

Buyer Beware - Need of Every Consumer to know if their Skin Care is Making Them Sick.

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Abstract: Usually we talk about eating healthy and exercising but unfortunately beauty gets thrown off to the side like it doesn't matter. Well, it does. Chemicals in our products go directly into our blood. It's not new that things that we put on our skin are absorbed directly into the body. Our cosmetics should serve our skin, not harm it. Cosmetic products, including skincare, can provoke allergic reactions, skin or eye irritation, may increase the risk for cancer, hormonal disruption, etc. Common toxic ingredients in cosmetics fall into majorly five classes – natural rubber, fragrances, preservatives, dyes, and metals. We'd think we live in a highly regulated country right, but considering what's going on with our food, it leads to suspect things aren't what they see in the skincare department. When it comes to personal care there is very little regulation going on. Companies, big companies, well-known companies are allowed to abuse cheap chemicals or simply add in ingredients for no apparent reason. Ingredients related to risks are not disclosed to consumers. The best way to avoid such chemicals in cosmetics is understanding various ingredients names they go by and checking product labels using applications like good face app, think dirty app, or before buying look for certification (ex. MADESAFE).

Keywords: Chemicals, contaminants, cancer, carcinogens, skin care.

INTRODUCTION

Products we placed on our bodies have to now no longer incorporate chemical compounds that would harm our fitness. Cosmetics are defined as "materials intended to be rubbed, poured, sprinkled, or sprayed on the human body for the purpose of washing, beautifying, or enhancing its appearance, selling attractiveness, or changing the appearance." This consists of skin moisturizers, perfumes, lipsticks, fingernail polishes, eye make-up, and toothpaste shampoos, everlasting waves, hair colors, toothpaste, and deodorants, in addition to any issue of a beauty product. Cosmetics are exclusive from drugs.

The pores and skin are the biggest and additionally one of the maximum vital organs in our frame. It plays numerous crucial capabilities for the frame together with shielding the opposite crucial organs, bones, muscles, ligaments, and nerves. Up to 60% of what we placed on our pores and skin receives absorbed, because of this that the goods we placed on our bodies affect our fitness and overall, well-being, either negatively or positively. Because the Food and drug administration (FDA) does now no longer alters pores and skincare, nearly any component may be integrated into formula, a number of them being amazing risky on our fitness.

The federal regulation that governs this sizeable enterprise is a trifling and a 1/2 of pages long and has now no longer been amended considerably because it changed into enacted eighty-two years ago. Most of the perfume and beauty substances in use nowadays didn't even exist at the time the regulation changed into written. Yet because of gaping holes in federal regulation, it's far flawlessly criminal for perfumes, colognes, frame lotions, shampoos, and different

cosmetics and private care merchandise to comprise sensitizers, hormone disruptors, reproductive toxicants, cancer-causing agents, and different poisonous chemical compounds related to dangerous fitness effects. Most humans count on the government, in this case, the USFDA regulates cosmetics the identical manner it does meals and capsules to make sure they're safe. In reality, cosmetics are one of the least regulated customer merchandise available in the marketplace nowadays. Cosmetic merchandise and substances aren't a concern to FDA premarket approval authority, besides color additives. The FDA similarly explains that manufacturers "aren't required to sign up their beauty establishments, record information on substances, or document cosmetics-associated accidents to FDA. [Jacob, S. L. *et al.*, 2018]

The FDA holds beauty companies answerable for confirming the protection in their merchandise and substances earlier than marketing. Products that have now no longer been examined should deliver the label, "Warning - The protection of this product has now no longer been determined."

Urgent want for extra transparency and higher law of splendor and private care merchandise and the fragrances they comprise added the Safe cosmetics and personal care products act 2018, which now no longer most effective requires complete perfume disclosure, however, could ban poisonous substances such as cancer-causing agents and more secure reformulation. The campaign for safe cosmetics has documented

different merchandise that comprises dangerous substances and contaminants, such as lipsticks, nail polish, child shampoo, sunscreen, and others.

Government and enterprise studies have diagnosed a huge variety of chemical compounds utilized in non-public care merchandise which can be probable to comprise contaminants. 48 Products with those substances may be diagnosed the usage of the skin-deep cosmetics database (www.cosmeticdatabase.com), an internet device proved with the aid of using the environmental working group, which fits the aspect lists of extra than 40,000 non-public care merchandise from 60 definitive toxicity and regulatory databases to derive protection reviews for every product. All over 48 pieces of merchandise have been tested for the presence of 1, 4-dioxane and 28 of these merchandise have been tested for the presence of formaldehyde.

