**You Have The Right To Know: 17 Chemicals To Avoid In Cosmetic And Personal Care Products**

April 10, 2012 by [Elina St-Onge](http://www.collective-evolution.com/author/elina/)

For many, a commitment to health sounds more like a commitment to a life of paranoia and deprivation. The most common argument I hear is that it isn’t “healthy” to spend a life in fear of every product that is out there. For those with a busy lifestyle, it sure may seem overwhelming to think of adding more things to watch out for on top of our existing concerns. While I understand this perspective, I am writing this article to make it simpler for you. Remove the words paranoia, deprivation and concern from your vocabulary, and replace them with “Being Informed”.

Being informed will simply allow you to make more intelligent and conscious choices for yourself, your family, and the planet as a whole. You might lose a couple of seconds of your life while looking for detrimental chemicals on product labels, but is that any match for the healthier years you’ll add to your life, the illnesses you’ll avoid, and the example you will be in support of a more sustainable world?



The truth is, many of the ingredients in personal care and beauty products aren’t so pretty. U.S. researchers have found that one in eight of the **82,000** ingredients used in cosmetic and personal care products are hazardous industrial chemicals. This means that **10,500** industrial chemicals are used as cosmetic ingredients, many of which are carcinogens, pesticides, reproductive toxins, endocrine disruptors, plasticizers (chemicals that keep concrete soft), degreasers (used to get grime off auto parts) and surfactants (they reduce surface tension in water, like in paint and inks). And these go on our skin and into the environment…

**Did you know that everyday chemical exposure is among the leading causes of the most common cases of chronic disease in America? (**[**Click HERE to learn more**](http://www.collective-evolution.com/2012/04/10/5-reasons-why-we-are-getting-sicker-how-to-reverse-it/)**)**

Below is a brilliant video that examines the pervasive use of toxic chemicals in our everyday personal care products.

Below is a list of chemicals you will want to look out for to minimize your exposure to toxic chemicals.

**HAZARDOUS CHEMICALS TO AVOID IN COSMETIC AND PERSONAL CARE PRODUCTS:**

**1. Parabens**

Used in makeup, moisturizers, shampoos etc. May interfere with hormone function. Associated with breast cancer. Look out for ingredients with “pararaben” in their name (methylparaben, butylparaben, propylparaben, isobutylparaben, ethylparaben). Widely used even though they are known to be toxic.

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**Why Used?:**Parabens are the most widely used preservative in cosmetics. They are also used as fragrance ingredients, but consumers won’t find that listed on the label. Fragrance recipes are considered trade secrets, so manufacturers are not required to disclose fragrance chemicals in the list of ingredients. An estimated 75 to 90 per cent of cosmetics contain parabens.

**Why Harmful?:**Parabens easily penetrate the skin and are suspected of interfering with hormone function (endocrine disruption). Parabens can mimic estrogen, the primary female sex hormone. In one study, parabens were detected in human breast cancer tissues, raising questions about a possible association between parabens in cosmetics and cancer. Parabens may also interfere with male reproductive functions. In addition, studies indicate that methylparaben applied on the skin reacts with UVB leading to increased skin aging and DNA damage.

Parabens occur naturally at low levels in certain foods, such as barley, strawberries, currents, vanilla, carrots and onions, although a synthetic preparation derived from petrochemicals is used in cosmetics. Parabens in foods are metabolized when eaten, making them less strongly estrogenic. In contrast, when applied to the skin and absorbed into the body, parabens in cosmetics bypass the metabolic process and enter the blood stream and body organs intact. It has been estimated that women are exposed to 50 mg per day of parabens from cosmetics. More research is needed concerning the resulting levels of parabens in people. Studies conducted by the U.S. Centers for Disease Control and Prevention (CDC) did find four different parabens in human urine samples, indicating exposure despite the very low levels in products.

**Regulatory Status:**There are no restrictions on the use of parabens in cosmetics in Canada. International regulations are stronger. The European Union restricts the concentration of parabens in cosmetics.

**Related Ingredients:**
Methylparaben, butylparaben and propylparaben are some of the most common parabens in cosmetics. Other chemicals in this class generally have “paraben” in their names (e.g., isobutylparaben, ethylparaben, etc.).

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**2. DEA, cocamide DEA and lauramide DEA (Related chemicals: MEA and TEA)**

In creamy and foaming products such as moisturizer, shampoo. Can react to form cancer-causing nitrosamines. Harmful to fish and other wildlife.

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**Why Used?:**DEA (diethanolamine) and DEA compounds are used to make cosmetics creamy or sudsy. DEA also acts as a pH adjuster, counteracting the acidity of other ingredients. DEA is mainly found in moisturizers and sunscreens, while cocamide and lauramide DEA are found in soaps, cleansers, and shampoos. Industrial applications of DEA include its use in oil refineries to “scrub” hydrogen sulphide from process gas emissions.

**Health and Environmental Hazards:**DEA and its compounds cause mild to moderate skin and eye irritation. In laboratory experiments, exposure to high doses of these chemicals has been shown to cause liver cancers and precancerous changes in skin and thyroid. The European Union classifies DEA as harmful on the basis of danger of serious damage to health from prolonged exposure. DEA compounds can also react with nitrites in cosmetics to form nitrosamines, which the International Agency for Research on Cancer classifies as a possible human carcinogen. Nitrites are sometimes added to products as anti-corrosive agents or can be present as contaminants. The degradation of some chemicals used as preservatives in cosmetics can release nitrites when the product is exposed to air.

The Danish Environmental Protection Agency classifies cocamide DEA as hazardous to the environment because of its acute toxicity to aquatic organisms and potential for bioaccumulation.

**Regulatory Status:**The use of DEA compounds in cosmetics is unrestricted in Canada, although Health Canada has categorized them as “moderate human health priorities.” They have been flagged for future assessment under the government’s Chemicals Management Plan. Nitrosamines are prohibited on Health Canada’s Cosmetic Ingredient Hotlist. However, when these chemicals are present in a product as contaminants (i.e., unintentional ingredients), the Hotlist restriction does not apply.

International regulations are stronger. The European Union Cosmetics Directive restricts the concentration and use of cocamide and lauramide DEA in cosmetics, and limits the maximum nitrosamine concentration in products containing these ingredients. vii

**Related Ingredients:**MEA (monoethanolamide) and TEA (triethanolamine) are related chemicals. Like DEA, they can react with other chemicals in cosmetics to form carcinogenic nitrosamines.

