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Synthetic Phosphates as Top Food Chemicals of Concern: What the Research Says and Why Warning Labels are Warranted

Synthetic phosphates make our top food chemicals of concern list because they have the distinction of not only being linked to adverse symptoms for sensitive groups, but also as having the potential to harm well-being for the larger consumer population base as well. In fact, scientific research findings have found a link between synthetic phosphates and heart and kidney disease even among young, healthy people. Unfortunately, while a number of conventional medicine practitioners have been beating the drum about the adverse health effects of synthetic phosphates for a number of years, synthetic phosphate food additives, which are highly prevalent in U.S. processed foods, are off the radar of mainstream media reports and therefore many consumers have no idea of the risks involved.

A Brief Overview of Synthetic Phosphates

Synthetic phosphates—a widely used group of industrialized food chemicals appearing in hundreds of food items—are included among those with the potential to create serious health problems for a wide variety of consumers, including the young and healthy. Calcium Phosphate, Potassium Phosphate and Sodium Phosphate are among numerous industrialized phosphorous-based food additives commonly used as preservatives, emulsifiers, and acidifying and buffering agents in processed foods found in grocery stores, fast food and conventional restaurants. The use of phosphates in popular processed foods in the U.S. dates back decades; as far back as the 1940's, for instance, sodium phosphate was making an appearance in General Mill's popular breakfast cereal Cheerios (then called, “Cheerioats”). Some people opposed to the idea that food chemicals may be linked to adverse health outcomes have used the argument that some of these chemicals have been in our food supply for so long that if they were unhealthy 'we would all be dead'. Well, not dead maybe, but sick. While people in the U.S. tend to live longer than people in many other countries, and despite the fact that we spend more on health care, we are also one of the sickest industrialized nations in the world. And some whole food advocates, including several outspoken professionals trained in conventional medicine, have argued that it is the pervasiveness of processed foods in the American diet that is making us so sick.

Synthetic phosphorous or phosphates, especially calcium phosphate, sodium phosphate and potassium phosphate, are among the additives suspected of triggering serious health problems in even healthy people and leading to serious complications among those people with existing health conditions such as heart or kidney problems. Research and clinical reports suggest that allergic reactions to this additive are possible in some people and can include difficulty breathing, skin reactions such as hives, swelling of face, eyelids, lips, throat or tongue, constipation, decreased appetite, dry mouth, and increased urination. Additionally, industrialized phosphate additives have been linked with complicating certain health conditions and people with a history of kidney stones, osteoporosis, certain

glandular problems, or taking certain medications may be advised by health care professionals to minimize intake of processed foods containing this additive.

What makes synthetic phosphates potentially so dangerous? This food additive is phosphorous-based but unlike naturally occurring phosphates which are not absorbed fully by the body, industrialized inorganic phosphate food additives such as calcium phosphate, sodium phosphate and potassium phosphate are effectively absorbed and can measurably elevate the serum phosphate concentration. High serum phosphate concentrations (hyperphosphatemia) has been linked to complications and increased incidence of death in those individuals with advanced chronic kidney disease (CKD) and is an independent predictor of cardiovascular events. Further, research indicates that phosphate food additives are linked with vascular damage (e.g. endothelial dysfunction and vascular calcification) and in animal studies has been shown to accelerate the aging process and age-related organ complications. Individuals with renal disease or cardiovascular disease (or those with health conditions placing kidney or cardiovascular health at risk such as those with diabetes) may be advised by health care professionals to limit or avoid processed foods sold at supermarkets as well as restaurant foods containing this food additive. High dietary consumption of industrialized phosphates has also been linked with certain cancers. Additionally, some scientific and medical researchers have argued that phosphate additives in food may harm the health of persons with normal renal function. Results from a large scale epidemiological study suggest that phosphate additives are potentially dangerous even for healthy members of the general public. Given the potential for serious health outcomes, scientific researchers as well as practitioners have argued that the public should be informed that phosphate food additives are damaging to health and further that processed foods containing these additives should carry warning labels. We strongly support the call for consumer warning labels and call on big food manufacturers to significantly reduce the levels of synthetic phosphate additives in processed foods and replace them with additives that are less potentially harmful to U.S. consumers.