For maximum materials that reason most cancers, it takes a few years after publicity to the substance for most cancers to occur (latency period). Scientists get plenty in their information approximately whether or not something would possibly reason most cancers from lab research the usage of molecular cultures and animals. Because there are ways too many materials (herbal and man-made) to check everyone in lab animals, scientists use expertise approximately chemical shape, different forms of lab tests, and different elements to pick chemical compounds for testing. They can regularly get a concept approximately whether or not a substance would possibly reason issues via way of means of searching at its chemical shape and evaluating it to comparable chemical compounds however laboratory research manner to discover the capacity for a substance to reason most cancers in human beings earlier than good-sized publicity occurs. [Eldridge, L. *et al.*, 2021]

Where Do We Discover the Ones Recognized Human Carcinogenic Chemical Compounds?

The International Agency for Research on Cancer (IARC) is an intergovernmental agency and a part of the World health organization. IARC's challenge is to beautify collaboration in most cancers studies internationally.

IARC consolidates medical proof and classifies the chemical compounds into 5 levels:

Group 1: Carcinogenic to human beings

Group 2A: Probably carcinogenic to human beings

Group 2B: Possibly carcinogenic to human beings

Group 3: Not classifiable as to their carcinogenicity to human beings

Group 4: Probably now no longer carcinogenic to human beings.[Eldridge, L. *et al.*, 2021]

Of the 113 sellers indexed via way of means of IARC as recognized human carcinogens (Groups 1), at the least eleven had been or are presently utilized in non-public

care products: formaldehyde, phenacetin, coal tar, benzene, untreated or mildly dealt with mineral oils, methylene glycol, ethylene oxide, chromium, cadmium, and its compounds, arsenic, and crystalline silica or quartz.

There are 3 forms of chemical compounds, called carcinogens that could reason most cancers: A carcinogen is a selected chemical or bodily agent that could reason most cancers in people uncovered to that agent.

1. **Procarcinogens** which reason most cancers to be modified throughout metabolism.
2. **Cocarcinogens** which reason most cancers via way of means of performing with any other chemical.
3. **Direct-performing carcinogens** that may reason most cancers as is.[www.aglawny.com. 2017]

Just because we had contact with a carcinogen doesn't mean that we'll get cancer. The chance of getting sick depends on many things. How much we've been exposed to it is part of it. Genetic makeup also plays a role.

A lot of ingredients found in traditional skincare products (face wash, lotions, sunscreen, etc.) have now been linked to epidemiological studies. Biomarkers (e.g. Hyaluronic acid) have increasingly been employed in human studies to investigate links between exposures to exogenous chemicals and cancer risk use of laboratory studies using animal models and human epidemiological studies. Researchers use various methods for research whether something should be called a carcinogen. Large doses of a substance can be given to lab animals to check if they get cancer. [Booth, S. *et al.*, 2020]

Concerns-Pollution in Beauty

Secret Fragrance (*Not so sexy cocktail*)



Fig 1: Fragrance - mixture of toxins
[www.madesafe.org. 2021]

A rose can be a rose. But that rose-like perfume in

fragrance perhaps something else entirely, concocted from any wide variety of the perfumes. Synthetic Musks are a large, poorly-studied elegance of chemical substances delivered as scents to cosmetics, together with perfumes, creams, and plenty of different private care products.

Makers of famous perfumes, colognes, and frame spray marketplace their scents with phrases like “floral,” “exotic” or “musky,” however they don’t divulge that many scents are complicated cocktails of herbal essences and artificial chemical substances – regularly petrochemicals. Laboratory assessments commissioned via way of means of the campaign for safe cosmetics and analyzed via way of means of the environmental working group the common perfume product examined contained 14 mystery chemical substances now no longer indexed at the label. These encompass diethyl phthalate related to sperm harm in human epidemiological research and musk ketone, an artificial perfume element that concentrates in human fats tissue and breast milk. [Tamatam, S. *et al.*, 2020].

To enhance the stability and shelf life of fragrances and colognes, manufacturers add UV absorbents, the active ingredients of fragrance formulations. 13 of 17 fragrances assessed contained at least 1 UV-absorbing chemical. 8 different UV absorbers were found in these products altogether.

Parabens

Parabens are the maximum pointed out skincare elements to avoid. They are observed in splendor merchandise including moisturizers, shampoos, spray-tan merchandise, shaving lotions, and make-up. The FDA has mentioned numerous researches that declare parabens can cause breast and pores and skin most cancers and reduced sperm count. Parabens are brought to maximum merchandise to save your microorganism from developing on your product; however, they're extraordinarily dangerous. Studies have proven parabens can disrupt the endocrine. These approaches are able to disillusion your hormones and modify your growth, development. Not constantly labeled, used as preservatives, and can make contributions to hormone imbalance.