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**3. Dibutyl Phthalate or DBP**

In nail products and some hair sprays. Toxic to reproduction and may interfere with hormone function. Harmful to fish and other wildlife.

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**Why Used?:**Dibutyl phthalate or DBP is used mainly in nail products as a solvent for dyes and as a plasticizer that prevents nail polishes from becoming brittle. Phthalates are found in some nail polishes and hair sprays, and are commonly hidden on ingredient labels under the term “fragrance”. Fragrance recipes are considered trade secrets, so manufacturers are not required to disclose fragrance chemicals in the list of ingredients. DBP is also commonly used in polyvinyl chloride plastic (PVC) to render it flexible.

**Why Harmful?:**DBP is absorbed through the skin. It can enhance the capacity of other chemicals to cause genetic mutations, although it has not been shown to be a mutagen itself. In laboratory experiments, it has been shown to cause developmental defects, changes in the testes and prostate, and reduced sperm counts. The European Union classifies DBP as a suspected endocrine disruptor on the basis of evidence that it interferes with hormone function, and as reproductive toxic on the basis that it may cause harm to the unborn child and impair fertility. Health Canada notes evidence suggesting that exposure to phthalates may cause health effects such as liver and kidney failure in young children when products containing phthalates are sucked or chewed for extended periods.

The European Union classifies DBP as very toxic to aquatic organisms. Under the Convention for the Protection of the Marine Environment of the North-East Atlantic, DBP is listed as a Chemical for Priority Action.

**Regulatory Status:** Health Canada recently announced regulations banning six phthalates (including DBP) in soft vinyl children’s toys and child care articles, but its use in cosmetics is not restricted. International regulations are stronger. The European Union bans DBP in cosmetics, as well as in childcare
articles and toys.

**Related Ingredients:** Other phthalates are widely used as fragrance ingredients in cosmetics – in particular diethyl phthalate (DEP). DEP is suspected of interfering with hormone function (endocrine disruption), causing reproductive and developmental problems among other health effects.

Fragrance recipes are considered tradesecrets, so manufacturers are not required to disclose specific fragrance chemicals. The best bet to avoid phthalates in cosmetics is to opt for products that do not list “parfum” or “fragrance” (see below) as aningredient.

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**4. BHA (butylated hydroxyanisole) and BHT (butylated hydroxytoluene)**

In moisturizer, makeup, etc. Can cause cancer and interfere with hormone function. Harmful to fish and other wildlife.

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**Why Used?:** BHA and BHT are closely related synthetic antioxidants used as preservatives in lipsticks and moisturizers, among other cosmetics. They are also widely used as food preservatives.

**Health and Environmental Hazards:**BHA and BHT can induce allergic reactions in the skin. The International Agency for Research on Cancer classifies BHA as a possible human carcinogen. The European Commission on Endocrine Disruption has also listed BHA as a Category 1 priority substance, based on evidence that it interferes with hormone function.

Long-term exposure to high doses of BHT is toxic in mice and rats, causing liver, thyroid and kidney problems and affecting lung function and blood coagulation. BHT can act as a tumour promoter in certain situations. Limited evidence suggests that high doses of BHT may mimic estrogen, the primary female sex hormone, and prevent expression of male sex hormones, resulting in adverse reproductive affects.

Under the Convention for the Protection of the Marine Environment of the North-East Atlantic, BHA is listed as a chemical of potential concern, noting its toxicity to aquatic organisms and potential to bioaccumulate. Likewise, a United Nations Environment Program assessment noted that BHT had a moderate to high potential for bioaccumulation in aquatic species (though the assessment deemed BHT safe for humans.

**Regulatory Status:**The use of BHA and BHT in cosmetics is unrestricted in Canada, although Health Canada has categorized BHA as a “high human health priority” on the basis of carcinogenicity and BHT as a “moderate human health priority”. Both chemicals have been flagged for future assessment under the government’s Chemicals Management Plan.

International regulations are stronger. The European Union prohibits the use of BHA as fragrance ingredient in cosmetics. The State of California requires warning labels on products containing BHA, notifying consumers that this ingredient may cause cancer.

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**5. Coal Tar Dyes**

Look for P-PHENYLENEDIAMINE in hair dyes and colours identified as “C.I.” followed by five digits in other products. Potential to cause cancer and can be contaminated with heavy metals toxic to the brain.

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**Why Used?:** Coal tar-derived colours are used extensively in cosmetics, generally identified by a five-digit Colour Index (C.I.) number. The U.S. colour name may also be listed (“FD&C” or “D&C” followed by a colour name and number). P-phenylenediamine is a particular coal tar dye used in many hair dyes. Darker hair dyes tend to contain more phenylenediamine than lighter colours.

**Health and Environmental Hazards:**Coal tar is a mixture of many chemicals, derived from petroleum, Coal tar is recognized as a human carcinogen and the main concern with individual coal tar colours (whether produced from coal tar or synthetically) is their potential to cause cancer. These colours may as well be contaminated with low levels of heavy metals and some are combined with aluminum substrate. Aluminum compounds and many heavy metals are toxic to the brain. Some colours are not approved as food additives, yet they are used in cosmetics that may be ingested, like lipstick. (In the U.S. colour naming system, “FD&C” indicates colours approved by the U.S. Food and Drug Administration for use in foods, drugs, and cosmetics. “D&C” colours are not approved for use in food.)

P-phenylenediamine has been linked to tumours in laboratory tests conducted by the U.S. National Cancer Institute. A review of the epidemiologic literature confirmed statistically significant associations between hair dye use and development of several types of cancer although the authors concluded that the evidence was insufficient to determine that the hair dyes had caused the cancers. A separate study found that women who used hair dyes — especially over extended periods — had an increased risk of developing non-Hodgkin’s lymphoma (cancer of the lymph system). However, there is conflicting evidence, with other research suggesting no strong association between cancer and hair dye use. The International Agency for Research on Cancer therefore concluded that personal use of hair dyes is currently “not classifiable as to its carcinogenicity in humans.” The European Union classifies p-phenylenediamine as toxic (in contact with skin, by inhalation, or if swallowed), and as very toxic to aquatic organisms, noting that it may cause long-term adverse effects in the aquatic environment.

