



Healthy School Food
M A R Y L A N D

Primary and Secondary Education – Health and Safety – Chemical-Free School Food Act

HealthySchoolFoodMD.org

Background

Most schools in Maryland serve processed foods containing artificial food dyes and other chemicals that pose possible hazards to children, either because they are mainly used in unhealthy foods, they substitute for nutritious ingredients, they cause reactions in individuals sensitive to them (including **hyperactivity** in sensitive children), and/or available testing shows that they pose a risk of **cancer** or other adverse effects. While these chemicals may have FDA approval, other government bodies, or in some cases, the FDA itself, have expressed concern for many of these chemical food additives. Research subsequent to their inclusion in the food supply may also have called their safety into question.



Purpose of the Bill

This bill would prohibit school districts from selling or serving foods containing artificial flavors, artificial colors, artificial sweeteners (including aspartame, acesulfame potassium, saccharin and sucralose), BHA, BHT, Propyl gallate, TBHQ, Monosodium Glutamate (MSG and other glutamate-containing additives, including autolyzed yeast, Torula yeast, and hydrolyzed vegetable protein), potassium bromate, azodicarbonamide, sodium benzoate, Brominated Vegetable Oil (BVO), sodium nitrite/nitrate, Mycoprotein (Quorn), and sulfites/SO₂.

Information on Chemicals Included in this Bill

The list of chemical food additives included in this bill was developed with the help of the Center for Science in the Public Interest (CSPI), due to scientific evidence indicating their dangers to children. CSPI includes additives on their “caution” or “avoid” list based on several different factors. While these additives may be allowed by the FDA, there are legitimate concerns about their safety. Currently, almost all safety testing of food additives is conducted by the manufacturers, not the FDA, and **most additives have not been thoroughly tested**. The FDA recommends what testing companies should do to demonstrate that a substance is safe, but in practice, many of the recommended tests are rarely conducted. Because of a loophole in the law, in some cases **companies can declare on their own that an additive is “Generally Recognized As Safe” (GRAS), and start adding it to food without even informing the government**. In such cases, though, the ingredients would have to be listed on labels unless their presence is reflected in the non-specific terms “artificial flavorings” or “artificial coloring.” Some food additives that have gone through a more formal government approval process have been shown in subsequent studies to cause adverse effects and are in CSPI’s “avoid” category. The FDA does not normally periodically review the safety of additives (including GRAS substances) once they are accepted into the food supply. More details on each additive follow.

Artificial Colors: The FDA stated “for certain susceptible children with ADHD and other problem behaviors, the data suggest that their condition may be exacerbated by exposure to a number of substances in food, including, but not limited to, artificial food colors.”

Government authorities in Europe require a warning label on foods that contain Red 40, Yellow 5, and Yellow 6 that says “may have an adverse effect on activity and attention in children.” The British government has urged manufacturers not to use those dyes, and advises parents to consider eliminating those dyes from their child’s diet if a child shows signs of hyperactivity or ADHD. In addition, artificial colors including Blue 1, Red 40, Yellow 5, Yellow 6, and carmine or cochineal extract, have all been reported to cause **allergic** or **hypersensitivity reactions** in some people, including **hives, asthma, and occasionally severe or life-threatening reactions**. In addition, caramel coloring, when produced with ammonia, contains the cancer-causing contaminants, 2-methylimidazole (2-MI) and 4-methylimidazole (4-MI). The State of California lists ammonia-caramel coloring as a carcinogen under the state's Proposition 65.

BHA, BHT, Propyl gallate, and TBHQ: BHA is listed in the official U.S. government *Report on Carcinogens* as “reasonably anticipated to be a human carcinogen.” BHT caused cancer in some animal studies. Propyl gallate is suspected of being an endocrine disrupter and a carcinogen. It caused more cancers at a low dose than at a high dose in a government study of laboratory animals. TBHQ was shown to increase the incidence of tumors in rats in a study by the U.S. National Toxicology Program. These synthetic chemicals can be replaced by safer chemicals (e.g., vitamin E), safer processes (e.g., packing foods under nitrogen instead of air), or can simply be left out.

Azodicarbonamide: Scientists with the FDA conducted studies that found that baking bread containing azodicarbonamide creates urethane, which is listed as “reasonably anticipated to be a human carcinogen” in the *Report on Carcinogens*.

Potassium bromate: Causes cancer in animals and has been banned virtually worldwide except in Japan and the United States.

Aspartame: Caused lymphomas, leukemia, kidney, and other cancers in rats and mice in three key studies funded by an independent lab. In addition, aspartame causes headaches or other neurological symptoms in a small number of people.

Acesulfame-potassium: Two rat studies suggest that this additive might cause cancer. In addition, large doses of acetoacetamide, a breakdown product, have been shown to affect the thyroid in rats, rabbits, and dogs. The safety tests on acesulfame potassium were conducted in the 1970’s and were of mediocre quality.

Saccharin: Caused cancer of the bladder, uterus, ovaries, and other organs in animal studies. Human studies have been inconsistent, but some found an association with higher cancer risk. In 1977, the Food and Drug Administration proposed banning saccharin, but Congress intervened and permitted its use with a warning notice. Congress killed the warning-notice requirement in 2000.

Sucralose: Caused leukemia in mice according to the same independent laboratory that tested aspartame.