Parabens are found anywhere which includes skincare merchandise including moisturizers and deodorants. Adolescent ladies who put on make-up each day had 20 instances of the ranges of propylparaben of their urine in comparison to individuals who in no way or hardly ever put on make-up. This does now no longer imply that it produces a hormonal impact while the usage of the product. Now preservatives are best used in the smallest feasible quantities. [Tamatam, S. *et al.*, 2020; www.healthonemedicine.com; Stoiber, T. *et al.*, 2019]

Nivea very consciously makes use of parabens attributable to their many advantages (correct tolerability, quite researched, and correct impact), we additionally deliver our customers the choice of buying paraben-loose merchandise. After all, as knowledgeable

buyers, we must determine for ourselves which product is first-class for us. Cetaphil products are paraben-free. Approximately 70% of NIVEA’s range does not contain parabens. [www.nivea.co.uk. 2021]



Fig 2: Cetaphil – paraben free [www.cetaphil.com. 2021]

Ultraviolet Rays

“When we're talking approximately about pores and skin most cancers, we're talking about many distinctive types," and for almost all of these types, it’s clear that the environmental carcinogen is sunlight.” In particular, it is the UV radiation emitted by solar energy that causes these cancers. This kind of radiation can penetrate the pores and skin and harm (UV signature) the DNA. UV mild reasons DNA harm because of this that sure cells to your pores and skin distribute a pigment known as melanin to different cells. This reasons the pores and skin to darken and is what humans name a tan. You simply get the tan when you have the DNA harm.

Studies display that ultraviolet (UV) rays, whether or not from the solar or a tanning bed, get absorbed into your pores and skin and harm the cells there. Most pores and skin most cancers instances are because of UV rays. Pollution and weather make those rays stronger. To live safe, shield your pores and skin with sunscreen, put on a hat and sunglasses, and keep away from tanning salons. [Booth, S. *et al.*, 2020]



Fig 3: Redlist – sunscreen [www.safecosmetics.org. 2004]

Staying Safe in the Sun

Shade and apparel are extra powerful than sunscreen at shielding your pores and skin. This is a shame – due to the fact maximum of the proof we've indicated that through a long way the exceptional manner to lessen your hazard of pores and skin most cancers is to observe the sun smart advice:

- Make positive you by no means burn
- Aim to cowl up with a t-shirt, hat, and sunglasses
- Remember to take more care with children
- Then use aspect 15+ sunscreen (formulations aside from galaxolide, tonalide, ketone musk, oxybenzone, as they growth probabilities for most cancers) [www.safecosmetics.org. 2004]

UV Nail Lamps

More research is needed for it. Salon nail dryers use UV nail lamps to accelerate the curing time of the nail polish and, such lights are a source of concern. It appears that using nail UV light can cause skin cancer. So it is better to use non-UV lights for drying nails. [Espat, A. et al., 2014]

Vitamin A

In a few paperwork located in non-public care merchandise, nutrition A compounds and derivatives may be harmful. Retinyl palmitate has been related to photocarcinogenicity, or the capacity to purpose most cancers whilst uncovered to sunlight. Retinoic acid has additionally been related to photocarcinogenicity, similarly to developmental toxicity. Using nutrition rich in vitamin A compounds and a number of their derivatives in pores and skin merchandise have the capacity to purpose an extra of nutrition inside the body, which could result in liver damage, delivery defects.



Fig 4: Vitamin A and retinol [www.madesafe.org. 2021]

Titanium Dioxide

Typically found in sunscreen, titanium dioxide is safe but when it's in powder form, it can be a possible carcinogen. Titanium dioxide is labelled on its own or TiO2

Hair Dye: Cancer Risk Unclear

Hair dye products include close to 5000 chemicals, including some that might cause cancer. [Espat, A. et al., 2014]



Fig 5: Red list – Hair color [www.safecosmetics.org. 2004]

Phenacetin

Occasionally utilized in non-public care merchandise as a stabilizer in merchandise consist of facial hair bleach, hair color. IARC and Prop sixty-five discover phenacetin as a human carcinogen listing that phenacetin and analgesic combinations containing phenacetin are moderately expected to be human

carcinogens. Exposure to phenacetin has been related to the malignant mammary tumor.

Mineral oils (untreated and mildly dealt with)

Mineral oils are derived from crude oil, and mildly delicate mineral oils usually comprise full-size quantities of polycyclic fragrant hydrocarbon (PAH)s. IARC, National toxicology program (NTP) and Prop sixty-five classify untreated and mildly dealt with mineral oils as a recognized human carcinogen.