**Regulatory Status:**Several coal tar dyes are prohibited on Health Canada’s Cosmetic Ingredient Hotlist and Canada’s Cosmetic Regulations prohibit all but seven of these colours in eye makeup and other products used in the area of the eye. However, dozens of coal tar-derived colours are still widely used in other cosmetics. Some have been flagged for future assessment under the government’s Chemicals Management Plan.

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**6. Formaldehyde-Releasing Preservatives**

Look for DMDM HYDANTOIN, DIAZOLIDINYL UREA, IMIDAZOLIDINYL UREA, METHENAMINE, or QUARTERNIUM-15. Widely used in hair products, moisturizers, etc. Formaldehyde causes cancer.

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**Why Used?:** These formaldehyde-releasing agents are used as preservatives in a wide range of cosmetics. Other industrial applications of formaldehyde include production of resins used in wood products, vinyl flooring and other plastics, permanent-press fabric, and toilet bowl cleaners. While formaldehyde occurs naturally in the environment at low levels, worldwide industrial production tops 21 million tons per year.

**Health and Environmental Hazards:**These ingredients are a concern because they slowly and continuously release small amounts of formaldehyde, which the International Agency for Research on Cancer classifies as a known human carcinogen.

Formaldehyde may off-gas from cosmetics containing these ingredients and be inhaled (most of the cancer research on formaldehyde has focused on risks from inhalation). Off-gassing of formaldehyde from building products is already a concern for indoor air quality and Health Canada recommends the reduction or elimination of as many sources of formaldehyde as possible. Laboratory studies suggest that formaldehyde in cosmetics can also be absorbed through the skin.

DMDM hydantoin and quaternium-15 can also irritate skin and eyes and trigger allergies at low doses. Health Canada and Environment Canada categorized menthenamine and quaternium-15 as “moderate human health priorities” and possibly persistent in the environment. They have been flagged for future assessment under the government’s Chemicals Management Plan.

**Regulatory Status:**Formaldehyde is a restricted ingredient in cosmetics in Canada. It cannot be added in concentrations greater than 0.2 per cent in most products. However, there is no restriction on the low-levels of formaldehyde released by DMDM hydantoin, diazolidinyl urea, imidazolidinyl urea, methenamine, quarternium-15, and sodium hydroxymethylglycinate, nor on the use of these ingredients themselves.

International regulations are stronger. In the European Union formaldehyde-releasing preservatives in cosmetics must be identified on the product label with the notice, “contains formaldehyde” if the concentration of formaldehyde in the product exceeds 0.05 per cent.

**Related Ingredients:**Formaldehyde is an ingredient in some nail hardeners. Health Canada allows concentrations up to 5 per cent in these products. Tosylamide/formaldehyde resin, used in nail polishes, may contain residual formaldehyde concentrations up to 0.5 per cent.

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**7. Synthetic  fragrances and Parfum**

Widely used even in some products marketed as “unscented” (often the last ingredient). Mixture of chemicals that can trigger allergies and asthma. Some linked to cancer and neurotoxicity. Some harmful to fish and other wildlife.

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**Why Used?:** Used to produce a pleasant scent. The term “fragrance” or “parfum” on a cosmetic ingredients list usually hides a complex mixture of dozens of chemicals. Some 3,000 chemicals are used as fragrances. Fragrance is an obvious ingredient in perfumes, colognes, and deodorants, but it’s used in nearly every type of personal care product. Even products marketed as “fragrance-free” or “unscented” may in fact contain fragrance along with a masking agent that prevents the brain from perceiving odour. In addition to their use in cosmetics, fragrances are found in numerous other consumer products, notably laundry detergents and softeners and cleaning products.

**Health and Environmental Hazards:**Of the thousands of chemicals used in fragrances, most have not been tested for toxicity, alone or in combination. Many of these unlisted ingredients are irritants and can trigger allergies, migraines, and asthma symptoms. A survey of asthmatics found that perfume and/or colognes triggered attacks in nearly three out of four individuals. There is also evidence suggesting that exposure to perfume can exacerbate asthma, and perhaps even contribute to its development in children.

People with multiple chemical sensitivities (MCS) or environmentally linked illnesses are particularly vulnerable, with fragrances implicated both in development of the condition and triggering symptoms. However, anyone might experience skin irritation or runny eyes and nose. U.K. researchers have reported that “perfume” is the second most common cause of allergy in patients at dermatology clinics. In addition, in laboratory experiments, individual fragrance ingredients have been associated with cancer and neurotoxicity among other adverse health effects.

Synthetic musks used in fragrances are of particular concern from an ecological perspective. Several of musk compounds are persistent in the environment and build up (bioaccumulate) in the fatty tissue of aquatic organisms. Measureable levels of synthetic musks are found in fish in the Great Lakes and the levels in sediment are increasing. Environment Canada has categorized several synthetic musks as persistent, bioaccumulative, and/or toxic, and others as human health priorities.

Some fragrance ingredients are not perfuming agents themselves but enhance the performance of perfuming agents. For example, diethyl phthalate (prounced tha-late), or DEP, is widely used in cosmetic fragrances to make the scent linger. Phthalates are choice ingredients in cosmetics because they are cheap and versatile. However, they are reproductive toxins and may interfere with hormone function.

Laboratory analysis of top-selling colognes and perfumes identified an average of 14 chemicals per product not listed on the label, including multiple chemicals that can trigger allergic reactions or interfere with hormone function. To learn more, read a recent report by [Environmental Defence](http://environmentaldefence.ca/reports/not-so-sexy-health-risks-secret-chemicals-fragrance-canadian-edition).

**Regulatory Status:**Fragrance recipes are considered trade secrets so manufacturers are not required to disclose fragrance chemicals in the list of ingredients. Environment Canada is currently assessing one synthetic musk (moskene) under the government’s Chemicals Management Plan and has flagged several others for future assessment. Health Canada recently announced regulations banning six phthalates in children’s toys (including DEP), but the use of DEP in cosmetics is unrestricted.

International regulations are stronger. The European Union restricts the use of many fragrance ingredients, including two common musks (nitromusks) and requires warning labels on products if they contain any of 26 allergens commonly used as cosmetic fragrances.

