Clean Label Technology

Preserving Food Naturally

Advantages

- Slows oxidative degradation
  - Preserves flavor and color
  - Reduces chelating agents
  - Retains naturally occurring vitamins
- Reduces chemical mold inhibitors
- Preserves natural antioxidants
- Reduces added antioxidants
- Regulates moisture
  - Eliminates artificial humectants
  - Controls texture

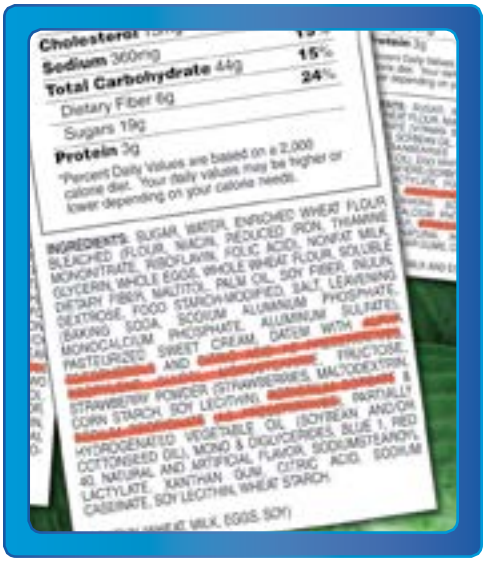
Applications

- Breads, Cookies, Cakes, Pastries
- Nuts and Snacks
- Candies and Confectioneries
- Coffee, Tea
- Whole Fat Dry Foods
- Processed, Smoked, and Cured Meats
- Cheeses and Dairy Products
- Dried Fruits and Vegetables
- Spices and Seasonings
- Flour and Grain Items
- Fresh and Pre-Cooked Pasta and Noodles

Clean label technology allows food to be preserved naturally. The internal environment of the packaging is controlled using sorbent technology by:

- removing oxygen, which reduces or eliminates the need for preservatives, and
- maintaining the equilibrium relative humidity (ERH), which keeps food at its desired moisture.

Clean label technology helps streamline the ingredient list while maintaining shelf life, preserving quality characteristics (color, taste, aroma, mouth feel, and flavor), and preventing spoilage.



Slow or Eliminate Oxidation

Fats and oils can retain their fresh clean flavor without the addition of antioxidants such as BHA (E320), BHT (E321), or TBHQ (E319). Our efficient oxygen scavengers act in the headspace of the package to remove oxygen and prevent fats and oils from turning rancid.

Certain trace minerals in food act to hasten or catalyze oxidation of flavors, oils, etc., resulting in the need for chelating agents, such as EDTA (E385), citric acid (E330), and others. Our oxygen absorbing technology works to prevent trace minerals from promoting oxidation of flavors, color, oils, or other food ingredients.

Naturally occurring vitamins are retained when our efficient oxygen scavengers are used. Vitamins that would otherwise be lost due to oxidation during storage and distribution can be preserved. Some processors overload their formulas with vitamins (e.g., vitamin C) to make up for what is lost. This is unnecessary with use of an oxygen scavenger.

Control Texture

Many conventional food formulations use modified (partially hydrogenated) vegetable oils to gain stability and control texture. Unfortunately, partial hydrogenation forms trans-fats. Use of an efficient oxygen scavenger makes it possible to use pure natural vegetable oils, which are free of trans-fat, without fear of spoilage.

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Control Moisture

Chocolate and various confections contain saturated fats, which cannot oxidize; however, cocoa butter substitutes (e.g., palm kernel and coconut oil) in some of these products can hydrolyze in storage and develop an unappetizing soapy taste. High humidity can also cause sugar bloom on chocolate, giving it a gray color and a gritty texture. Our desiccants, which come in many formats, will reduce moisture in the packaging and keep chocolate and other confections dry and fresh.

Moisture regulation is beneficial for foods in the intermediate moisture range (water activity (aw) = 0.5 – 0.85) where texture and mouth-feel are important characteristics. When ERH is maintained in the package at the same level as the aw of the product, the product will not become dry and hard, or wet and soggy, over an extended shelf life. Therefore, it will not be necessary to add emulsifiers, surfactants, and the like to achieve an extended shelf life. To keep moisture in the ideal range, we offer active moisture regulating sorbents that act in the headspace of the package to keep moisture from being lost or gained over an extended shelf life without adding anything to the food.

Preserve Flavors

Natural food flavors and aromas are often delicate and are easily lost through oxidation during storage. Many flavors and aromas can be preserved by using modified atmosphere packaging and our customized sorbent technology.

Retain Natural Antioxidants

Natural antioxidants in foods need to be preserved in order to be beneficial to the consumer. Removal of oxygen from the package using one of our oxygen absorbers preserves the natural antioxidants and maintains their effectiveness until the food is eaten.