Is calcium stearoyl lactylate safe? Which food coloring is made from the bodies of dried, pulverized insects? Is aspartame the safest artificial sweetener? Or is it sucralose?

Food additives thicken our salad dressings, prevent our sliced ham from turning gray, make our microwave popcorn smack of butter, and sweeten our diet sodas. They also make dried apple bits taste like peaches and sugar water look like fruit juice.

While most food additives are safe, some haven’t been adequately tested. And a few could be dangerous.

Our Chemical Cuisine guide tells you which are which.

Continued on page 3.
This alphabetical listing of the most common food additives includes what they’re used for, some of the foods in which they’re found, and our assessment of their safety. (A more detailed list is online at www.cspinet.org/reports/chemcuisine.htm.)

**COVER STORY**

Acesulfame Potassium.
Artificial sweetener: Chewing gum, diet soda, no-sugar-added baked goods and desserts, tabletop sweetener (Sunett).
Poorly done safety tests in the 1970s suggested that acesulfame potassium may cause cancer. The Food and Drug Administration has refused to require better studies. Acesulfame potassium is often used together with sucralose.

Alginate, Polyethylene Glycol Alginate.
Foam stabilizers, thickening agents: Beer, candy, cheese, ice cream, yogurt.
They’re made from seaweed (kelp).

Alpha Tocopherol (Vitamin E).
Antioxidant, nutrient: Oils.
Small amounts are added to oils to keep them from going rancid and to other foods to pump up the vitamin E.

**Artificial and Natural Flavoring.**
Breakfast cereal, candy, soda, many other foods.
Most of the hundreds of chemicals used to mimic natural flavors also occur in nature and are probably safe. But flavorings are often used in junk foods to mask the absence of natural ingredients (fruit, for example). Flavorings may include additives like MSG or HVP, to which some people are sensitive.

Ascorbic Acid (Vitamin C), Erythorbic Acid.
Antioxidant, color stabilizer, nutrient: Cereal, cured meat, fruit drinks.
It helps maintain the red color of ham, bacon, and other cured foods and it inhibits the formation of cancer-promoting nitrosamines (see Sodium Nitrite). Vitamin C is also used to pump up the vitamin content of foods like “fruit” drinks. Sodium ascorbate is a form of ascorbic acid that dissolves easily. Erythorbic acid is chemically similar to ascorbic acid, but it isn’t a vitamin.

Aspartame (NutraSweet).
Artificial sweetener: Frozen desserts, diet soda, tabletop sweetener (Equal).
Disturbing new Italian research in animals indicates that long-term consumption may increase the risk of leukemia, lymphoma, and breast cancer. Although some people report dizziness, hallucinations, or headaches after drinking diet soda, only one of the controlled studies that looked for a link found one (to headaches). People with the rare disease PKU (phenylketonuria) need to avoid aspartame.

Beta-Carotene.
Coloring, nutrient: Coffee creamer, margarine, butter, candy.
It’s an orange pigment that the body converts to vitamin A.

Brominated Vegetable Oil (BVO).
Clouding agent, emulsifier: Soft drinks.
It’s occasionally used to keep flavor oils in suspension and give a cloudy appearance to citrus-flavored soft drinks. Small residues of BVO remain in body fat, but it’s unclear whether they pose any risk.

Butylated Hydroxyanisole (BHA).
Antioxidant: Cereal packages, chewing gum, oil, potato chips.
It retards rancidity in fats, oils, and foods that contain oil. According to the federal government’s National Toxicology Program, it is “reasonably anticipated to be a human carcinogen,” based on animal studies.

**KEY**

Next to each additive is one or more symbols. Here’s what they mean.

- **SAFE.**
- **CUT BACK.** Not toxic, but large amounts may be unsafe or unhealthy.
- **CAUTION.** May pose a risk and needs to be better tested.
- **CERTAIN PEOPLE SHOULD AVOID.**
- **EVERYONE SHOULD AVOID.** Unsafe or very poorly tested and not worth any risk.
**Artificial Colorings**

They’re used almost exclusively in products with little nutritional value (candy, soda, etc.), so you won’t be missing much if you avoid foods that contain them. The presence of colorings usually signals the absence of fruit or other natural ingredients. Colorings contribute to hyperactivity in some children.