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**8. PEGs**

Widely used in conditioners, moisturizers, deodorants, etc. Can be contaminated with 1,4-dioxane, which can cause cancer.

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**Why Used?:** PEGs (polyethylene glycols) are petroleum-based compounds that are widely used in cosmetics as thickeners, solvents, softeners, and moisture-carriers. PEGs are commonly used as cosmetic cream bases. They are also used in pharmaceuticals as laxatives.

**Health and Environmental Hazards:**Depending on manufacturing processes, PEGs can be contaminated with measurable amounts of ethylene oxide and 1,4-dioxane. The International Agency for Research on Cancer classifies ethylene oxide as a known human carcinogen and 1,4-dioxane as a possible human carcinogen. Ethylene oxide can also harm the nervous system and the California Environmental Protection Agency has classified it as a developmental toxicant based on evidence that it may interfere with human development. 1,4-dioxane is also persistent. In other words, it doesn’t easily degrade and can remain in the environment long after it is rinsed down the shower drain. 1,4-dioxane can be removed from cosmetics during the manufacturing process by vacuum stripping, but there is no easy way for consumers to know whether products containing PEGs have undergone this process. In a study of personal care products marketed as “natural” or “organic” (uncertified), U.S. researchers found 1,4-dioxane as a contaminant in 46 of 100 products analyzed.

While carcinogenic contaminants are the primary concern, PEG compounds themselves show some evidence of genotoxicity and if used on broken skin can cause irritation and systemic toxicity. The industry panel that reviews the safety of cosmetics ingredients concluded that some PEG compounds are not safe for use on damaged skin (although the assessment generally approved of the use of these chemicals in cosmetics). Also, PEG functions as a “penetration enhancer,” increasing the permeability of the skin to allow greater absorption of the product — including harmful ingredients.

**Regulatory Status:**There are no restrictions on the use of parabens in cosmetics in Canada. Ethylene oxide and 1,4-dioxane are prohibited on Health Canada’s Cosmetic Ingredient Hotlist. However, when these chemicals are present in a product as a contaminant (i.e., an unintentional ingredient), the Hotlist restriction does not apply. 1,4-dioxane was recently assessed under the government’s Chemicals Management Plan, but Health Canada and Environment Canada concluded that the chemical did not meet the legal definition of “toxic” because estimated exposure levels were considered to be lower than those that might constitute a danger to human health. The assessment noted uncertainty in the exposure estimates, “due to the limited information on the presence or concentrations of the substance in consumer products available in Canada.”

**Related Ingredients:**Propylene glycol is a related chemical that, like PEGs, functions as a penetration enhancer and can allow harmful ingredients to be absorbed more readily through the skin. It can also cause allergic reactions. Health Canada categorized propylene glycol as a “moderate human health priority” and flagged it future assessment under the government’s Chemicals Management Plan. Other ethoxylates may be contaminated with ethylene oxide and 1,4-dioxane. These ingredients usually have chemical names including the letters “eth” (e.g., polyethylene glycol).

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**9. Petrolatum**

In hair products, lip balm/lipstick, skin care products. Petroleum product that can be contaminated with
cancer-causing impurities.

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**Why Used?:**Petrolatum is mineral oil jelly (i.e. petroleum jelly). It is used as a barrier to lock moisture in the skin in a variety of moisturizers and also in hair care products to make your hair shine.

**Health and Environmental Hazards:**Petrolatum can be contaminated with polycyclic aromatic hydrocarbons (PAHs). Studies suggest that exposure to PAHs — including skin contact over extended periods of time — is associated with cancer. On this basis, the European Union classifies petrolatum a carcinogen and restricts its use in cosmetics. PAHs in petrolatum can also cause skin irritation and allergies.

**Regulatory Status:**In the European Union, petrolatum can only be used in cosmetics “if the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen.” There is no parallel restriction in Canada. Petrolatum has been flagged for future assessment under the government’s Chemicals Management Plan.

**Related Ingredients:**Mineral oil and petroleum distillates are related petroleum by-products used in cosmetics. Like petrolatum, these ingredients may be contaminated with PAHs.

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**10. Mineral Oil (Most harmful when poorly refined)**

In many other care products such as baby oil, body lotions, soap and makeup. Mineral oil is a petroleum by-product which cloggs the pores and interferes with the skin’s ability to eliminate toxins, promoting acne and other disorders. Slows down skin function and cell development, resulting in premature aging. May be contaminated with PAHs (carcinogens).

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**Why Used?:**Mineral oil is a petroleum by-product used for thousands of years as a sealing and building material, and more recently as a component of engine oils, pesticides, facial creams, hair products and even baby oil. It serves as a preserving agent and assists in retaining moisture. Aside from moisturizing skin creams and lotions, it is also used on skin supplements, foundations, and makeups that are intended for use on dry skin. It is very cheap and therefore very popular among personal care companies. Its solvent properties are honed when it is used on cleansers and other liquid formula that are intended to use in removing oil-based makeup and in removing the accumulated dust and dirt on oily skin types. On beauty treatments, it is an agent that enables the skin to absorb UV rays without drying the skin.

**Health Hazards:**Mineral oil may be contaminated with PAHs, which are associated with cancer. If mineral oil is absorbed into the skin because of habitual use, it may affect the functioning of the liver. The liver has to work very hard to break down mineral oil and may not be able to break down toxins efficiently. This can lead to poorer health and weakened immune system.

When mineral oil is applied to the skin it often prevents skin from breathing. Sweat, oil and toxins are therefore not released from the skin and oxygen is prevented from entering the skin. Mineral oil can clog the pores of the skin leading to acne and other skin problems. It can prevent skin cells from developing normally and when used regularly mineral oil may cause skin to age prematurely.

The American Conference of Governmental Industrial Hygienists reported that several studies have confirmed that poorly refined mineral oil can induce skin and scrotal cancers after prolonged, repeated and heavy direct contact with the skin. The U.S. Registry of Toxic Effects of Chemical Substances classifies mineral oil as both carcinogenic and tumorigenic.

Because mineral oil is frequently used for constipation, many of its best-known side effects are related to the gastrointestinal tract. According to the “The Pharmacological Basis of Therapeutics,” chronic use of mineral can cause leakage of oil past the anal sphincter and lead to pruritus ani, or irritation of the skin outside the rectum that can cause severe itching. Mineral oil use may also interfere with healing of postoperative wounds in the anorectal region and disturb normal defecatory reflexes. In one case in which a patient used mineral oil to excess as a laxative, the results included chronic diarrhea, vomiting, abdominal pain, thirst and weakness.

