

Chemical Hazards

Cosmetics

Apps

- **Think Dirty** - Shop Clean (Personal Care)
 - Scale: **0 best (green), 10 worst (red)**
 - 1,339,990 product reviews available
 - Advantages: Easy review of chemicals, analyses of each; ability to scan bar codes at the store
- **GoodGuide** (Personal Care, Household, Babies & Kids Products)
 - a. Scale: **8 best (green), 0 worst (red)**
 - Example: 418 of the 513 Hair Color and Bleaching products rate 2/10 or less
 - “Browse Categories / Personal Care / Hair Care / Hair Color and Bleaching”
 - Advantages: Compares categories as a group; ability to scan bar codes at the store
 - Disadvantage: Inadequate information on individual chemicals
- **EWG’s Healthy Living** (sunscreens, cosmetics, food)
 - Scale: **1 best (green), 10 worst (red)**
 - Disadvantage:
 - EWG (Environmental Working Group) website is as good or better than app; app offers no information on individual chemicals

Website

- **MADESAFE** <https://www.madesafe.org/>
 - The website MADESAFE is a good source of information on chemicals & suggestions for alternate products. The “science” sections are particularly informative
 - Menu / Science / Chemical Profiles (27)
 - Menu / Science / Product Profiles (18)
 - Menu / Science / Chemical Hazards (86)

A special note about the ingredient “Fragrance” aka (Parfum)

- According to information on the app *Think Dirty – Shop Clean* (and virtually all other references) “FRAGRANCE,” as an ingredient, can be, “A combination of nearly 3000 fragrant ingredients added to most personal care products to mask odours or add a pleasant smell. The major concern with fragrance is that it is not required by law to disclose the individual ingredients used to produce it. Therefore, many fragrance ingredients which are harmful can be omitted from the label.
- Tip: look at a specific company to get a general idea of the safety of a company’s products.

The Precautionary Principle

- The **European Union** uses the “precautionary principle” regarding chemicals (i.e. a chemical must be proven safe before it is made available to the public.) The European Union has banned 1379 chemicals from cosmetics.
- The **US** does not use the “precautionary principle.” Chemicals are approved for use in public before they are proven to be safe. The US has banned 11 chemicals from cosmetics.

Multiple names for one chemical

- The European Union allows only one name for each chemical which makes it easier to spot on ingredient lists.
- The US allows many names for one chemical which can be confusing to consumers.

Ingredients Lists

- In the US, sellers are not required to list all the ingredients in the product.
- Any of thousands of chemicals the manufacturer considers “proprietary” do not need to be listed..
- Listing a few chemicals that the product does not contain, does not make the product safe.

Terms that have no legal definition:

- Terms with no legal definition include organic, natural, all-natural, hypoallergenic, cruelty-free, biodegradable, non-toxic, safe, green, preservative free, plant-derived, eco-friendly, etc.

Why scanning QR's with apps often doesn't work

- Companies know that giving a chemical an alternate name, or making a minor change to the chemicals in a product, allows them to change the QR code and show the product as “not found” on app QR scanners.

Whole Food's Personal Care Products

- Whole Foods offers 400+ products that don't contain “100+ ingredients common in conventional body care products.”

Sources to crosscheck information:

- Google Scholar
 - Type “Google Scholar” in your search bar; type your search words in the search bar.
 - Links to research publications will appear; abstracts are usually readable by a layperson.
- HHS, U.S. Department of Health and Human Services; has a search function for chemicals,
- CDC, U.S. Center For Disease Control and Prevention
- WHO, World Health Organization

New York Times articles related to the dangers of cosmetics:

- New York Times February 9th, 2019 *“Do You Know What's in Your Cosmetics?”*
- New York Times August 7th, 2017 *For Cosmetics, Let the Buyer Beware*
- New York Times May 5th, 2015 *Perfect Nails, Poisoned Workers*

(EWG) Environmental Working Group Essential Tips and Facts / #4 Myths on Cosmetic Safety

Myth – If it's for sale at a supermarket, drugstore or department store cosmetics counter, it must be safe.

Fact – The Food and Drug Administration has no authority to require companies to test cosmetics products for safety. The agency does not review or approve the vast majority of products or ingredients before they go on the market. FDA conducts pre-market reviews only of certain cosmetics color additives and active ingredients that are classified as over-the-counter drugs (FDA 2005, 2010).

Myth – The government prohibits the use of all dangerous chemicals in personal care products, and companies wouldn't risk using them.