- **Blue 1.** Baked goods, beverages, candy.
  - Inadequate tests suggested a small cancer risk.

- **Blue 2.** Beverages, candy, pet food.
  - The largest study suggested that it caused brain tumors in male mice. Unfortunately, the Food and Drug Administration concluded that there is “reasonable certainty of no harm.”

- **Citrus Red 2.** Skin of some Florida oranges.
  - Studies indicated that it may slightly increase the risk of cancer, but the coloring doesn’t seep through the orange skin into the pulp. Because so little is used, you have only a minuscule increased risk if you eat the peel.

- **Green 3.** Beverages, candy.
  - A 1981 industry-sponsored study showed hints of bladder cancer in laboratory animals, but after the FDA reanalyzed the data, it concluded that the dye was safe. Fortunately, Green 3 is rarely used.

- **Red 3.** Baked goods, candy, cherries in fruit cocktail.
  - The FDA’s recommendation that Red 3 be banned—based on evidence that it caused thyroid tumors in rats—was overruled by pressure from the Reagan Administration.

- **Red 40.** Candy, gelatin dessert, pastries, pet food, sausage, soda.
  - An FDA review committee acknowledged that the most widely used food dye caused problems in key mouse studies, but said that evidence of harm was not “consistent” or “substantial.”

- **Yellow 5.** Baked goods, candy, gelatin dessert, pet food.
  - The second most widely used coloring can cause mild allergic reactions, mostly in the small number of people who suffer allergic reactions to aspirin.

- **Yellow 6.** Baked goods, beverages, candy, gelatin, sausage.
  - Industry-sponsored animal tests indicated that the third most widely used dye caused tumors of the adrenal gland and kidney. What’s more, small amounts of several carcinogens can contaminate Yellow 6. Even so, the FDA concluded that the coloring doesn’t endanger humans. Yellow 6 may also cause allergic reactions.

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**Butylated Hydroxytoluene (BHT).**

Antioxidant: Cereal, chewing gum, oil, potato chips.

It keeps oils from going rancid. In some animal studies it increased the risk of cancer; in others it decreased the risk.

**Caffeine.**

Flavoring, stimulant: Added to soft drinks and water. Occurs naturally in coffee, tea, cocoa, and chocolate.

It improves alertness and endurance, especially for the sleep-deprived, but can also interfere with sound sleep and make you jittery. If you have those symptoms, consider cutting back. Caffeine is mildly addictive; it causes headaches, irritability, or sleepiness when you go too long without it. High doses (more than 200 mg a day) may increase the risk of miscarriage or rare birth defects. Avoid caffeine if you are pregnant or are trying to become pregnant.

**Calcium Propionate, Sodium Propionate.**

Preservative: Bread, cake, pie, rolls.

Calcium propionate prevents the growth of mold on bread and rolls. The calcium is a nutrient and the propionate is safe. Since calcium interferes with leavening agents, sodium propionate, which is also safe, is used in pies and cakes.

**Calcium (or Sodium) Stearoyl Lactylate or Sodium Stearoyl Fumarate.**

Dough conditioner, whipping agent: Artificial whipped cream, bread dough, cake filling, processed egg whites.

They strengthen bread dough so that it can be used in commercial bread-making machinery. They help produce a more uniform grain and greater bread volume. And they act as whipping agents in dried, liquid, or frozen egg whites and artificial whipped cream.

**Carrageenan.**

Stabilizing and thickening agent: Chocolate milk, cottage cheese, ice cream, infant formula, jelly.

It comes from seaweed. Large amounts have damaged the colons of test animals, though the small amounts in food are safe.

**Casein, Sodium Caseinate.**

Thickening and whitening agent: Coffee creamer, ice cream, ice milk,sherbet.

Casein is the principal protein in milk. Since it’s used in some “non-dairy” and “vegetarian” foods, people who are allergic to milk need to read labels carefully.

**Citric Acid, Sodium Citrate.**

Acid, chelating agent, flavoring: Candy, soft drinks, fruit drinks, ice cream, instant potatoes, sherbet.

