsequent formation of cyclic oxides. By rupture of this bonds, shorter chain aldehydes are formed, which oxidized to acids; both are responsible for the characteristic musty smell. (Figure 1.).

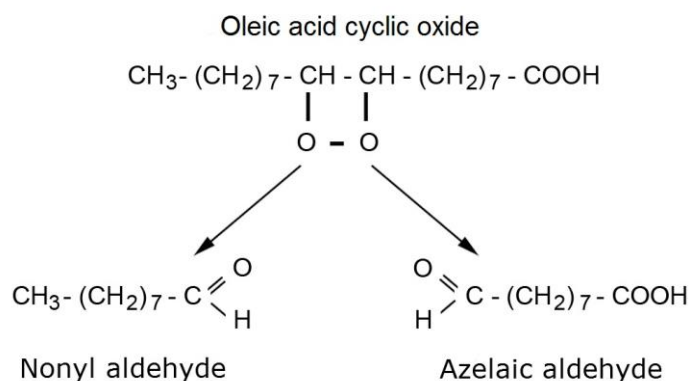


Figure 1. FORMATION OF ALDEHYDES FROM OLEIC ACID CYCLIC OXIDE



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This process is accelerated by the action of light, heat, and the presence of metals such as Fe, Co and Mg. Naturally, the auto-oxidation process will be more intense the more unsaturated the fat acids are.

To protect fat oxidation, one must resort to inhibiting substances of this process known as antioxidants. These are very oxidizable products, originating stable peroxides and that prevent and even stop the chain reactions causing rancidity.

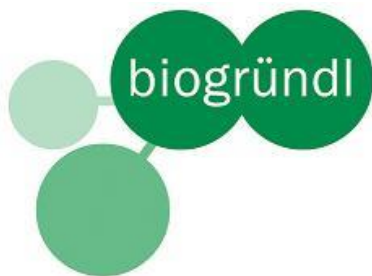
Practice has shown that it is better to use two or more antioxidants, as their actions are enhanced significantly. Furthermore, the addition of a metal sequestrant helps, also, to remove traces of them, as they catalyze oxidative reactions that lead to rancidity.

CAPTURE-ANTIOX COMPLEX of BIOGRÜNDL is formulated only with natural products in its composition, containing antioxidants and sequestrants actives. Also, has a great effect because amounts between 0,05 and 0,5% are sufficient to ensure good preservation of products in which it is included, being an effective and safe alternative to conventional synthetics products like BHT and BHA, as antioxidants and EDTA salts, as sequestrants.

CAPTURE-ANTIOX COMPLEX of BIOGRÜNDL contains the following active ingredients:

- Tocopherols (E Vitamin), mixture of its various isomers, they are among the most potent antioxidants of vegetal origin and their use is allowed in all countries.
- C Vitamin, in the form of ascorbyl palmitate. Is, also, an effective antioxidant which maximizes markedly the action of tocopherols. Its use is permitted in all legislations.
- Lecithin obtained from soy bean, consists of a mixture of phospholipids, configured according to the structure shown in Figure 2., where  $R_1$  and  $R_2$  groups may be the radicals of palmitic, stearic, oleic, linoleic, linolenic and arachidonic acids. The third hydroxyl glycerin is combined with a phosphoric ester of choline. It has excellent antioxidant and metal ion sequestering properties.





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operating temperatures, with maximum antioxidant power against the most unsaturated chains.

The recommended concentrations of use are between 0,05% and 0,5%.

### PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:** Waxy mass.

**Colour:** Characteristic.

**Odour:** Characteristic.

**Melting point:** Around 30-40°C.

**Solubility in water:** Fully insoluble.

**Solubility in other solvents:** Soluble in many organic solvents and lipids. Insoluble in surfactants and in hydroalcoholic, hydroglyceric and hydroglycollic mixtures.

**Other information:** None.

**Total aerobics:** Max. 300 microorganisms / gram.

**Fungi and yeasts:** Max. 200 microorganisms / gram.

**Pathogens:** Total absence in 1g.

### DERMATOLOGY INNOCUOUSNESS

It was performed by the patch test (Patch test) on 10 volunteers. 0,5% of CAPTURE-ANTIOX COMPLEX of BIOGRÜNDL was added to an O/W emulsion; poured over the patch 0,5 g. of this emulsion and attached on the forearm. It is thus maintained for 24, 48 and 72 hours, after which, evaluates the given reaction, according to the following table of values:

1. No erythema
2. Slight erythema
3. Well defined erythema
4. Severe erythema



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The result was absence of erythema on the 10 volunteers.

On the recommended concentrations, the product is skin innocuous.

### **STORAGE CONDITIONS**

It is very important to keep the product in well closed containers, away from direct sunlight and at temperatures not over 25°C.

### **INCI DENOMINATION**

GLYCERYL STEARATE, GLYCERYL STEARATE CITRATE, LECITHIN,  
TOCOPHEROL, ASCORBYL PALMITATE, CITRIC ACID.