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**11. Siloxanes (Cyclomethicone and ingredients ending in “siloxane” (e.g., cyclotetrasiloxane)**

Widely used in moisturizer, makeup, hair products, etc. Can interfere with hormone function and damage the liver. Harmful to fish and other wildlife.

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**Why Used?:**These silicone-based compounds are used in cosmetics to soften, smooth, and moisten. They make hair products dry more quickly and deodorant creams slide on more easily. They are also used extensively in moisturizers and facial treatments. Siloxanes can also be found in medical implants, water-repelling windshield coatings, building sealants and lubricants.

**Health and Environmental Hazards:**Environment Canada assessments concluded that cyclotetrasiloxane and cylcopentasiloxane — also known as D4 and D5 — are toxic, persistent, and have the potential to bioaccumulate in aquatic organisms. Also, the European Union classifies D4 as a endocrine disruptor, based on evidence that it interferes with human hormone function, and a possible reproductive toxicant that may impair human fertility. In laboratory experiments, exposure to high doses of D5 has been shown to cause uterine tumours and harm to the reproductive and immune systems. D5 can also influence neurotransmitters in the nervous system.

Structurally similar to D4 and D5, cyclohexasiloxane (or D6) is also persistent and has the potential to bioaccumulate. Environment Canada’s assessment of D6 concluded that this third siloxane is not entering the environment in a quantity or concentration that endangers human health or the environment, but noted significant data gaps concerning its toxicity.

Cyclomethicone is a mixture of D4, D5, and D6 siloxanes.

**Regulatory Status:**January 2009, Environment Canada and Health Canada proposed to add D4 and D5 siloxanes to the List of Toxic Substances pursuant to the Canadian Environmental Protection Act, 1999 (CEPA), and to develop regulations “to limit the quantity or concentration of D4 and D5 in certain personal care products.”. In addition, under CEPA, anyone proposing a “significant new activity” involving siloxanes must notify the Minister of the Environment. However, there are currently no restrictions on these ingredients in cosmetics.

**Related Ingredients:**Polydimethylsiloxane (PDMS) silicone polymers are produced from D4 and contain residual amounts of D4 and D5. Dimethicone is a common PDMS ingredient in cosmetics.

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**12. Sodium Lauryl Sulfate (SLS) and Sodium Laureth Sulfate (SLES)**

In products that foam such as shampoo, cleansers, bubble bath. SLES can be contaminated with 1,4-dioxane, which may cause cancer. SLS may damage liver. Irritates skin, eyes and respiratory tract. Harmful to fish and other wildlife.

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**Why Used?:**Sodium laureth sulfate (sometimes referred to as SLES) is used in cosmetics as a detergent and also to make products bubble and foam. It is common in shampoos, shower gels and facial cleansers. It is also used in household cleaning products, car washes, garage floor cleaners and engine degreasers.

**Health and Environmental Hazards:**Over-exposure to SLS has been linked to eye damage, depression, laboured breathing, diarrhoea and severe skin irritation. SLS has been suspected to also damage the skin’s immune system by causing layers to separate and inflame. Your body may retain the SLS for up to five days, during which time it may enter and maintain residual levels in the heart, liver, the lungs, and the brain. SLS is also toxic to aquatic organisms.

Depending on manufacturing processes, sodium laureth sulfate may also be contaminated with measurable amounts of ethylene oxide and 1,4-dioxane. The International Agency for Research on Cancer ethylene oxide as a known human carcinogen and 1,4-dioxane as a possible human carcinogen. Ethylene oxide can also harm the nervous system ii and the California Environmental Protection Agency has classified it as a possible developmental toxicant based on evidence that it may interfere with human development. 1,4-dioxane is also persistent. In other words, it doesn’t easily degrade and can remain in the environment long after it is rinsed down the shower drain. 1,4-dioxane can be removed from cosmetics during the manufacturing process by vacuum stripping, but there is no easy way for consumers to know whether products containing sodium laureth sulfate have undergone this process.

The industry panel that reviews the safety of cosmetics ingredients notes that sodium laureth sulfate can irritate the skin and eyes (though approving of its use in cosmetics).

**Regulatory Status:**Ethylene oxide and 1,4-dioxane are prohibited on Health Canada’s Cosmetic Ingredient Hotlist. However, the Hotlist does not control for the presence of these chemicals as contaminants. 1,4-dioxane was recently assessed under the government’s Chemicals Management Plan but Health Canada and Environment Canada concluded that the chemical did not meet the legal definition of “toxic” because estimated exposure levels were considered to be lower than those that might constitute a danger to human health. The assessment noted uncertainty in the exposure estimates “due to the limited information on the presence or concentrations of the substance in consumer products available in Canada.”

Health Canada has categorized sodium laureth sulfate as a “moderate human health priority” and flagged it for future assessment under the government’s Chemicals Management Plan.

**Related Ingredients:**Other ethoxylates may be contaminated with ethylene oxide and 1,4-dioxane. These ingredients usually have chemical names including the letters “eth” (e.g., sodium laureth sulfate).

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**13. Triclosan**

In “anti-bacterial” products such as toothpaste, soaps, hand sanitizers. May interfere with hormone function. Harmful to fish and other wildlife.

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**Why Used:** Triclosan is used mainly in antiperspirants/deodorants, cleansers, and hand sanitizers as a preservative and an anti-bacterial agent. In addition to cosmetics, triclosan is also used as an antibacterial agent in laundry detergent, facial tissues, and antiseptics for wounds, as well as a preservative to resist bacteria, fungus, mildew and odors in other household products that are sometimes advertized as “anti-bacterial.” These products include garbage bags, toys, linens, mattresses, toilet fixtures, clothing, furniture fabric, and paints. Triclosan also has medical applications.