Citric acid is used as a tart flavoring and an antioxidant. Sodium citrate is a buffer that controls the acidity of gelatin desserts, jams, ice creams, candies, and other foods.
Cochineal or Carmine.
Artificial coloring: Beverages, candy, ice cream, yogurt.
Cochineal extract is a red coloring made from the dried and pulverized bodies of insects. Carmine is a more purified coloring made from cochineal. Both have caused rare allergic reactions that range from hives to life-threatening anaphylactic shock.

Corn Syrup.
Sweetener, thickener: Beverages, cake, candy, cereal, cookies, syrup, yogurt.
Corn syrup—which consists mostly of dextrose—is a sweet, thick liquid made by treating cornstarch with acids or enzymes. It is sometimes dried and used as corn syrup solids in coffee creamers and other dry foods. It has no nutritional value other than calories, it promotes tooth decay, and it is used mainly in foods with little nutritional value.

Dextrose (Glucose, Corn Sugar).
Sweetener: Bread, cookies, soft drinks.
When added to foods as a sweetener, it means empty calories and tooth decay.

EDTA.
Chelating agent: Canned shellfish, margarine, mayonnaise, processed fruits and vegetables, salad dressing, sandwich spreads, soft drinks.
Modern food-manufacturing technology leaves trace amounts of metal in food (from metal rollers, blenders, and containers). EDTA (ethylenediamine tetraacetic acid) chelates the metals—that is, it traps impurities that would otherwise make oils rancid and break down artificial colors.

Ferrous Gluconate.
Coloring, nutrient: Black olives.
It’s used to generate a uniform jet-black color in olives and as a source of iron in foods.

Fructose.
Sweetener: “Health” foods and drinks.
Pure fructose is used as a sweetener in a small number of foods. Modest amounts are safe and don’t boost blood sugar levels. But large amounts consumed on a regular basis may raise the risk of heart disease by increasing blood triglyceride levels. They may also contribute to obesity because fructose affects hormones that regulate weight and may not curb appetite as much as an equal amount of glucose or sucrose.

Fumaric Acid.
Tartness agent: Gelatin dessert, pie filling, powdered drinks.
It adds tartness and acidity. To help it dissolve faster in cold water, it’s often mixed with dioctyl sodium sulfosuccinate (DSS), an additive that appears to be safe.

Gelatin.
Gelling and thickening agent: Beverages, cheese spreads, ice cream, powdered dessert mixes, yogurt.
It’s a protein obtained from animal hides and bones that has less nutritional value than other proteins.

Glycerin (Glycerol).
Maintains water content: Baked goods, candy, fudge.
It’s a natural component of fat molecules. The body uses it for calories or to make more-complex molecules.

Gums (Arabic, Furcelleran, Ghatti, Guar, Karaya, Locust Bean, Tragacanth, Xanthan).
Stabilizers, thickening agents: Beverages, candy, cottage cheese, dough, drink mixes, pudding, ice cream, salad dressing.
Gums are derived from natural sources (bushes, trees, seaweed, bacteria). Though poorly tested, they’re probably safe. In rare instances, tragacanth has caused severe allergic reactions.

High-Fructose Corn Syrup (HFCS).
Sweetener: Soft drinks, many other foods.
This mixture of two sugars (it’s about half fructose, half glucose) has largely replaced table sugar (sucrose) in soft drinks and many other foods because it’s cheaper. Despite the urban myth, it’s not worse for you than sucrose. Like other sugars, it promotes obesity, tooth decay, and—in people with high triglycerides—heart disease.

Hydrolyzed Vegetable Protein (HVP).
Flavor enhancer: Beef stew, frankfurters, instant soup, sauce mixes.
It consists of plant protein (usually from soybeans) that has been chemically broken down into its amino acid components. HVP brings out the natural flavor of food. It contains MSG, and large amounts may cause reactions in sensitive people (see MSG).

Inulin.
Fat and sugar substitute, source of fiber: Margarine, baked goods, fillings, dry foods, frozen desserts, salad dressing.
It’s a naturally occurring soluble fiber. Inulin doesn’t raise blood sugar levels, so it may help people with diabetes. It also stimulates the growth of friendly bacteria in the large intestine.

Invert Sugar.
Sweetener: Candy, soft drinks.
This 50-50 mixture of two sugars (dextrose and fructose) is sweeter and dissolves better than sucrose (table sugar). It’s nothing but empty calories and it contributes to tooth decay.