Fact – With the exception of color additives and a few prohibited substances, cosmetics companies may use any ingredient or raw material in their products without government review or approval (FDA 2005). Whereas the European Union has banned more than 1,000 ingredients from use in cosmetics, the FDA has only prohibited the following (FDA 2000a):

- Bithionol; Chlorofluorocarbon propellants; Chloroform; Halogenated salicylanilides (di-, tri-, metabromsalan and tetrachlorosalicylanilide); Methylene chloride; Vinyl chloride; Zirconium-containing complexes; Prohibited cattle materials (including material from non-ambulatory cattle, material from cattle not inspected and passed and mechanically separated beef).

Myth – The cosmetics industry effectively polices itself, making sure that all ingredients meet a strict standard of safety.

Fact – Since FDA does little to regulate ingredient safety, it has authorized the cosmetics industry to police itself through its Cosmetics Ingredient Review panel. In its more than 30-year history, the industry panel has declared only 11 ingredients or chemical groups to be unsafe (CIR 2012). Its recommendations on restricting ingredients are not binding on companies (FDA 2012).

Myth – Cosmetic ingredients are applied to the skin and rarely get into the body. When they do, the amounts are too low to matter.

Fact – People are exposed to cosmetics ingredients in many ways: breathing in sprays and powders, swallowing chemicals on the lips or hands or absorbing them through the skin. Biomonitoring studies have found that cosmetics ingredients – such as phthalate plasticizers, paraben preservatives, the pesticide triclosan, synthetic musks and sunscreen ingredients – are common pollutants in the bodies of men, women and children. Many of these chemicals are potential hormone disruptors (Gray 1986, Schreurs 2004, Gomez 2005, Veldhoen 2006). Cosmetics frequently contain enhancers that allow ingredients to penetrate deeper into the skin. Studies have found health problems in people exposed to common fragrance and sunscreen

ingredients, including increased risk of sperm damage, feminization of the male reproductive system and low birth weight in girls (Duty 2003, Hauser 2007, Swan 2005, Wolff 2008).

Myth – Products made for children or bearing claims like “hypoallergenic” are safer choices.

Fact – Most cosmetic marketing claims are unregulated, and companies are rarely, if ever, required to back them up, even for children’s products. The FDA says descriptions such as “hypoallergenic” or “natural” can “mean anything or nothing at all,” and while most of these terms “have considerable market value in promoting cosmetic products to consumers... dermatologists say they have very little medical meaning” (FDA 2000b).

Myth – Natural and organic products are always safer.

Fact – Products labeled natural or organic often contain synthetic chemicals, and even truly natural or organic ingredients are not necessarily risk-free. The global market for organic personal care products was valued at more than \$7 billion in 2012, capturing the attention of consumers who prefer more natural or plant-based products (Cosmetics Design 2013). Products labeled “organic” or “natural” can contain petrochemicals, and those certified as organic can contain as little as 10 percent organic ingredients by weight or volume (Certech 2008). FDA tried to establish an official definition for the term “natural,” but this initiative was overturned in court (FDA 1998).

Myth – FDA promptly recalls any product that injures people.

Fact – FDA has no authority to require recalls of harmful cosmetics. Furthermore, manufacturers are not required to report cosmetics-related injuries to the agency. FDA relies on companies to report injuries voluntarily (FDA 2005).

Myth – Consumers can read ingredient labels and avoid products with hazardous chemicals.

Fact – Federal law allows companies to leave some chemical ingredients off their product labels, including those considered to be trade secrets, components of fragrance and nanomaterials (FDA 2011). Fragrance may include any number of the industry’s 3,100 stock chemicals (IFRA 2010), none of which is required to be listed on labels. Tests of fragrance ingredients have found an average of 14 hidden compounds per formulation, including ingredients linked to hormone disruption and sperm damage (EWG & CSC 2010).

Myth – Cosmetics safety is a concern for women only.

Fact – An EWG 2004 consumer survey showed that while on average women use 12 personal care products daily, men use an average of six a day, exposing themselves to more than 80 unique ingredients.