Where are synthetic phosphate food additives hiding?

As stated earlier, synthetic/industrialized phosphates make an appearance in hundreds of processed food items at your local grocery store, as well as in some food items sold at fast food and conventional restaurants. Here are just a few examples:

Calcium Phosphate (*Calcium Acid Phosphate*)

Where Found: Food additive used for leavening and preserving texture in processed foods. Calcium Phosphate is just one of numerous phosphate-based industrialized food additives (that include Potassium Phosphate and Sodium Phosphate) commonly used as preservatives, emulsifiers, and acidifying and buffering agents in processed foods found in grocery stores, fast food and conventional restaurants. Not to be confused with naturally-occurring phosphates, this industrialized additive is used in hundreds of processed food items including processed frozen dough products (frozen pizza, bakery items and biscuits), cake mixes, pancake mixes, breads, biscuit mixes, packaged bakery items, pizza dough, processed meats, lunch meats, ham, and canned tuna. It is also used in cheese products and to preserve texture in frozen and canned vegetables and canned fruits. Also used as a nutrient supplement and as an abrasive in toothpaste.

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Disodium Phosphate (DSP)

Where Found: This additive is used by processed food manufacturers as a stabilizer, emulsifier, buffering agent and sequestrant, as well as acting as a preservative to retard spoilage, and as a texturizer/anti-caking additive in processed foods. Commonly found in ice cream, frozen desserts, cheese dips and powdered toppings, cheese slices, imitation cheese, sauces, chocolate, no-bake cheesecakes, packaged noodles and pasta products, some canned/packaged meat products, bacon, toppings, evaporated milk, powdered milk & canned milk products, creamers, cooked cereals, dry cereals, instant puddings, etc.

Potassium Phosphate

Where Found: Potassium Phosphate is just one of numerous phosphate-based industrialized food additives (that include Calcium Phosphate and Sodium Phosphate) commonly used as preservatives, emulsifiers, and acidifying and buffering agents in processed foods found in grocery stores, fast food and conventional restaurants. Not to be confused with naturally-occurring phosphates, this industrialized additive is used in hundreds of processed food items including frozen dinners, soft cheese, powdered milk, coffee and pudding products, self-basting turkeys, nondairy creamers, boxed

and canned convenience food meals. Processed food items that typically contain large amounts of added phosphate include baked goods, processed meats and poultry, ham, sausages, canned fish, cola drinks, and other soft drinks.

Sodium Acid Pyrophosphate (*Disodium Dihydrogen Diphosphate; Disodium Pyrophosphate*)

Where Found: Food additive used for leavening in processed baked goods and to shorten the fermentation time in cakes, pies, pizza breads and crackers, for preserving fats in processed foods, for cleaning dairy products, as a preservative in seafood canning, in potato treatment processes to prevent browning in potato-based processed foods (including frozen hash browns) and as a chemical-dip to prevent browning in some fast food and traditional restaurant processed French fries, and as a buffering and acidifying agent in a variety of other foodstuffs. Can also be found in noodles, refrigerated dough/dough-based foods, batter, baking powder, packaged cake, waffles and pancake mixes, processed, cured meats, cheeses, puddings, sugar-based syrups and chewing gum. (Note: May also be present in personal care products such as toothpaste.)

Sodium Hexametaphosphate

Where Found: This industrialized additive is used as a texturizer, emulsifier and thickener in a variety of processed foods such as breakfast cereals, milk and cheese products (incl. ice cream, canned milk and cheese spreads, dips and powders and imitation cheese), processed meat and fish, frozen desserts, jellies/jams, toppings, dressings, gravies, syrups, alcoholic and nonalcoholic beverages. May also be used in food packaging (where it may migrate into food) as well as pet food.