Lactic Acid.
Controls acidity: Carbonated beverages, cheese, frozen desserts, Spanish olives.
It inhibits spoilage in Spanish olives, balances the acidity in cheese, and adds tartness to frozen desserts, carbonated fruit-flavored sodas, and other foods.
**Additive Shopping Guide**

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<tr>
<th>Safe</th>
<th>Cut Back</th>
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<tbody>
<tr>
<td>Alginate</td>
<td>Corn syrup</td>
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<tr>
<td>Alpha tocopherol (Vitamin E)</td>
<td>Dextrose (corn sugar, glucose)</td>
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<tr>
<td>Ascorbic acid (Vitamin C)</td>
<td>Fructose</td>
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<tr>
<td>Beta-carotene</td>
<td>High-fructose corn syrup (HFCS)</td>
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<tr>
<td>Calcium propionate</td>
<td>Invert sugar</td>
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<tr>
<td>Calcium stearoyl lactylate</td>
<td>Maltilt</td>
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<td>Carrageenan</td>
<td>Mannitol</td>
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<tr>
<td>Citric acid</td>
<td>Polydextrose</td>
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<td>Dioctyl sodium sulfosuccinate</td>
<td>Salt (sodium chloride)</td>
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<tr>
<td>EDTA</td>
<td>Sorbitol</td>
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<tr>
<td>Erythorbic acid</td>
<td>Sugar (sucrose)</td>
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<tr>
<td>Ethyl vanillin</td>
<td>Xylitol</td>
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<tr>
<td>Ferrous gluconate</td>
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<td>Fumaric acid</td>
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<td>Gelatin</td>
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<td>Glycerin (glycerol)</td>
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<tr>
<td>Gums (arabic, furcelleran, ghatti, guar, karaya, locust bean, xanthan)</td>
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<td>Inulin</td>
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<td>Lactic acid</td>
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<td>Lecithin</td>
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<td>Maltodextrin</td>
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<td>Modified starch</td>
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<td>Mono- and diglycerides</td>
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<td>Neotame</td>
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<td>Oat fiber</td>
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<td>Oligofructose</td>
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<td>Phosphates</td>
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<td>Phosphoric acid</td>
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<td>Phytostanols</td>
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<td>Phytosterols</td>
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<td>Polysorbate 60, 65, 80</td>
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<td>Potassium sorbate</td>
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<td>Propylene glycol alginate</td>
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<td>Sodium ascorbate</td>
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<td>Sodium carboxymethylcellulose</td>
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<td>Sodium citrate</td>
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<td>Sodium propionate</td>
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<td>Sodium stearyl fumarate</td>
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<td>Sodium stearyl lactylate</td>
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<td>Sorbic acid</td>
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<td>Sorbitan monostearate</td>
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<td>Starch</td>
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<td>Sucralose (Splenda)</td>
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<td>Thiamin mononitrate</td>
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<td>Vanillin</td>
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<td>Wheat fiber</td>
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<tr>
<th>Caution</th>
<th>Certain People Should Avoid</th>
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<tr>
<td>Artificial colorings (Citrus Red 2, Red 40)</td>
<td>Artificial colorings (Yellow 5)</td>
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<tr>
<td>Brominated vegetable oil (BVO)</td>
<td>Artificial and natural flavoring</td>
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<tr>
<td>Butylated hydroxytoluene (BHT)</td>
<td>Caffeine</td>
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<tr>
<td>Quinine</td>
<td>Carmine</td>
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<td></td>
<td>Casein</td>
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<td>Cochineal</td>
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<td>Gums (tragacanth)</td>
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<td>Hydrolyzed vegetable protein (HVP)</td>
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<td></td>
<td>Lactose</td>
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<td>MSG (monosodium glutamate)</td>
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<td>Mycoprotein (Quorn)</td>
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<td>Quinine</td>
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<td>Sodium benzoate</td>
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<td>Sodium caseinate</td>
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<td>Sulfites (sodium bisulfite, sulfur dioxide)</td>
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<th>Avoid</th>
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<tr>
<td>Acesulfame potassium</td>
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<tr>
<td>Artificial colorings (Blue 1, Blue 2, Green 3, Red 3, Yellow 6)</td>
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<tr>
<td>Aspartame (NutraSweet)</td>
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<td>Butylated hydroxyanisole (BHA)</td>
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<td>Olestra (Olean)</td>
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<td>Partially hydrogenated oil</td>
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<td>Potassium bromate</td>
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<td>Propyl gallate</td>
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<td>Saccharin</td>
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<td>Sodium nitrate, sodium nitrite</td>
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<td>Stevia</td>
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**COVER STORY**

**Lactose.**

Sweetener: Breakfast pastries, whipped topping mixes.

