



## **DETAILED APPLICATIONS**

### **Animal Feed**

Fumaric Acid has proven to be a particularly effective additive to piglet feed during the post-weaning period. The inclusion of Fumaric Acid and the resultant adjustment of the pH value demonstrate improved weight gain, food consumption, and feed conversion ratio.

Fumaric Acid remains longer in the gut and helps to maintain pH throughout killing harmful microorganisms.

### **Industrial Uses**

Industrial uses of Fumaric Acid include: unsaturated polyester, alkyd resins, printing inks, paper sizing, starch and helps in lowering reaction temperatures and modify properties.

### **Cleaning Agents for Dentures/Bath Salts**

Fumaric Acid can be used with other ingredients to make cleaning agents for dentures and bath salts. Low moisture absorption and solubility helps to keep the integrity of formulations.

### **Tacos**

Shelf life of dry tortilla mixes is extended because Fumaric Acid does not absorb moisture during storage and distribution. In wheat flour tortillas, the addition of Fumaric Acid results in easily machined dough and faster production rates.

### **Breads**

Fumaric Acid acts as an instant flavoring agent for rye and sourdough breads. Fumaric Acid is added to dough ingredients during the dry blending step. In English muffins, Fumaric Acid significantly increases porosity. Dough machinability is improved and more sourness is provided per unit weight.

### **Fruit Juice Drinks**

Fumaric Acid provides more sourness per unit weight than other acidulants used in fruit juice drinks. This substantially reduces the acidulant cost. Using Fumaric Acid helps to stabilize the pH of a fruit juice drink, which in turn stabilizes color and flavor.

### **Wine**

Fumaric Acid can economically acidify wine with no detectable difference in flavor. Fumaric Acid also prevents secondary fermentation after bottling and can act as a clarifier when low concentrations of copper and iron are present.

### **Confectioneries**

Fumaric Acid extends the shelf life of acid coated candies because it does not absorb moisture during storage and distribution. Maintaining a low moisture level retards sucrose inversion.

### **Gelatin Desserts**

Fumaric Acid significantly reduces acidulant costs in gelatin desserts. Fumaric Acid maintains non-caking and free-flowing qualities. By keeping the moisture content low, Fumaric Acid helps to maintain the stability of flavor components. Fumaric Acid also increases gel strength, so food processors may reduce normal gelatin content by about 2%.

### **Pie Fillings**

In pie fillings, Fumaric Acid can be mixed directly with the starch and sugar ingredients. Fumaric Acid lowers costs by reducing the quantity of food acid needed in product formulations. Fumaric Acid also improves smoothness and extends the critical cook times for optimum gelation.

### **Egg White Foams**

Fumaric Acid can promote maximum volume in both egg-white foams and end products based on egg-white foams.

### **Desserts**

Fumaric Acid is an economical fruit flavor enhancer in sherbets and water ices. In gelled desserts, Fumaric Acid enhances fruit flavors and helps stabilize pH to control gel texture.