

Common Hazardous Ingredients in Personal Care Products

More than 5,000 ingredients are allowed for use in personal care products. Many are identified by government agencies as hazardous, but many others remain untested. Some ingredients with known health hazards are very common in personal care products, both conventional products and alternative ones. We are providing information on some of these common ingredients. In preparing this guide, we screened products and chose those which had the least amount of these hazardous chemicals for our Best and Good sections.

DEA, TEA, MEA - Diethanolamine (DEA), triethanolamine (TEA), and monoethanolamine (MEA) are hormone disruptors. They are also known to combine with nitrates to form cancer-causing nitrosamines. If a product contains nitrites (used as a preservative or present as a contaminant not listed on labels) a chemical reaction can occur either during manufacturing or after a product is made. There is no way to know which products contain nitrosamines because government does not require manufacturers to disclose this information on the label.

A 1997 study by the U.S. National Toxicology Program found that these compounds themselves might also be carcinogenic. Repeated skin application of DEA was found to cause liver and kidney damage in animals. The study also discovered that when absorbed through the skin, DEA accumulated in organs. TEA may also cause contact dermatitis in some individuals.

Dioxins - You won't find dioxin listed on any label. It's formed as an accidental by-product of some manufacturing processes using chlorine, especially paper bleaching and the creation of plastic. Dioxin is one of the most powerful carcinogens known and accumulates in body fat. Mainstream deodorants and anti-bacterial soaps are suspect. Chlorine bleached tissues, toilet paper and cotton balls can contain dioxin. Plastic bottles may leach dioxin into creams, shampoos and other products we use daily.

DMDM Hydantoin, Diazolidinyl Urea and Imidazolidinyl Urea - DMDM hydantoin, diazolidinyl urea and imidazolidinyl urea are preservatives that release formaldehyde. It is estimated that 20 per cent of people exposed to this chemical will experience an allergic reaction. Exposure to formaldehyde may cause joint pain, depression, headaches, chest pains, ear infections, chronic fatigue, dizziness and loss of sleep. In lab tests, formaldehyde has caused cancer and damaged DNA. Formaldehyde is a known sensitizer. Imidazolidinyl urea may cause contact dermatitis in some individuals.

FD&C Colours - Used extensively in personal care products, FD&C colours are made from coal. Coal tar colours have been found to cause cancer in animals and many people experience allergic reactions like skin irritation and contact dermatitis. They are listed as FD&C or D&C, followed by a colour and a number. Example: FD&C Red No. 6, or D&C Green No. 6.

Fragrance - Synthetic fragrance is the most common ingredient found in personal care products. "Fragrance on a label can indicate the presence of up to 4,000 separate ingredients. Most or all of them are synthetic. Symptoms reported to the FDA have included headaches, dizziness, rashes, skin discoloration, violent coughing and vomiting, and allergic skin irritation. Clinical observations by medical doctors have shown that exposure to fragrances can affect the central nervous system, causing depression, hyperactivity, irritability, inability to cope, and other behavioral changes." (*Home Safe Home*, Debra Lynn Dadd). Fragrance is a known trigger of asthma. Many of the compounds in fragrance are suspected or proven carcinogens. Phthalates in perfumes are known hormone disruptors. In 1989 the US National Institute of Occupational Safety and Health evaluated 2,983 fragrance chemicals for health effects. They identified 884 of them as toxic substances. The US Environmental Protection Agency found that 100% of perfumes contain toluene, which can cause liver, kidney and brain damage as well as damage to a developing fetus.

Lanolin - Lanolin is a common allergen and because of this has been replaced in many products. But there is another reason to be cautious about lanolin. Lanolin is derived from sheep's wool. It may contain residues of insecticides into which sheep are dipped to control external parasites. These insecticides are fat-soluble. Dr. Samuel Epstein, chairman of the Cancer Prevention Coalition, says

these chemicals are likely to migrate through the skin and into the bloodstream. However, some sheep producers now control parasites by injecting sheep with insecticides, which work by circulating through the animal's bloodstream. The best way to know if the lanolin in a personal care product is free of insecticide is to look for a certified organic product. Uncontaminated lanolin is perfectly safe, although it can cause contact dermatitis in some people. Lanolin oil, a more refined product, has been found to have little insecticide residue. Purified lanolin oil is a healthy product, as long as you aren't allergic to it.

Lead - Lead is a known carcinogen and hormone disruptor. It is readily absorbed through the skin, and accumulates in the bones. It causes neurological damage and behaviour abnormalities, and large accumulations can result in leg cramps, muscle weakness, numbness and depression. Lead is found in some hair dyes.

Nonylphenols - This estrogen-mimicking chemical is a surfactant used for its detergent properties. It can be found in some plastics, as well as shaving creams, shampoos and hair colours. It can be created when certain chemicals commonly found in personal care products break down. Nonylphenols can be a component in polyvinyl chloride (PVC), a compound often found in acrylic nails. They are persistent in the environment and of such concern that many European countries are phasing them out. Some manufacturers have voluntarily discontinued their use.