Lactose (milk sugar) is nature’s way of delivering calories to infant mammals. It’s one-sixth as sweet as table sugar and is added to foods as a slightly sweet source of carbohydrates. Some adults have trouble digesting large amounts of lactose.

**Lecithin.**

Antioxidant, emulsifier: Baked goods, chocolate, ice cream, margarine.

It occurs naturally in soybean oil and eggs. It keeps oil and water from separating, retards rancidity, reduces spattering, and helps make cakes fluffier.

**Maltitol, Mannitol.**

Sweeteners: Candy, chocolate, jam, other sugar-free foods.

Like other sugar alcohols (sorbitol, xylitol), maltitol and mannitol are not well absorbed by the body, so they have fewer calories than table sugar. And they don’t promote tooth decay. Large amounts (above 20 to 30 grams) may have a laxative effect.

**Maltodextrin.**

Thickening agent, sweetener: Canned fruit, salad dressing, instant pudding.

It’s made from starch. Some maltodextrins are easily digested and absorbed, while others are chemically processed so that they are “resistant”—they can’t be broken down by digestive enzymes. That makes them an isolated fiber. These resistant maltodextrins may help lower blood sugar levels, but don’t help prevent constipation.

**Mono- and Diglycerides.**

Emulsifiers: Baked goods, candy, margarine, peanut butter.

They make bread softer, margarine more stable, and caramel less sticky. They also prevent the oil in peanut butter from separating.

**MSG (Monosodium Glutamate).**

Flavor enhancer: Chips, frozen entrées, restaurant food, salad dressing, soup.

MSG is the sodium salt of a common amino acid, glutamic acid. It brings out the flavor of foods. In the 1960s, researchers discovered that large amounts fed to infant mice destroyed brain cells. Careful studies have shown that a small number of people are sensitive to large doses of MSG. Reactions include headache, nausea, weakness, and burning sensations in the back of the neck and the forearms. Other ingredients, like natural flavoring and hydrolyzed vegetable protein (HVP), also contain glutamate.

**Mycoprotein.**

Meat substitute: Quorn brand foods.

It’s made from processed mold (fungus) and is fashioned into imitation meat. A small percentage of people are sensitive to it. Reactions include vomiting, nausea, diarrhea, and, less often, hives and potentially fatal anaphylactic reactions. The FDA has refused to ban the use of mycoprotein or to require foods to bear a warning label about adverse reactions.
Neotame.
Artificial sweetener: Diet soda, other diet foods.

It’s chemically related to aspartame, but is used at much lower levels. It’s also more stable (unlike aspartame, it can be used in baked foods). Neotame doesn’t appear to be a problem for people with PKU (phenylketonuria).

Oat Fiber, Wheat Fiber.
Isolated fiber: Cereal, crackers, bread, muffins.

When a food ingredient contains the word “fiber,” it’s code for an isolated fiber. “Wheat fiber” and “oat hull” fiber are insoluble fibers, which may help prevent constipation but don’t lower blood cholesterol or blood sugar. “Oat fiber” can be either insoluble or soluble fiber. Soluble fiber may lower blood cholesterol and blood sugar but doesn’t prevent constipation.

Olestra (Olean).
Fat substitute: Lay’s Light chips, Pringles Light chips.

It’s a synthetic fat that isn’t absorbed as it passes through the digestive system, so it has no calories. It can cause severe and incapacitating diarrhea, loose stools, abdominal cramps, and flatulence.

Oligofructose.
Sweetener, bulking agent, emulsifier, prebiotic: Frozen desserts, cookies, energy and granola bars.

It’s either synthesized from sucrose or extracted from chicory roots. Like inulin and other soluble fibers, oligofructose is digested by bacteria in the large intestine, but not by human enzymes, and provides only about half the calories of fructose or other sugars. Oligofructose promotes the growth of beneficial bifidus bacteria.

