Artificial Colors

Artificial color certified "FD&C" is permitted by the Food & Drug Administration (FDA) to be added to foods, drugs and cosmetics. "D&C" means the certified color may be used only in drugs and cosmetics. These colorings were originally manufactured from coal tar, but today they are made from petroleum. The FDA certification rules list the permissible amounts of contaminants and residues such as lead, mercury, arsenic, and certain carcinogens such as benzidine. It is interesting to note that the D&C colors permitted only in cosmetics and in medications (and given to sick children) are often allowed to have twice the amount of lead contaminant as colorings allowed in food.[1]

In commercially available FD&C Yellow #5 and #6, benzidine (which causes cancer) has been found in amounts up to 200 times the officially allowed level of only 1 part per *billion*.[2] FD&C colorings continue to be listed as "Generally Recognized As Safe" (GRAS) despite studies showing neurological effects,[3] DNA damage,[4] and elevated cholesterol.[5]

In 2006, almost *19 million pounds* of color additives were certified by FDA inspectors. The FDA receives a "user fee" from the manufacturer for each pound of food dye certified. Note, that means each pound *approved*, not each pound *examined*.[6]

Petroleum … Lead … Mercury … Arsenic …yuck. Whether or not you are sensitive to the additives we eliminate, you may wish to avoid them. Let us show you how to enjoy a "normal American diet" without them.

Artificial Flavors

Used as low-cost substitutes for natural flavorings, these chemicals are not usually listed individually. One that may be listed separately is vanillin *(imitation vanilla)*, widely used in chocolate as well as in vanilla-flavored items. Some people who believe they are allergic to chocolate may actually be reacting to this artificial flavoring. One source of imitation vanilla flavoring is the waste product of paper mills; another is petroleum. Therefore, while vanillin is technically identical to one of the chemicals in pure vanilla flavoring, the manufacturing methods result in high levels of sulfites and other contaminants.

A single artificial flavoring can be a combination of hundreds of individual chemicals, many of which are derived from petroleum. As an example of a (short) formula, here is a synthetic raspberry flavoring: *Vanillin, Ethylvanillin, Alphaionone, Maltol, 1-(p-hydroxy-phenyl)-3-Butanone, Dimethyl Sulphide, 2,5-Dimethyl-N-(2-pyrazinyl) Pyrrole.* Where's the fruit?

Some artificial flavorings may not be problematic, but since they are not identified, the Feingold Program eliminates all of them.

The FDA does not monitor these flavorings nor require that they be tested. Rather, a concept called "threshold of toxicological concern" has been implemented to set acceptable daily intake levels for chemicals *of unknown toxicity*, apparently on the theory that a little bit can't hurt. This is called the "de minimis principle" and was introduced to "save the time, cost, animal use and expertise" usually needed for extensive toxicity testing and safety evaluations.[7]

Even when testing is done, however, it may be ignored. Vanillin, for example, continues to be listed as GRAS despite its ability to inhibit the liver enzyme dopamine sulphotransferase by 50%.[8] Other flavorings affect RNA, thyroid, and enzymes (el-Saadany 1991). Most flavorings have never been studied for neurotoxicity. *See page 32 for more information about colorings and flavorings.*

1. **Food & Drugs**, Title 21
2. **Lancaster,** 1999
3. **Tanaka** 1993, 1996, 2001, 2005; **Vorhees** 1983
4. **Rosenkranz** 1990; **Sweeney** 1994; Tsuda 2001; **Sasaki** 2002
5. **Aboel-Zahab** 1997
6. **Food & Drug Administration –** Report on the Certification of Color Additives.
7. **Kroes** 2000, 2002, 2005
8. **Bamforth** 1993

Preservatives

BHA: *Butylated Hydroxyanisole* **BHT:** *Butylated Hydroxytoluene* **TBHQ:** *Tertiary Butylhydroquinone*

Preservatives are used primarily to prevent fats from becoming rancid, allowing foods to have a longer "shelf-life." Most are not believed to be a health hazard, but the above three petroleum-based preservatives have been found to trigger behavior and health problems.

Studies on these chemicals are disturbing. As early as 1974, a study by Stokes & Scudder[1] reported that when pregnant mice were fed BHA and BHT, it affected the brain chemistry of their offspring, reducing their cholinesterase and serotonin to half the normal levels. They reported, "The affected mice weighed less, slept less and fought more than normal controls."

Since BHA, BHT, and TBHQ are included in so many products containing other additives as well, it would be prudent to study their interactions with each other. One of the few such studies found that BHA can "facilitate the activation of BHT in the lung" and increase its toxicity.[2] Yet it is common to find both of them in the same meal.

> Most additives have ***never*** been studied in combination with each other or with environmental toxins, medications, or vaccines.

Recently, another study on additive interactions[3] showed that a coloring plus an excitotoxin (MSG or aspartame) is far more toxic to developing neurons than either one alone. When two chemicals used together do more damage than each alone added up, it is called "synergy." In real life, we are eating all these chemicals together and for the most part we have no idea what they can do to us in such mixtures.

These preservatives continue to enjoy GRAS (Generally Recognized As Safe) status despite evidence that they are **toxic** to various cells and organs,[4] they are **tumor** promoters,[5] they **weaken the immune system**,[6] they impact the **nervous system and behavior**,[7] they have a negative effect on **sperm and/or egg production**,[8] **reproduction and development**.[9]

Sasasaki (2002) says that many of the 39 common additives he studied, including BHT and BHA, produced DNA damage at low doses close to the ADI, *(the allowable daily intake)*.[10]

In 1999, the National Institutes of Health (NIH) Eighth Report on Carcinogens stated: "There is sufficient evidence for the carcinogenicity of butylated hydroxyanisole (BHA) in experimental animals … administration of butylated hydroxyanisole in the diet induced papillomas *(non-cancerous tumors)* and carcinomas *(cancers)* of the forestomach in mice."

In the year 2000, the NIH Ninth Report on Carcinogens stated – and the Tenth Report and the Eleventh Report repeat – that BHA "is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity in experimental animals."[11] When put in their diet, BHA caused papillomas and carcinomas in the forestomach of rats, mice, and hamsters. But each year the NIH concludes, **"No data were available to evaluate the carcinogenicity of butylated hydroxyanisole in humans."**

These preservatives are not always listed on product labels. If the product contains oil or other secondary ingredients, preservatives in those ingredients may not be listed. They can be avoided, however, by using the Feingold Association's *Foodlist & Shopping Guide.*

See page 34 for more about preservatives.

1. **Stokes** 1974
2. **Thompson** 1988, 1989
3. **Lau** 2006
4. **Zoccarato** 1987; **Thompson** 1988; **Kahl** 1983, 1993; **Siman** 1996; **Gudz** 1997; **Stolze** 1999; **Safer** 1999; **Yu** 2000; **Groten** 2000
5. **Kahl** 1984; **Parke** 1992; **Kahl** 1993; **Bauer** 2001; **Sasaki** 2002
6. **Tryphonas** 1999
7. **Stokes** 1974;**Tanaka** 1993
8. **Takami** 1999
9. **Meyer** 1980; **Vorhees** 1981; **McFarlane** 1997
10. **Sasaki** 2002
11. **NIH 11th Report on Carcinogens,** http://ntp.niehs.nih.gov/index.cfm?objectid=32BA9724-F1F6-975E-7FCE50709CB4C932