Coal Tar

Coal tar is a spinoff of oil processing and is a recognized carcinogen. Still, it's miles utilized in beauty merchandise consisting of hair dyes, dandruff and scalp treatments, and shampoos. Coal tar can cause lung, kidney, digestive tract, and bladder cancers. Exposure to coal tar can also lead to bladder, lung, skin cancer and multiple myeloma. Non-cancers troubles consist of reproductive toxicity. [Jacob, S. L. *et al.*, 2018]

Coal tar is a brown-black cloth and thick liquid generated for the duration of the unfinished combustion (burning) of coal. It is taken into consideration acknowledged carcinogenS via way of means of the NTP and the IARC. Coal tar is a complicated chemical combination that still consists of numerous suspected and acknowledged carcinogens, together with benzene, toluene, naphthalene, anthracene, xylene, creosote oils, and benzo[a]pyrene, that's a PAH. PAHs are a massive elegance of chemical compounds which might be moderately expected to purpose most cancers. [Jacob, S. L. *et al.*, 2018]

What to look for on the label

Coal tar answer, tar, coal, carbo-cort, coal tar answer, coal tar answer USP, crude coal tar, estar, impersonal, KC 261, lavatar, piciscarbonis, naphtha, excessive solvent naphtha, naphtha distillate, Benzin B70, petroleum Benzin [www.safecosmetics.org. 2004]

Hair dyes range substantially in their chemical make-up. People are uncovered to the chemical compounds in hair dyes through pores and skin contact. There are three major forms of hair dyes:

•Temporary Dyes

These dyes cowl the floor of the hair however don't penetrate the hair shaft. They commonly remain for 1 to 2 pieces of washing.

•Semi-Everlasting Dyes

These dyes do penetrate the hair shaft. They commonly remain for five to ten washings.

•Permanent (Oxidative) Hair Dyes

These dyes purpose lasting chemical modifications within side the hair shaft. They are the maximum famous forms of hair dyes due to the fact the color

modifications remaining till the hair is changed via way of means of new growth. These dyes are so often known as coal-tar dyes due to a number of the components in them. They incorporate colorless materials together with fragrant amines and phenols in the presence of hydrogen peroxide.

IARC has concluded that place of job publicity as a hairdresser or barber is "likely carcinogenic to humans," primarily based on the statistics concerning bladder most cancers, those materials undergo chemical reactions to end up dyes. Darker hair dyes generally tend to apply extra coloring agents. Concern approximately most cancers hazard is essentially confined to semi-everlasting and everlasting dyes. Because darker dyes have extra of a few chemical compounds that could purpose most cancers, those merchandises are of best ability concern.

Hair Straightening Products

Formaldehyde

When combined with water, it's referred to as ethylene glycol, and it could be discovered in lots of merchandise, maximum appreciably in hair merchandise. [Preidt, R. *et al.*, 2021] Formaldehyde and chemical substances containing formaldehyde are not cancer agents in skincare merchandise, hair straightening merchandise, nail polishes, shampoos, lotions, and bathing gels. If people are uncovered to excessive quantities of formaldehyde, it could place them at a better chance for growing cancers. Formaldehyde can reason allergic reactions, in addition to inflammation to the eyes and breathing system. Formaldehyde can increase the quantity of the carcinogen in the air, which may be hazardous. [Tamam, S. *et al.*, 2020; www.healthonmedicine.com. 2021]

What to Look for on the Label

Formaldehyde, quaternium-15, DMDM hydantoin, imidazolidinyl urea, Diazolidinyl urea, polyoxymethylene urea, sodium hydroxymethylglycinate, 2-Bromo-2-nitropropane-1, 3-diol (bromopol), and glyoxal.

DMDM Hydantoin is one of the least sensitizing formaldehyde-releasing preservatives and found in lotion, sunscreen, and makeup remover and is one of the least sensitizing of the FRPs.

Quaternium-15 is highly sensitizing FRP and is present in blush, mascara, lotion, and shampoo. Preservatives that regularly launch formaldehyde can also additionally purpose joint pain, pores and skin allergies, headaches, and lack of sleep.

1, 4-Dioxane

The Environmental working group (EWG) determined the carcinogen 1, 4-dioxane in 28% of all private care merchandise. This consists of shampoos, soaps, and

body-toning, and anti-aging lotions. 1,4-dioxane isn't indexed on product labels. Some chemical substances that can comprise it consist of Polyethylene, polyethylene glycol, polyoxyethylene.