Partially Hydrogenated Oil.
Fat: Baked goods, fried restaurant food, icing, microwave popcorn, pie crust, shortening, stick margarine.

Vegetable oil can be made into a semisolid shortening or margarine by chemically adding hydrogen. The process creates trans fats, which raise LDL (“bad”) cholesterol and lower HDL (“good”) cholesterol, making them worse for your heart than saturated fat.

Phosphates, Phosphoric Acid.
Acidulant, buffer, chelating agent, color stabilizer, emulsifier, nutrient: Baked goods, breakfast cereal, cheese, cured meat, dehydrated potatoes, powdered food, soda.

While excessive consumption of phosphates may contribute to osteoporosis, only a small fraction of the phosphates in the diet comes from additives.

Phytosterols or Phytostanols.
Cholesterol-lowerers: Margarine (Benecol, Take Control), added to some orange juices and breads.

Plant sterols (or stanols) are found naturally in many nuts, seeds, vegetable oils, fruits, vegetables, and other foods. High doses can reduce the absorption of cholesterol from food, which can lower LDL (“bad”) cholesterol levels by 10 to 15 percent. They may also slightly reduce the absorption of carotenoids.

Polydextrose.
Bulking agent: Reduced-calorie salad dressing, baked goods, candies, pudding, frozen desserts.

Polydextrose is made by combining dextrose (corn sugar) with the sugar alcohol sorbitol. The result is a slightly sweet, reduced-calorie bulking agent. The FDA requires labels of foods that would likely provide more than 15 grams of polydextrose to carry a mild warning: “Sensitive individuals may experience a laxative effect from excessive consumption of this product.”

Polysorbate 60.
Emulsifier: Baked goods, frozen desserts, imitation cream.

Polysorbate 60 and its close relatives, polysorbate 65 and polysorbate 80, work like mono- and diglycerides. They keep baked goods from going stale, keep dill oil (a flavoring) dissolved in bottled dill pickles, help coffee creamers dissolve, and prevent oil from separating in artificial whipped cream.

Potassium Bromate.
Dough strengthener: White flour.

Most bromate rapidly breaks down to form innocuous bromides. However, bromate itself causes cancer in animals, and the tiny amounts that may remain in bread pose a small risk. Bromate was banned in the United Kingdom in 1989 and it isn’t used in California (probably because foods made with it would have to carry a cancer warning).

Propyl Gallate.
Antioxidant, preservative: Chewing gum, chicken soup base, meat, potato sticks, oil.

It helps prevent fats and oils from spoiling and is often used together with BHA and BHT. The best animal studies hinted that it might cause cancer.

Quinine.
Flavoring: Bitter lemon, quinine water, tonic water.

Quinine has been poorly tested as a food additive, and there’s a slight chance that it causes birth defects, so pregnant women should avoid it.

Saccharin.
Artificial sweetener: No-sugar-added foods, tabletop sweetener (Sweet’N Low).

Animal studies have shown that it can cause cancer of the bladder, uterus, ovaries, skin, and other organs. It also appears to increase the potency of other cancer-causing chemicals. A National Cancer Institute study found that heavy-saccharin users had higher rates of bladder cancer than people who used smaller amounts.

Salt (Sodium Chloride).
Flavoring, preservative: Most processed foods.

It’s probably the single most harmful substance in the food supply. In most people, a diet high in sodium increases blood pressure, which raises heart disease risk.
Sodium Benzoate, Benzoic Acid.
Preservative: Carbonated drinks, fruit juice, pickles.
It appears to be safe, though sensitive people may experience hives, asthma, or other allergic reactions. Sodium benzoate may also exacerbate hyperactivity in some children. When sodium benzoate is used in acidic beverages that also contain ascorbic acid (vitamin C), the two can form small amounts of benzene, which causes leukemia and other cancers. Under threat of a lawsuit, the leading soft-drink makers recently re-formulated their beverages—typically fruit-flavored drinks—to prevent the reaction.

Sodium Carboxymethylcellulose (CMC).
Thickening and stabilizing agent: Beer, candy, diet foods, ice cream, icing, pie filling.
Among other things, it keeps sugar from crystallizing.