**Health and Environmental Hazards:**Triclosan can pass through skin and is suspected of interfering with hormone function (endocrine disruption). U.S. Centers for Disease Control and Prevention scientists detected triclosan in the urine of nearly 75 per cent of those tested (2,517 people ages six years and older). The European Union classifies triclosan as irritating to the skin and eyes, and as very toxic to aquatic organisms, noting that it may cause long-term adverse effects in the aquatic environment. Environment Canada likewise categorized triclosan as potentially toxic to aquatic organisms, bioaccumulative, and persistent. In other words, it doesn’t easily degrade and can build up in the environment after it has been rinsed down the shower drain. In the environment, triclosan also reacts to form dioxins, which bioaccumulate and are toxic.

The extensive use of triclosan in consumer products may contribute to antibiotic-resistant bacteria. The Canadian Medical Association has called for a ban on antibacterial consumer products, such as those containing triclosan.

**Regulatory Status:**Health Canada’s Cosmetic Ingredient Hotlist limits the concentration of triclosan to 0.03 per cent in mouthwashes and 0.3 per cent in other cosmetics. The problem is that triclosan is used in so many products that the small amounts found in each product add up — particularly since the chemical does not readily degrade. Moreover, some anti-bacterial hand sanitizers containing triclosan may not classify as “cosmetics” as per the Food and Drug Act. Products classified as “drugs” on the basis of a therapeutic claim or function are not subject to the Cosmetic Regulations or the Hotlist restriction.

Environment Canada has flagged triclosan for future assessment under the government’s Chemicals Management Plan.

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**14. Chemical Sunscreens (with Retinyl Palmitate, Oxybenzone and Octyl Methoxycinnamate)**

When many of the chemicals used in popular sunscreens are exposed to sunlight, reactions occur between the sunscreen’s active and inactive ingredients and the epidermis. Toxic reactions include inflammation, dermalogical effects, allergic reactions and photogenotoxic (DNA altering) effects. Chemical sunscreens have ingredients that actually promote cancer.

Natural sunscreens with titanium dioxide and zinc oxide are safer alternatives.

P.S. Sunscreen does NOT allow the body to absorb any vitamin D from sunlight. So if you plan on being outside for a short period of time, skip the sunscreen and feed your body the [vitamin D](http://www.youtube.com/watch?v=HH1rB-Ya2UQ) that will keep it healthy.

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**Health Hazards:**FDA last reviewed the safety of sunscreen ingredients in 1978. At that time, it announced plans to develop comprehensive standards for sunscreen safety and effectiveness. More than 30 years later, the agency has yet to publish any standards for sunscreen ingredients. As a result, manufacturers in the U.S. are free to market products containing ingredients that have not been proven safe.

**Oxybenzone:** According to the EWG, there are several suspected dangers associated with Oxybenzone. It has been shown to penetrate the skin and cause photo-sensitivity. As a photocarcinogen, it’s demonstrated an increase in the production of harmful free radicals and an ability to attack DNA cells; for this reason, it is believed to be a contributing factor in the recent rise of melanoma cases with sunscreen users. Some studies have shown it to behave similarly to the hormone estrogen, suggesting that it may cause breast cancer. It has also been linked to contact eczema.

In addition, there exist many concerns regarding the human body’s percutaneous absorption of Oxybenzone. In one study, individuals applied a sunscreen with 4% Oxybenzone and submitted urine samples 5 days after topical application. All the subject’s urine secretions were found to contain Oxybenzone, suggesting the body’s ability to store the substance. In 2008, the US Centers for Disease Control & Prevention conducted a similar experiment on a national scale, and found the chemical compound to be present in 96.8% of the human urine samples surveyed. As a result, it is recommended that parents keep their small children from using products containing the ingredient. This is based on the assertion that children under the age of 2 have not fully developed the enzymes that are required to break down derivatives of Oxybenzone. (Just don’t use it)

**Octyl methoxycinnamate:**Octyl methoxycinnamate (OMC for short) is the main chemical used in sunscreens to filter out UVB light. OMC is present in almost ALL wide-spectrum sunscreen brands. Worse yet, OMC has been shown to be particularly toxic when exposed to sunshine. According to the Cosmetics Database, which rates Octyl Methoxycinnamate as 70% safe, there are many concerns regarding its use, including: biochemical changes that cause mutation and cell death upon exposure to sunlight (which is likely when used as a sunscreen ingredient); immunotoxicity and photoallergic effects; reproductive toxicity that leads to estrogenic effects; organ system toxicity, especially in the liver; and enhanced skin absorption. Octyl methoxycinnamate is relatively easily absorbed into the skin and has been shown in some studies to promote generation of potentially harmful free radicals.

**Retinyl Palmitate:**The sunscreen industry uses vitamin A in its formulations because it is an anti-oxidant that is thought to slow skin aging. However, a U.S. Food and Drug Administration (FDA) study found that a form of vitamin A, retinyl palmitate, when used in sunscreen and therefore exposed to sunlight may actually speed the development of skin lesions and tumors.

This conclusion came from EWG’s analysis of the findings released by the FDA and the National Toxicology Program. As EWG stated in the 2011 report: *“EWG analysis of product labels finds retinoid ingredients in hundreds of sunscreens, skin lotions, lip sticks and lip sunscreens—all of which pose safety concerns for sun-exposed skin. At this point, the NTP [National Toxicology Program] and FDA have invested more than a decade in studying retinoids, concluding in January 2011 that both retinyl palmitate and retinoic acid speed the development of cancerous lesions and tumors. A year after EWG sounded the alarm about retinyl palmitate, there is still no FDA position on the safety of retinoids in cosmetics. Sunscreen industry trade groups continue to dispute EWG’s warning. Most cosmetics companies have not removed these ingredients from sunscreens and other skin and lip products. EWG recommends that consumers avoid products containing vitamin A, retinyl palmitate and retinol.”*

**Other potentially harmful ingredients found in sunscreen:**Several studies show that many other sunscreen ingredients have toxic properties that are absorbed through the skin and end up circulating in your bloodstream. Here’s a list of some of the most common ones: avobenzone, benzophenone-3, butyl methoxydibenzoylmethane, cinoxate, dioxybenzone, homosalate, menthyl anthranilate, octocrylene, octyl salicyclate, octyl methoxycinnamate (OMC), oxybenzone, padimate O, para amino benzoic acid and PABA esters, phenylbenzimidazole, sulisobenzone, any type of salicylate.

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**15. Aluminum**

Aluminum is a common ingredient in deodorant and mostly antiperspirant. It is often linked to Alzheimer’s and brain disorders and is a possible risk factor in breast cancer. Aluminum-based compounds in antiperspirants form a temporary plug within the sweat duct that stops the flow of sweat to the skin’s surface, which forces toxins to flow back into the bloodstream.