Parabens - An estrogen mimic, parabens are preservatives with antibacterial properties. Widely used in all kinds of personal care products, paraben is usually preceded by the prefixes methyl-, ethyl-, butyl-, or propyl-. Parabens can cause allergic reactions or contact dermatitis in some people. Preservatives are one of the leading causes of contact dermatitis. There are safer practical alternatives to parabens, including vitamin E, vitamin C and grapefruit seed extract.

PEG - Polyethylene glycol (PEG) is used in cleaners and some oven cleaners to dissolve oil and grease. It can also be found in many personal care products. PEG may be contaminated with 1,4-dioxane, a carcinogen. Dioxane readily penetrates the skin. While dioxane can be removed from products easily and economically by vacuum stripping during the manufacturing process, there is no way to determine which products have undergone this process. Labels are not required to list this information.

Phenylenediamine - Used in permanent hair dyes, phenylenediamine can cause eczema, bronchial asthma, gastritis, skin irritation and even death. It is also a carcinogen. It can react with other chemicals to cause photosensitivity. The US Food and Drug Administration proposed legislation which would have required warning labels on products, advising that this ingredient can penetrate skin and has been determined to cause cancer in lab animals. If passed, beauty salons would have had to post warnings for their customers. Cosmetic industry lobbyists defeated the proposal.

Phthalates - Everyone in the general population is exposed to phthalates from one source or another. They are found in many products from plastics to shampoo. These hormone-disrupting chemicals are suspected of contaminating breast milk and causing damage to the kidneys, liver, lungs and reproductive organs. One type of phthalate, diethyl phthalate (DEP) is commonly found in fragrances and other personal care products. Phthalates are used to enhance fragrances, as solvents, and to denature alcohol. A study published in *Environmental Health Perspectives* (December 2002) found that DEP is damaging to the DNA of sperm in adult men at current levels of exposure. DNA damage to sperm can lead to infertility and may also be linked to miscarriages, birth defects, infertility and cancer in offspring. DEP is the phthalate found in the highest levels in humans. Recent product tests found the chemical in every fragrance tested in the United States. Manufacturers are not required to list phthalates on product labels, so they are difficult to avoid.

Polysorbate 60 and Polysorbate 80 - Polysorbate 60 and polysorbate 80 may be contaminated with 1,4-dioxane, a carcinogen. Dioxane readily penetrates the skin. While dioxane can be removed from products easily and economically by vacuum stripping during the manufacturing process, there is no way to determine which products have undergone this process. Labels are not required to list this information.

Propylene Glycol - Propylene glycol is recognized as a neurotoxin by the National Institute for Occupational Health and Safety in the U.S. It is known to cause contact dermatitis, kidney damage and liver abnormalities. It is widely used as a moisture-carrying ingredient in place of glycerine because it is cheaper and more readily absorbed through the skin. The Material Safety Data Sheet for propylene glycol warns workers handling this chemical to avoid skin contact.

Quaternary Ammonium Compounds (Quats) - Listed on labels as benzalkonium chloride, cetrimonium bromide, quaternium-15 and quaternium 1-29, these compounds are caustic and can irritate the eyes. Quaternium-15 is a formaldehyde releaser and the number one cause of preservative-related contact dermatitis. There is concern about their potential as sensitizers. For about 5% of people, quats are an extreme sensitizer and can cause a variety of asthma-like symptoms, even respiratory arrest. When they are used with hot running water, steam increases the inhalation of vapours. These compounds are used in a wide range of products as preservatives, surfactants and germicides. They make hair and skin feel softer immediately after use but long-term use will cause dryness.

Sodium Lauryl Sulfate, Sodium Laureth Sulfate - This chemical is a known skin irritant and enhances allergic response to other toxins and allergens. The U.S. government has warned manufacturers of unacceptable levels of dioxin formation in some products containing this ingredient. The chemical can react with other ingredients to form cancer-causing nitrosamines. Sodium lauryl sulfate is used as a lathering agent. It is present in ninety per cent of commercial shampoos, as well as skin creams and some brands of toothpaste. Sodium laureth sulfate may be contaminated with 1,4-dioxane, a carcinogen. Dioxane readily penetrates the skin. While dioxane can be removed from products easily and economically by vacuum stripping during the manufacturing process, there is no way to determine which products have undergone this process. Labels are not required to list this information.

Talc - Talc is a naturally occurring mineral which is carcinogenic when inhaled. In addition, women who regularly use talc in the genital area are at increased risk for ovarian cancer. Airborne talc in body powders and antiperspirant sprays can irritate the lungs. Talcum powder is reported to cause coughing, vomiting, and even pneumonia. Many pediatricians now tell parents to avoid using talc on babies as it can cause respiratory distress, sometimes resulting in death. Talc is found in blushes, face powders, eye shadows, liquid foundation and skin fresheners. Used near the eyes, it can irritate sensitive mucous membranes. Talc in liquid formulations poses minimal risk.

Sources:

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Not Too Pretty (phthalates information): www.nottoopretty.org

Cancer Prevention Coalition: www.preventcancer.com

Home Safe Home, Debra Lynn Dadd, Tarcher Inc, 1997

The Safe Shoppers Bible, David Steinman and Samuel S. Epstein, M.D.