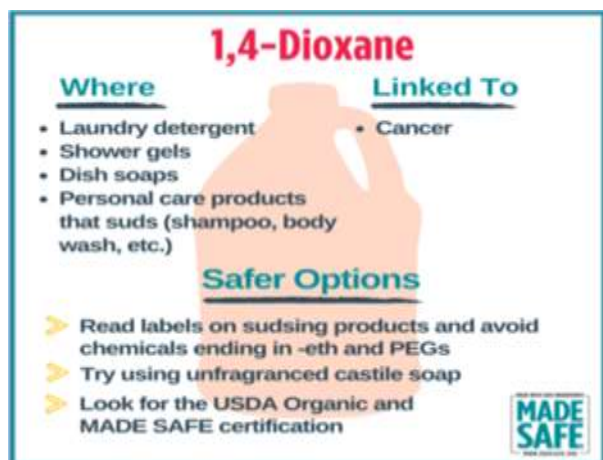


Fig 6: 1, 4-Dioxane [www.madesafe.org. 2021]

1, 4-dioxane is generated via a procedure referred to as ethoxylation, wherein ethylene oxide, an acknowledged breast carcinogen. 1,4-dioxane, a carcinogen related to organ toxicity, can be determined in as many as 22% of the greater than 25,000 cosmetic merchandise.

Found in: Products that create suds (including shampoo, liquid soap, and bubble bath), hair relaxers

What to look for on the label: Sodium laureth sulfate, PEG compounds, chemical substances that consist of the clauses xynol, cetareth and oleth Products containing 1, 4-dioxane

1. Baby Magic "Soft Baby Scent" baby lotion (Ascendia Brands, Inc)
2. Johnson's Baby Shampoo (Johnson & Johnson consumer companies)

Sodium laurel sulfate is a skin-attacking chemical that is often converted to sodium laurel sulfate, a less aggressive chemical (the "eth" denotes ethoxylation). The conversion process can lead to contamination of this ingredient with 1, 4-dioxane.

Ethylene Oxide

Ethylene oxide is a possible impurity in personal care products as a byproduct of the process of ethoxylation, which is used to buffer the harsh effects of some agents. NIOSH concludes that ethylene oxide leads to peritoneal cancer and leukemia exposure to ethylene oxide through inhalation, ingestion, and skin and eye contact can disrupt the respiratory system, central nervous system, and reproductive system.

Heavy Metals

Heavy metals such as hexavalent chromium and cadmium act as dyes in eyeshadow and lip gloss. Other metals such as arsenic are impurities in cosmetic ingredients including facial lotion, shampoo, and foundation as a result of arsenic contamination in sodium.

Eye Care

Many exceptional cosmetics are to be had nowadays however eye make-up is arguably the maximum famous of all cosmetics. Perhaps it's due to the fact eyes are so imperative to the face, or that we recall eyes as the 'window to the soul'. Whatever the reason, many women, in particular, have a sense that they can't face the day without making use of eye make-up. But if placing on eye cosmetics is a part of your each-day ritual, you must realize approximately a few capability risks for your eyes. [Andrew, N. *et al.*, 2021]



Fig 7: Red list eye shadow and face powder [www.safecosmetics.org. 2004]

Lead

Eye cosmetics that contain kohl can contain a reliable source of high concentrations of lead, which is a heavy metal that is harmful to the body. Any eye product containing any of the following could potentially contain lead: kohl, kajal, al-Kahal. Sumra, Tiro, tozali, Kwali. [Tamatam, S. *et al.*, 2020]

Asbestos

Its exposure has been strongly linked to the development of a specific type of lung cancer.

Acrylamide

Polyacrylamide is regularly utilized in non-public care merchandise for its lubricating and thickening properties. Traces of acrylamide, the monomeric unit that makes up polyacrylamide, had been determined in merchandise containing polyacrylamide. Though polyacrylamide isn't always taken into consideration toxic, there are numerous fitness issues with acrylamide, even in hint amounts. It is a diagnosed carcinogen, inclusive of breast cancer, and a reproductive and developmental toxin. A small, water-soluble molecule, acrylamide is with ease absorbed into the frame and hastily disbursed to all tissues thru the bloodstream however, it's been determined in lotions, powders, and creams. Daily publicity to acrylamide thru cosmetics can also additionally exceed the quantity that

could result from smoking a % of cigarettes a day. [www.safecosmetics.org. 2004]

Phthalates

Phthalates are found in a few nail polishes and hair sprays, in addition to the fragrances of many cleansing and beauty products. Phthalates can unbalance hormones, especially people who paintings along with estrogen, consisting of testosterone. According to a breast most cancers charity, phthalates can also additionally have a hyperlink with breast most cancers. This is due to the fact positive modifications in estrogen ranges can reason breast most cancers to develop. [Sissons, B. *et al.*, 2019]