Sodium Nitrate, Sodium Nitrite.
Coloring, flavoring, preservative: Bacon, corned beef, frankfurters, ham, luncheon meat, smoked fish.
Sodium nitrite stabilizes the red color in cured meat and adds flavor. Without it, hot dogs and bacon would look gray. It also helps prevent the growth of bacteria that cause botulism. Adding nitrite to food can create small amounts of potent cancer-causing chemicals called nitrosamines, particularly in fried bacon. Companies now add ascorbic acid or erythorbic acid to bacon to keep nitrosamines from forming. While nitrate and nitrite introduce only a small cancer risk, they’re still worth avoiding.

Sorbic Acid, Potassium Sorbate.
Prevents mold: Cake, cheese, dried fruit, jelly, syrup, wine. Sorbic acid occurs naturally in many plants.

Sorbitan Monostearate.
Emulsifier: Cake, candy, pudding, icing.
Like mono- and diglycerides and polysorbates, it keeps oil and water from separating. In chocolate candy, it prevents the discoloration that normally occurs when the candy is warmed up and then cooled.

Sorbitol.
Maintains moisture; sweetener, thickening agent: Diet drinks, no-sugar-added candy and chewing gum.
It’s a sugar alcohol that occurs naturally in fruits and is a close relative of sugar, though it’s half as sweet. Because bacteria don’t metabolize sorbitol well, it’s used in no-sugar-added chewing gum, which doesn’t cause tooth decay. Some diabetics use sorbitol-sweetened foods because it’s absorbed slowly and doesn’t cause blood sugar to increase rapidly. Moderate amounts of sorbitol may have a strong laxative effect, but otherwise it’s safe.

Starch, Modified Starch.
Thickening agent: Baby food, gravy, soup.
It’s used in many foods as a thickening agent and to keep solids suspended. Chemists can “modify” it with certain chemicals to make it dissolve in cold water. Starch and modified starches sometimes replace nutritious ingredients like fruit. One preliminary study indicated that modified starches can cause diarrhea in infants.

Stevia.
Natural sweetener: Dietary supplement.
Small amounts are probably safe. High doses fed to rats reduced sperm production and increased cell proliferation in their testicles, which could cause infertility or other problems. Stevia can only be sold in the United States as a dietary supplement, but several companies are reportedly developing a stevia-derived sweetener and plan to seek approval from the FDA to use it in foods.

Sucralose.
Artificial sweetener: No-sugar-added baked goods, frozen desserts, ice cream, soft drinks, tabletop sweetener (Splenda).
Unlike aspartame, sucralose can be used in baked foods. It appears to be the safest artificial sweetener, though no independent tests have been conducted.

Sugar (Sucrose).
Sweetener: Sweetened food, table sugar.
Sucrose (table sugar) occurs naturally in fruit, sugar cane, and sugar beets. Sugar, corn syrup, and other refined sweeteners make up about 15 percent of the average person’s diet, but provide no vitamins, minerals, fiber, or protein. Sucrose and other refined sugars can promote obesity, tooth decay, and—in people with high triglycerides—heart disease.

Sulfites (Sodium Bisulfite, Sulfur Dioxide).
Bleach, preservative: Dried fruit, processed potatoes, shrimp, wine.
Sulfiting agents prevent discoloration (in dried fruit, some fresh shrimp, and some dried, fried, or frozen potatoes) and bacterial growth (in wine). They also destroy vitamin B-1. Sulfites can cause severe reactions in sensitive people, especially those with asthma.

Thiamin Mononitrate.
Vitamin B-1: Enriched flour, fortified cereal.
It’s perfectly safe.

Vanillin, Ethyl Vanillin.
Substitute for vanilla: Baked goods, beverages, candy, chocolate, frozen desserts, gelatin.
Vanilla flavoring is derived from a bean, but vanillin, the major flavor component of vanilla, is cheaper to produce in a factory. A derivative, ethyl vanillin, comes closer to matching the taste of real vanilla.

Xylitol.
Sweetener: Sugar-free chewing gum, low-calorie foods.
Like other sugar alcohols (maltitol, mannitol, sorbitol), xylitol is not well absorbed by the body, so it has fewer calories than table sugar. And it doesn’t promote tooth decay. Large amounts may have a laxative effect.