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**Health Hazards:** Aluminum can be found in drinking water, anti-perspirants, vaccinations, baking powders, feminine hygiene products, cow and soy milk, baby formula, antacids, and of course aluminum foil, pots and pans. In water aluminum is used help remove debris in water (called flocculation) binding to the particles and sticking them together. Unfortunately, it is a neurotoxin that also binds and sticks to our red and white blood cells and hormones that can lead to microvascular strokes which cause many other serious issues.

Aluminum-based compounds are used as the active ingredient in antiperspirants. These compounds form a temporary plug within the sweat duct that stops the flow of sweat to the skin’s surface. Some research suggests that aluminum-based compounds, which are applied frequently and left on the skin near the breast, may be absorbed by the skin and cause estrogen-like (hormonal) effects. Because estrogen has the ability to promote the growth of breast cancer cells, some scientists have suggested that the aluminum-based compounds in antiperspirants may contribute to the development of breast cancer

The average person will consume and eat over 3 pounds of aluminum in his or her lifetime. That is the equivalent of 229 square feet of aluminum foil.

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**16. Heavy Metals: Lead, Mercury, Cadmium, Arsenic, Nickel and More**

Heavy metals can build up in the body over time and are known to cause varied health problems, which can include: cancer, reproductive and developmental disorders, neurological problems; memory loss; mood swings; nerve, joint and muscle disorders; cardiovascular, skeletal, blood, immune system, kidney and renal problems; headaches; vomiting, nausea, and diarrhea; lung damage; contact dermatitis; and brittle hair and hair loss. Many are suspected hormone disruptors and respiratory toxins, and for some like lead, there is no known safe blood level.

 Click [HERE](http://www.youtube.com/watch?v=JLulh7daFlk) to learn how to test your lipstick or other cosmetic products for heavy metals.

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* Seven of the eight metals of concern were found in 49 different face makeup items. On average, products contained two of the four metals of most concern and four of the eight metals of concern.
* Only one product, Annabelle Mineral Pigment Dust (Solar), was found to not contain a single metal of most concern. All products contained at least two metals of concern.
* Benefit Benetint Pocket Pal (Red Tint) contained the most metals of concern with seven of the eight metals detected.
* The Benefit Benetint lip gloss also contained the highest level of lead at 110ppm, over 10 times higher than the 10ppm limit set out in the Health Canada Draft Guidance on Heavy Metal Impurities in Cosmetics.
* Five products — one foundation, two mascaras, and two lipsticks/tints/glosses — contained the second-most metals of concern as six of the eight metals were found.
* None of the heavy metals were listed on the product label.



**Lead:** Lead is a neurotoxin that is found in cosmetics, plastics, batteries, gasoline, insecticides, pottery glaze, soldered pipes, and paint. In October 2007, the Campaign for Safe Cosmetics tested 33 popular brands of lipsticks at an independent lab for lead content. The results: 61 percent of lipsticks contained lead, with levels ranging up to 0.65 parts per million. FDA found the highest lead levels in lipsticks made by three manufacturers: Procter & Gamble (Cover Girl brand), L’Oreal (L’Oreal, Body Shop and Maybelline brands) and Revlon. Yet FDA has thus far failed to take action to protect consumers.

In the body, lead will either accumulate in tissues, especially bone, but also in the liver, kidneys, pancreas, and lungs. Pregnant women and young children are particularly vulnerable because lead can cross the placenta with ease and enter the fetal brain. Lead can also be transferred to infants via breastfeeding and lead stored in bone serves source of fetal lead exposure. After immediate exposure, humans are able to get rid of 50 per cent of the lead within two to six weeks, but it takes 25 to 30 years to get rid of 50 per cent of lead that has accumulated in the body over time.

No safe blood level of lead is known, with even the lowest levels having shown to affect the fetus and the central nervous system in children. Small amounts are recognized as being hazardous to human health. Infants, toddlers, children, fetuses, and pregnant women are most susceptible to its chronic low-dose effects. Chronic low-level exposure may affect the kidneys, cardiovascular system, blood, immune system, and especially the central and peripheral nervous systems. IQ deficits have been associated with high blood lead levels, including those of low-levels. Lead exposure has also been linked to miscarriage, hormonal changes, reduced fertility in men and women, menstrual irregularities, delays in puberty onset in girls, memory loss, mood swings, nerve, joint and muscle disorders, cardiovascular, skeletal, and kidney and renal problems. Lead and inorganic lead compounds have been classified as possibly and probably carcinogenic to humans, respectively. It was also one of the first substances to be considered “toxic” in Canada. High-level acute exposures can cause vomiting, diarrhea, convulsion, coma, and death.

**Mercury:**According to EWG’s Skin Deep database, it is a possible impurity in 1.9 per cent of products, including lip gloss, lip liner, eye liner, brow liner, moisturizer, mascara, baby lotion, lipstick, and eye shadow. Mercury has been found in skin lightening, anti-aging, antiseptic and anti-wrinkle products. Avoid all products containing mercurous chloride, calomel, mercuric, mercurio, or mercury.

The literature on the health effects of mercury is extensive. Most of the literature focusses on effects following inhalation exposure to metallic mercury vapours and oral exposure to inorganic and organic mercury compounds. There is limited information on adverse effects following dermal exposure to ointments and creams that contain inorganic mercury compounds.

Mercury is a neurotoxin. Various forms of mercury are toxic. The form of mercury plays a role in how much is absorbed via dermal or oral routes. Organic (methyl) mercury is of greater concern than inorganic mercury, however, all forms of mercury are absorbed through the skin and mucosa and dermal exposure can result in systemic toxicity. Exposure to mercury can have serious health consequences. It can cause damage to the kidneys and the nervous system, and can interfere with the development of the brain in unborn and young children. While the amounts of mercury in the cosmetics is typically low, mercury accumulates in the body. Mercury is also readily absorbable through skin. It can also cause symptoms such as irritability, tremors, changes in vision or hearing, memory problems, depression, and numbness and tingling in hands, feet or around mouth.