Synthetic Fragrances [Tamatam, S. *et al.*, 2020]



Fig 8: Maybelline – color, nails, nail varnish [pinterest.com]

- Dove Solid Anti-Perspirant Deodorant
- TRESemme European Slick Melting Gel
- Pantene Pro V Spray Gel Volumizing Root Lifter
- Pantene Pro V Strong Hold Spray Suave Naturals Aloe Vera Extra Hold Hairspray
- Pantene Pro V Stronghold Healthy Hold Spray
- Nivea Avon beComing Radiant Long Last Nail Gloss Kiss Colors Nail Polish
- Cover Girl Nail Slicks L'Oreal Jet Set Nail Enamel
- Maybelline Express Finish L'Oréal Jet-Set Quick Dry Nail Enamel quick-drying nail polish
- Maybelline Ultimate Wear Nail Enamel Crème

Anything artificial needs to usually boost a purple flag. These are made from masses to hundreds of various substances now no longer indexed at the label, so that you are by no means certain what you're being uncovered to.

Teflon

There's not anything glamorous approximately the use of an anti-growing old product that now no longer most effective consists of a chemical used to coat pans however is likewise infected with a chemical this is related to breast most cancers. Sadly, the very demographic maximum stricken by breast most cancers is one of the key advertising objectives for that

merchandise. The Campaign for safe cosmetics is looking each Covergirl and Garnier to cast off chemical compounds related to breast most cancers from their beauty merchandise," [www.safecosmetics.org. 2004;www.healthonmedicine.com. 2021]



Fig 9: Redlist anti-aging cream [www.safecosmetics.org. 2004]

Perfluorooctanoic acid (PFOA) became observed in anti-growing old merchandise from loved manufacturers Garnier and CoverGirl. PFOA is a contaminant of polytetrafluoroethylene (PTFE), a component used to create an easy end on a few cookware and private care merchandise. The following 3 anti-growing old merchandise have been observed to comprise PFOA:

1. Garnier Ultra-Lift Transformer Anti-age Skin Corrector
2. Garnier Ultra-Lift Anti-Wrinkle Firming Moisturizer
3. Cover Girl Advanced Radiance with Olay, Age-Defying Pressed Powder [www.safecosmetics.org. 2004]

Chemicals like PFOA can conceal in beauty or private care product without clients understanding it as a probable carcinogen, endocrine disruptor, and reproductive toxicant, PFOA has no region in our private care merchandise. Manufacturers must keep away from the usage of PTFE to save you PFOA infection withinside the completed beauty product. There are steps we may take to keep away from this risky chemical on our lifestyles and to make certain that corporations are prohibited from the use of them withinside the first region:

To steer clear of the capacity contaminant PFOA, we may keep away from merchandise with those substances on their labels: Polytetrafluoroethylene (PTFE), Polyperfluoromethylisopropyl Ether, DEA-C8-18, Perfluoroalkylethyl Phosphate, and Teflon.

Per- and polyfluoroalkyl substances (PFAS) can be found in foundations, concealers, and eyeliners, in addition to different beauty merchandise. According to the EWG, there are extra than 4,000 chemical

compounds classed as PFAS that could pose the subsequent risks:

- harming a growing fetus
- growing a person's danger of most cancers

Ethanolamine Compounds

Ethanolamine is a colorless, viscous fluid. Ethanolamine compounds serve as emulsifiers, perfumes and pH adjuvants in cosmetics. It may cause burns and serious damage to the eyes. They are harmful by inhalation, in contact with skin, and if swallowed, and can also be contaminated with carcinogenic nitrosamines. Avoid products that contain ingredients with the letters diethanolamine (DEA), triethanolamine (TEA), and monoethanolamine (MEA). DEA, MEA, and TEA can cause contact dermatitis, and because they are easily absorbed through the skin, they accumulate in body organs, including the brain increasing the likelihood of liver and kidney cancer. [www.safecosmetics.org, 2004]



Fig 10: Diethanolamine [www.madesafe.org, 2021]

Window of Susceptibility

Time of Exposure

Some chemicals only require a single exposure to cause a negative health effect; others require several exposures to cause hazardous effects. Some of those key home windows of susceptibility arise at some point of prenatal improvement and puberty, while the body's cells are dividing swiftly and while complicated organs and features inclusive of brains, breasts, and metabolism expand. For absolutely everyone pregnant or referred to as a person pregnant, this in all likelihood comes as no surprise.