Sodium nitrite/nitrate: Can lead to the formation of small amounts of potent cancer-causing chemicals (nitrosamines), particularly in fried bacon. Companies now add ascorbic acid or erythorbic acid to bacon to inhibit nitrosamine formation, a measure that has greatly reduced but not eliminated the problem. Several studies link consumption of cured meat and nitrite by children, pregnant women, and adults with various types of cancer. Hot dogs and other cured meats that say “no added nitrite” are often made with celery powder or juice, which are naturally high in nitrite, and no better.

BVO (Brominated Vegetable Oil): Removed from FDA's "Generally Recognized as Safe" list of food ingredients in 1970, the FDA permitted its use only on an "interim" basis pending additional study—one of only four such interim-allowed additives. Decades later, BVO is still poorly tested and remains on the interim list. BVO leaves residues in body fat and the fat in brain, liver, and other organs. Animal studies indicate that BVO is transferred from mother's milk to the nursing infant and also can cause heart lesions, fatty changes in the liver, and impaired growth and behavioral development. BVO is not permitted in Europe.

MSG: Has been shown in careful studies to cause reactions in some people, including headache, nausea, weakness, and a burning sensation on the back of the neck and forearms. Some people complain of wheezing, changes in heart rate, and difficulty breathing.

Mycoprotein (Quorn): Causes vomiting, nausea, diarrhea, and, less often, hives and potentially fatal anaphylactic reactions in sensitive persons. In 2013, an 11-year-old boy who had asthma died after eating a Quorn Turk'y Burger.

Sulfites/SO2: While safe for non-sensitive people, sulfites and SO2 can cause severe reactions, especially in asthmatics.

In addition, **artificial flavors, artificial colors, BHA, BHT, Propyl gallate, potassium bromate and nitrite/nitrate** are also included on **Environmental Working Group's Dirty Dozen Guide to [the most dangerous] Food Additives**.

Applicable Studies

- At Appleton Central Alternative Charter School in Appleton, Wisconsin, **a five-year program with food provided from Natural Ovens Bakery that was free of chemical additives resulted in dramatic changes in student behavior** (see: <http://www.thewholeplate.yihs.net/wp-content/uploads/2010/02/Appleton-school-food-study.pdf>). Before the change, teachers noted that students often interrupted their teachers and peers, lost their place during group readings, listened poorly, visited with each other during class, daydreamed, were off task, got up to sharpen their pencils often, did not follow directions and were not easily able to settle down to complete their writing assignments. Impulsively, students lost their tempers, stormed out of the classroom, used profane language and made inappropriate comments and complained of being tired or ill. After the change to additive-free food, staff asserted that students' disruptive behavior and health complaints (headaches, stomachaches, and feeling tired) diminished substantially and students seemed more able to concentrate. Teacher Mary Bruyette said she saw changes "overnight". She noticed a considerable decrease in impulsive behaviors, such as talking out, fidgeting and the use of foul language. She had fewer disciplinary referrals to the office for students who could not settle down and do their coursework. School staff agreed that they were able to cover a greater amount of material at a more challenging level. **According to Principal LuAnn Coenen, negative behaviors such as vandalism, drug and weapons violations, dropout and expulsion rates, and suicide attempts became virtually nonexistent after the change.**
- **The Food and Behavior Experiment** (see: <http://wholenewmom.com/health-concerns/think-food-doesnt-affect-behavior-read-and-watch-this/>)
Children in Britain aged 5 – 9 attended a party and were split into two groups:
Group One: was fed healthy options such as apple slices, carrot sticks, sandwiches, hummus, etc. and was given water to drink.
Group Two: received typical party foods including candy, potato chips and soda containing large

amounts of sugar, artificial coloring, and other additives. The children’s ability to follow instructions, concentrate, and remember information was then measured as they played party games, and their actions were carefully recorded (see table below). In addition, the healthy food group did 48% better on the party games than the other group.

Results		
	Healthy Food Group	Party Food Group
Mean Behavior	0 incidents	69 incidents
Physical Aggression	8 incidents	63 incidents
Hyperactive Behaviors	30 incidents	163 incidents
Total incidents of Bad Behavior	120	720

Responses to Potential Criticism

- *This will impose too large a cost on local governments.* **Response:** While some small increases in food costs may occur due to these restrictions, local governments will likely see decreases in disciplinary problems, which will offer savings over the course of time. Additionally, it is likely that food manufacturers will simply reformulate their products without these harmful additives, given the large market that Maryland’s schools represent. Further, similarly-priced products without these additives already exist for many food items.
- *This is too high a burden on schools that have recently had to comply with new USDA Smart Snacks standards.* **Response:** This is precisely the moment to add these additional protections for children, while schools are still in the process of updating wellness policies and standards. Our children’s health should never be put in danger for this reason.
- *The FDA approved these substances, so they must be safe.* **False:** As described above, the FDA did not approve many of these substances, studies are often conducted by product manufacturers and do not meet FDA requirements, studies subsequent to FDA approval have questioned the safety of these additives, or political interests have intervened to allow these substances to remain in the food supply. Additionally, many of these substances serve only cosmetic purposes (e.g., food colorings).

Healthy School Food Maryland coalition partners:

Brickyard Educational Farm
 Center for Science in the Public Interest
 Coalition Halting Obesity Everywhere in Children (CHOICE)
 Crossroads Community Food Network
 First Bites
 GrowingSoul
 Healthy Kinder, Inc.
 Maryland Environmental Health Network
 Montgomery County Sustainability Network
 Montgomery Victory Gardens
 Prince George’s County Food Equity Council
 Real Food for Kids - Montgomery
 Safe Grow Montgomery
 Student Section of the Maryland Public Health Association
 Young Activist Club