**Cadmium:**Canadians are mostly exposed via food, but also drinking water, air, consumer product releases, occupational exposures, and smoking. Cadmium from body and hair creams can also be absorbed into the human body through dermal contact. It is mostly used to make nickel-cadmium batteries, but is also used in pigments, including those for ceramic glazes, polyvinyl chloride (PVC) plastics, and industrial coatings. Cadmium is absorbed into the body, accumulating in the kidney and the liver, although it can be found in almost all adult tissues. The total amount absorbed by humans has been estimated to be between 0.2 and 0.5 µg/day, with

absorption via skin estimated to be 0.5 per cent. Little absorbed cadmium is eliminated with humans getting rid of 50 per cent of cadmium from the body 10-12 years after exposure. Cadmium and cadmium compounds are considered to be “carcinogenic to humans” by the IARC and are considered “toxic” in Canada because their carcinogenicity and environmental effects. It and its compounds are also classified as known human carcinogens by the United States Department of Health and Human Services.

**Arsenic:**Humans are mostly exposed to arsenic via food, but other sources include drinking water, soil, ambient air, house dust, and cigarette smoking. Arsenic was found at a maximum of 2.3 ppm in a study on its presence in 88 different colours of eye shadow, and has also been found in skin bleaching creams.

Ingested arsenic compounds are readily absorbed in the gastrointestinal tract and distributed throughout the body, including to developing fetuses, and can mostly be found in the liver, kidneys, lungs, spleen, and skin within 24 hours. Humans are suggested to rid 50 per cent of arsenic from the body between two and 40 days later, although it will tend to accumulate in skin and hair over time. Arsenic may also be inhaled or absorbed via the skin, although an US FDA study has predicted that dermal exposure to arsenic may contribute less than 1 per cent of the exposure from ingestion.

Arsenic and its inorganic compounds are considered to be “carcinogenic to humans” by the International Agency for Research on Cancer (IARC) and are considered “toxic” in Canada because of their carcinogenicity. In humans, the lethal dose is estimated to be between 50 to 300 mg (or 0.8 to 5 mg/kg-bw) of arsenic trioxide.

The ingestion of drinking water with very high arsenic levels have been suggested to increase the risk of cancer in internal organs like the bladder, liver, and lungs. Long-term exposure via ingestion has also been associated with skin cancer, skin thickening or discolouration, decreased blood cell production, blood vessel damage, feet and hand numbness, nausea and diarrhea. According to a single study with a small number of participants, it may also impair the immune system. Long-term exposure through inhalation includes some of the skin effects, circulatory and peripheral nervous disorders, an increased risk of lung cancer, and a possible increase in the risk of gastrointestinal tract and the urinary system cancers. Long-term skin contact is not likely to lead to any serious internal effects.

**Nickel:** Nickel is naturally occurring and may be an essential element in humans. It is used in everything from metal coins and jewellery, to heat exchangers, batteries, and ceramic colouring, in addition to many other applications. Unsurprisingly given its abundance, everyone is exposed to small amounts, mostly through food, although also through air, drinking water, soil, household dust, and skin contact with products containing it, including cosmetics. Fetal exposures can also occur and it can also be passed to breast-fed infants. High levels of exposure can lead to health effects depending on route and the kind of nickel exposed to. While certain types of nickel were considered to be “toxic” because of concern to health due to carcinogenicity, and in some cases, effect on the environment in Canada, metallic nickel was not considered a concern for human health. However, metallic nickel and alloys have been classified as possibly carcinogenic to humans. Also, allergy to nickel is common and it can cause severe contact dermatitis, with it being one of the most common causes of such. Ten years ago, the first case of nickel allergy caused by eye shadow was reported and it has been reported that even 1 ppm may trigger a pre-existing allergy.

Click [**HERE**](http://environmentaldefence.ca/sites/default/files/report_files/HeavyMetalHazard%20FINAL.pdf) for more information about the health risks of hidden heavy metals in face makeup.

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**17. Talc**

Commonly found in baby powders, face powders, body powders. Talc is a known carcinogen and is a major cause of ovarian cancer. It can be harmful if inhaled as it can lodge in the lungs, causing respiratory disorders. Since the early 1980s, records show that several thousand infants each year have died or become seriously ill following accidental inhalation of baby powder.

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**Why used:**Talc is a mineral, produced by the mining of talc rocks and then processed by crushing, drying and milling. Talc is found in a wide variety of consumer products ranging from home and garden pesticides to antacids. Talc is used for its anti-moisture properties in baby powder, medicated powders, perfumed powders and designer perfumed body powders. Because talc is resistant to moisture, it is also used by the pharmaceutical industry to manufacture medications and is a listed ingredient of some antacids. Talc is the principal ingredient home and garden pesticides and flea and tick powders. Talc is used in smaller quantities in deodorants, chalk, crayons, textiles, soap, insulating materials, paints, asphalt filler, paper, and in food processing.

**Health Hazards:** Talc is toxic. Talc particles cause tumors in human ovaries and lungs. Numerous studies have shown a strong link between frequent use of talc in the female genital area and ovarian cancer. Talc particles are able to move through the reproductive system and become imbedded in the lining of the ovary. Researchers have found talc particles in ovarian tumors and have found that women with ovarian cancer have used talcum powder in their genital area more frequently than healthy women.

Talc is closely related to the potent carcinogen asbestos. Talc particles have been shown to cause tumors in the ovaries and lungs of cancer victims. For the last 30 years, scientists have closely scrutinized talc particles and found dangerous similarities to asbestos. Responding to this evidence in 1973, the FDA drafted a resolution that would limit the amount of asbestos-like fibers in cosmetic grade talc. However, no ruling has ever been made and today, cosmetic grade talc remains non-regulated by the federal government. This inaction ignores a 1993 National Toxicology Program report which found that cosmetic grade talc, without any asbestos-like fibers, caused tumors in animal subjects. Clearly with or without asbestos-like fibers, cosmetic grade talcum powder is a carcinogen.

Talc poses a health risk when exposed to the lungs. Talc miners have shown higher rates of lung cancer and other respiratory illnesses from exposure to industrial grade talc, which contains dangerous silica and asbestos. The common household hazard posed by talc is inhalation of baby powder by infants. Talc is used on babies because it absorbs unpleasant moisture. Clearly, dusting with talcum powder endangers an infant’s lungs at the prospect of inhalation. Exposing children to this carcinogen is unnecessary and dangerous.

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