Diethylstilbestrol (DES) Daughters

Prenatal Exposure to Synthetic Estrogen

Between 1938 and 1971 docs prescribed DES for hundreds of thousands of pregnant girls to save you miscarriages, culminating in a scientific tragedy that has affected at least five million human beings. Daughters of girls who took the drug have been located to have

better prices of extraordinarily uncommon vaginal most cancers, similarly to breast cancer. The drug status was changed into a ban in 1971.

DES publicity induced structural abnormalities, infertility, and improved prices of vaginal and cervical cancers a number of the daughters of moms who took DES at some point of pregnancy. In addition, studies show an improved threat of breast most cancers for each moms and daughters. [Jacob, S. L. *et al.*, 2018]

- A child's chemical exposures are extra located than the ones of an adult.
- Children are much less in a position than adults to detoxify and excrete chemical substances (in maximum cases).
- Children's growing organ structures are greater susceptible to harm from chemical exposures.
- Children have greater years of destiny existence wherein to expand sickness caused with the aid of using early publicity.

Dose

There aren't any secure publicity degrees for a few chemical substances. For instance, lead can affect mind improvement even at components in line with million. If you figure in a splendor salon, beware: the most cancers threat can be excessive for human beings frequently uncovered to formaldehyde withinside the place of business. And, the threat is maximum while the product is being applied, placing stylists at extra threat. Exposure is non-stop and those aren't uncovered to simply one chemical at a time. Because many elements are used in lots of products, publicity for a few, however, the place of business may be a completely specific matter. [www.safecosmetics.org, 2004]

Individuals

Social, environmental and character traits engage to each form of a person's exposure and the way their frame responds to that exposure. Age, gender, way of life, and identification affect the goods human beings buy, and, as a result, the chemical substances they come across in the one's products. In addition, genetics, the cultural and environmental context of early life, diet, bodily activity, alcohol use, and smoking may also form how one's frame reacts to one's exposure. Genes can make us more vulnerable.

Look Into the Label

More and greater chemical compounds may be measured in human being's blood, urine, saliva, or even breast milk. This is known as biomonitoring, and it gives a possibility to higher recognize peoples' exposures to chemical compounds and combinations of chemical compounds. Products with those substances may be diagnosed the usage of the skin deep cosmetics database (www.cosmeticdatabase.com), a web device posted with the aid of using the Environmental working group

Several placing research have proven that the man-made chemical compounds in our surroundings and

purchaser merchandise—together with cosmetics—are making their manner into our bodies. Many of the chemical compounds observed in cosmetics are absorbed with the aid of using the pores and skin into the frame and may be detected in blood or urine.

Body Burden and Biomonitoring

Body burden refers back to the tiers of artificial chemical compounds in an individual's frame, usually measured via blood or urine. Large-scale biomonitoring applications that check the tiers of chemical compounds in a populace or subset of a populace could substantially guide the potential to reset. Use apps like **Think Dirty** (<http://www.thinkdirtyapp.com/>). To discover whether or not your go-to merchandise is secure or not, attempt Think Dirty's save smooth app. This smooth-to-use aid ranks the protection of precise merchandise on a scale of 1-10 and gives up purifier solutions. [www.safecosmetics.org. 2004] **MADE SAFE®** is a software of nontoxic certified, 501(c) nonprofit organization. We offer America's first complete human fitness and ecosystem-centered certification for risk-free merchandise throughout shop aisles, from toddler to non-public care to family and beyond. [www.safecosmetics.org. 2004]

The purpose of biomonitoring is to-

- Make it smooth for human beings to locate and purchase merchandise made without regarded poisonous chemical compounds;
- Supply corporations a street map for making secure merchandise, and
- Make it smooth for stores to pick merchandise that isn't regarded to purpose damage.

The MADE SAFE (Made with Safe Ingredients) seal approach is that a product is made with secure substances, without poisonous chemical compounds regarded to damage our fitness. MADE SAFE® monitors substances in opposition to our ingredient database of regarded dangerous chemical compounds that are made of heaps of chemical compounds observed on scientifically authoritative lists from groups and organizations across the world. Use biomarkers like hyaluronic acid^[3]

Safety Precautions

1. Make it clear for human beings to discover and purchase merchandise made without recognized poisonous chemical compounds and provide organizations an avenue map for making secure merchandise.
2. Make it clean for stores to pick out merchandise that isn't recognized to cause damage
3. Tell cosmetics groups which you need them to completely reveal the substances in the goods they make—such as contaminants along with PFOA and the chemical substances which might be hiding beneath the term “fragrance.
4. Choose merchandise without a delivered fragrance. By choosing merchandise without fragrance, you could lessen poisonous chemical exposures. For

yourself and your family. It is vital to examine element labels, due to the fact even merchandise marketed as “fragrance-free” might also additionally comprise an overlaying fragrance. [Tamatom, S. *et al.*, 2020]