Sodium Phosphate (*Sodium Tripolyphosphates*)

Where Found: Sodium Phosphate is just one of numerous phosphate-based industrialized food additives (that include Calcium Phosphate and Potassium Phosphate) commonly used as preservatives, emulsifiers, and acidifying and buffering agents in processed foods found in grocery stores, fast food and conventional restaurants. Not to be confused with naturally-occurring phosphates, this industrialized additive is used in hundreds of processed food items including frozen dinners, soft cheese, powdered milk, coffee and pudding products, self-basting turkeys, nondairy creamers, boxed and canned convenience food meals. Processed food items that typically contain large amounts of added phosphate include baked goods, processed meats, enhanced meats (added broth/self-basting) and poultry, ham, sausages, canned fish, cola drinks, and other soft drinks.

Rethinking our Consumption of Synthetic Phosphates in Processed Foods

Perhaps you might think that the entire business about synthetic phosphate food additives is a bit reactionary. You may be asking, ‘If these industrialized phosphates hold so much potential for serious health complications, wouldn't they always have been a problem? Why should we be concerned about them now?’ The answer is twofold. First, quantity: What may have amounted to a relatively small and innocuous dose of this additive at breakfast 75 years ago has now become a pervasive, widespread, and high intake occurrence with industrialized phosphates appearing in multiple food items commonly consumed daily by U.S. consumers for breakfast, lunch, supper and snacks. Industrialized phosphate additives make an appearance in hundreds of processed food items including frozen dinners, soft cheese, powdered milk, coffee and pudding products, nondairy creamers, boxed and canned

convenience food meals, baked goods, frozen dough products (including frozen pizza, bakery items, and biscuits), cake mixes, pancake mixes, breads, biscuit mixes, packaged bakery items, pizza dough, processed meats, lunch meats, enhanced meats (such as those with added broth and/or self-basting—including self-basting turkeys), poultry, ham, sausages, canned fish (including canned tuna), as well as cola and other soft drinks, to name a few. Industrialized phosphates such as calcium phosphate are also used in cheese products and to preserve texture in frozen and canned vegetables and canned fruits. A recent study found that primarily eating canned fruits (as opposed to fresh or frozen varieties) is linked to an alarming 17% increase in the statistical risk for death from the most common health-related causes. When we look at the amount of synthetic and industrialized food additives in canned fruit, phosphates being chief among them, (recall that synthetic phosphates have been linked with heart disease and kidney failure even in young, healthy individuals), it is hard not to wonder if these additives may be a contributing factor.

The second reason we may want to rethink our consumption of these additives concerns the potential for compounding and synergistic effects—something that a number of scientists have stated they have grave concerns about. Remember, we not only have industrialized phosphates prevalent in processed foods found at U.S. grocery stores and restaurants, but thousands of other additives as well. And food is just one source of chemicals entering our bodies. There is also a daily onslaught of numerous chemicals of concern via prescription and over-the-counter medications (which frequently contain some of the same potentially problematic additives that are in our food), an array of toxic chemicals present in our personal care products and cosmetics, household product toxins such as air freshener sprays, home maintenance, laundry and cleaning products, and toxins from furniture, flooring and cabinets and the like, toxic chemicals on textiles such as bed sheets, towels and clothing, as well as exposure to toxins and pollutants from the general environment. Numerous studies, including one from our own government's Center for Disease Control (CDC), have indicated that the majority of U.S.

citizens tested positive for numerous chemicals in their bodies, several of which are known toxins.

With all of the exposure to toxic chemicals it would seem that there may be negative consequences to well-being from the interactive effect of some of these chemicals—or at the very least from the sheer numbers of them.

This latter point is a potential problem because our immune systems do not have an infinite capacity to cleanse our bodies from a daily onslaught of toxins. It is not unreasonable to expect that eventually exposure to certain chemicals, including those in the food supply, may become the tipping point or drop that causes the proverbial rain barrel to become overfilled. This risk may become further exacerbated when compounded with normal, everyday stressful life events and exposure to pathogens and other factors that can put increased strain on an already taxed immune system. Given the possibility for adverse outcomes in this scenario, avoiding unnecessary chemicals such as industrialized phosphates in processed foods—chemicals believed by scientists studying them to put even young, healthy bodies at risk—would seem a prudent choice. At the very least, until big food manufacturers begin to reduce and remove synthetic phosphates, avoiding processed foods containing these additives all together would seem a matter to discuss with your health care team.

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