Syringes/sharps

- <https://safeneedledisposal.org/> enter zip code & number of miles you are willing travel
- 48038; 10 miles (default) Elite Trauma Clean-Up “may bring in full sharps containers; please call”

Dental Floss

- Unwaxed (i.e., PFAS-free) floss from Whole Foods – Radius & Tom’s of Maine brand

Bug (Tick) Spray

- Tick spray recommendations:
 - Lemon Eucalyptus; Picardin, spray on skin <https://www.lymedisease.org/>
 - Permethrin - repels and kills tick as their feet break down. Spray on clothes only, soak pants and socks. Do not spray on skin. Some clothes come with permethrin in them; washed up to 70 times

Sunscreens

- Look for sunscreens with only Zinc Oxide, or only Zinc Oxide and Titanium Dioxide
- CNN 5/9/19 *Choosing a sunscreen that won't harm you -- or the environment*
- “Oxybenzone, the chemical that has been studied the most, is in about two-thirds of all sunscreen products sold in the United States.” “Research has found a potential link between oxybenzone and [lower testosterone levels](#) in adolescent boys, [hormone changes in men](#), [shorter pregnancies](#) and disrupted birth weights in babies, and [in rats](#), disruptions of endocrine systems, which means the chemical mimicked the action of natural hormones.”
- “One caution: Experts advise against using spray versions of mineral products because they are made up of nanoparticles.” “Studies show that the nanoparticles do not enter broken skin, but the same is not true if you spray a nano-based sunscreen, she said, “because it can get into the deep recesses of the lungs and cause irreversible damage.”

Carpet

- Environmental Working Group <https://www.ewg.org/healthyhomeguide/carpet/#.WodFnK2ZNTY>

- Don't use wall-to-wall carpeting if you can help it; use wood or tile flooring instead.
- Choose wool, jute, seagrass, & sisal throw rugs with natural rubber nonskid padding.
- The fibers and backing, chemical treatments, padding and glues all come with their own chemical consequences. Some types of carpeting use chemicals that have been associated with respiratory symptoms, eye irritation and rashes, as well as chemicals that can react with each other to produce formaldehyde, a known human carcinogen.
- If you use synthetic carpet, select Green Label Plus- or Greenguard-certified carpet and padding. This carpet and padding have lower VOC emissions.
- EWG *"In a First, California Moves to Protect People from Toxic PFAS Chemicals in Carpets"*

VOC's (volatile organic compounds) bad smells from paints, solvents, nail polish, etc.

- Wikipedia "Volatile organic compounds (VOCs) are [organic chemicals](#) that have a high [vapor pressure](#) at ordinary [room temperature](#). Their high vapor pressure results from a low [boiling point](#), which causes large numbers of molecules to [evaporate](#) or [sublimate](#) from the liquid or solid form of the compound and enter the surrounding air, a trait known as [volatility](#). For example, [formaldehyde](#), which evaporates from [paint](#) and releases from materials like [resin](#), has a boiling point of only -19°C (-2°F)."
- "VOCs are numerous, varied, and ubiquitous. They include both human-made and naturally occurring chemical compounds. Most [scents or odors](#) are of VOCs. VOCs play an important role in communication between plants,^[1] and messages from plants to animals. Some VOCs are dangerous to human health or cause harm to the [environment](#). [Anthropogenic](#) VOCs are regulated by law, especially indoors, where concentrations are the highest. Harmful VOCs typically are not acutely [toxic](#), but have compounding long-term health effects. Because the concentrations are usually low and the symptoms slow to develop, research into VOCs and their effects is difficult."

Paint Low VOC paints: **BEHR & Marquee brands** have low VOC versions (available from Home Depot)

Other sources for safe interiors

- Allergic Living website: Creating the Better Baby Nursery: Out With Allergens and VOCs
- The Spruce <https://www.thespruce.com/>
 - Decor, Garden, Home Repair, Celebrations, Cleaning; Search "Low VOC"
- AFM Safecoat

PFAS (per- and polyfluoroalkyl substances)

- Is a large group of manufactured compounds (currently about 4000.)
- PFAS are characterized as **PERSISTENT** (sometimes called "forever" chemicals)
- PFAS are linked to:
 - Cancer, high cholesterol, thyroid and liver disease, fertility problems, pre-eclampsia in pregnant women, developmental conditions with babies and children
- PFAS are widely used to:
 - Keep food from sticking to cookware
 - Make sofas and carpets resistant to stains
 - Make clothes, mattresses more waterproof
 - May be used in some food packaging
 - May be used in some firefighting materials.
- There is widespread wildlife and human exposure to several PFAS, including
 - perfluorooctanoic acid (PFOA) & perfluorooctane sulfonate (PFOS)
- More research is needed to fully understand all sources of human exposure, but people are most likely exposed to these compounds by
 - Consuming PFAS-contaminated water or food
 - Or by using products that contain PFAS.