5. Less is better [Sissons, B. *et al.*, 2019]
6. Particular, they searched for symptoms and symptoms of a manner called ‘apoptosis’ (regularly mentioned as ‘molecular suicide’). This happens while cells experience they may be damaged, and so self-destruct to keep away from growing into cancer. The researchers reasoned that, if apoptosis degrees went up all through the experiments, it was supposed that the pores and skin cells had been managing any harm from UV mild greater effectively, and defensive the mice towards cancer. What the group discovered became that each exercise and caffeine improved the costs of apoptosis withinside the pores and skin cells of the mice.[Scowcroft, H. *et al.*, 2007]
7. Look for certification. Finding secure skincare products that's powerful and made without poisonous chemical substances may be hard. We're right here to make it clean for you. All the goods indexed underneath are MADE SAFE® certified, this means that that they're made without acknowledged carcinogens, behavioral, reproductive, and neurotoxins, hormone disruptors, heavy metals, high-danger pesticides, flame retardants, poisonous solvents, and dangerous VOCs. In addition, elements had been tested for bioaccumulation (builds up in our bodies), persistence (remains inside the environment), and aquatic toxicity.

Some MADE SAFE certified products are as follows:

1. Khadi essentials – Shea butter, tea tree and thyme conditioner with neem and jojoba
2. Biotique – Bio fruit whitening and tan removal face pack
3. Organic harvest – Crystal de tan scrub
4. Plum Goodness – Green tea face mask clear
5. Mamaearth – Onion oil for hair fall control

10- Do It Yourself

Some private care merchandise is clean to make yourself, and this could be a brilliant undertaking for a party. Make your sugar or salt scrubs or frame oils, the usage of simple, natural elements.

11- Research Products Yourself

Since the splendor enterprise is essentially unregulated, it's as much as you to do your studies to discover the most secure merchandise. There aren't any criminal requirements for private care merchandise labeled as “pure,” “natural” or “natural,” so appearance past the advertising claims and examine labels carefully.

12- Use apps like Think Dirty

To discover whether or not your go-to merchandise is secure or not, attempt Think Dirty's store smooth app. This clean-to-use aid ranks the protection of precise merchandise on a scale of 1-10 and gives up purifier

solutions.

Market Raise

Retailers that promote private care merchandise are the gatekeepers of protection for his or her customers. If the nation's largest outlets decide to prevent promoting cosmetics with poisonous chemical substances connected to disease, producers who need to hold promoting to the ones outlets will comply. There are wealthy records of outlets the use of their buying electricity to impact superb marketplace change. When outlets stated no to BPA in child bottles or old-boom lumber, the marketplace responded."

The Champions are demonstrating great practices with the aid of using:

- Making powerful merchandise without the use of components is illegitimate to be used in cosmetics in different countries.
- Disclosing all their components, consisting of people who make up "fragrance," displaying that it's not vital to cover those components from the public.
- Working collectively with nonprofit fitness organizations to grow marketplace call for safe, sustainable merchandise and practices. [www.safecosmetics.org. 2004]

Parents shouldn't have to be organic chemists to make safe choices for their families if manufacturers can and should do better. Retailers are stepping as much as fill the void. When outlets undertake rules for the protection of the goods they promote, it's known as retail regulation. The following desires must manual outlets' rules and practices to enhance the protection of private care merchandise offered of their stores:

1. Expand the sale of more secure cosmetics and private care merchandise (merchandise freed from chemical substances)
2. Connected to cancer, start defects, developmental damage, and different fitness concerns).
3. Adopt a listing of chemical substances which can be banned from use in private-label and country-wide manufacturers offered of their stores, and make certain that poisonous chemical substances are changed with more secure alternatives.
4. Reformulate private-label merchandise to take away chemical substances of concern.
5. Practice the very best stage of transparency with the aid of using sharing the company's safe-cosmetics policy,
6. Practices and development on websites and contain duty reports. Strive for non-stop upgrades in rules and practices with the aid of using tracking scientific
7. Studies concerning rising chemical substances of concern

CONCLUSION

A lack of legal regulation means that each person must decide which products they feel safe using Keep away from materials that contain the ingredients listed in this

article can help people minimize their exposure to toxic makeup chemicals we always focus more emphasis on all over wellness, because a healthy body is always automatically looking beautiful. As we know about carcinogens in skincare products, we have to sure to check the list of ingredients when we are purchasing any product. The skincare industry will not aware us what goes into their products. But we should. Need to do our research, switch to safer ingredients for healthy skin and body.

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