

# A Review on Toxic Chemicals In Cosmetics

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**Abstract:** To review the literature approximately toxic chemical compounds in cosmetics emphasize the significance of toxicological studies in cosmetology and to help the marketing campaign for secure cosmetics. There is a want for the established order of better requirements in cosmetology in a elevating cognizance approximately poisonous chemical compounds that must b averted, selling more secure beauty and remodeling beauty enterprise into secure and non-poisonous Toxic chemical compounds being dangerous both wishes to be removed from the beauty formulations or substituted with different non-dangerous components indexed as secure. These but can not be without delay eliminated from system; consequently their utilization wishes to be stored as minimum as possible. Using lesser chemical compounds isn't best much less wasteful and much less high priced however additionally secure and extra efficient. There are heaps of threatening cosmetics available with chemical compounds recognised to motive sicknesses like cancer, intense allergies, hormone disruption, infertility or maybe fibroids. This evaluation highlights the poisonous chemical compounds and significance of toxicological evaluation in cosmetics and additionally useful in deciding on merchandise which might be secure for surroundings. Throughout the sector beauty and private care merchandise are utilized in huge amount as end result in their everyday use; they're continuously launched into surroundings in fantastic amount. Many of those components are biologically energetic and are certain through staying power and bio magnification potential, posing a danger to atmosphere and human health. In cosmetics there's a want for the creation of better requirements for growing cognizance approximately the poisonous chemical compounds and components utilized in cosmetics that have to be averted to sell protection in any beauty formulation. This could be a huge step withinside the development of protection parameters in cosmetics industry

**Keywords:** Cancer, Cellular neurological damage, Cosmetics, Personal care products, Side effects, Sunscreen, Toxic chemicals.

## Introduction

Today's life is unbelievable without the use of many cosmetic and cosmeceutical products. "Cosmetic products means any substance or mixture intended to be placed in contact with external parts of human body (epidermis, hair system, nails, and lips) or with teeth and mucous membranes of oral cavity with view of cleaning them, perfuming them, changing their looks, protecting them, maintaining them, or correcting body odors". Cosmetic regulation have raised remarkable concern as one of the most important classes of pollutants because they are continuously released into aquatic environment, their ecological and environmental impact is associated with large amounts used and sometimes they are environmentally persistent, bioactive, and able to bio accumulate. The role of toxicology in cosmetics is to ensure that toxic ingredients are avoided and replaced with less toxic or even better non-toxic chemicals. The importance of this is to upraise awareness about toxic chemicals in cosmetics and this will be a big step in the advancement of safety parameters in cosmetic industry<sup>(10)</sup> The role of toxicology in cosmetic and industry is to ensure that toxic ingredients are avoided and replaced with less toxic, or even better, non-toxic chemicals. The importance of the campaign for safe cosmetics is to raise awareness about toxic chemicals in cosmetics; promote safety standards and stimulate the transformation of cosmetic industry into safe and non-toxic.<sup>(2)</sup>

## 1, 4 Dioxane

It is not marked on ingredient labels because it is a contaminant produced during manufacturing. It is found in products that create suds such as shampoos, liquid soaps, bubble baths, and hair relaxers<sup>(1)</sup> it is a probable human carcinogen observed by the U.S. Environmental Protection Agency and registered as an animal carcinogen by the National Toxicology Program. Used as a stabilizer in cosmetic products also well-known breast carcinogen Research shows that 1, 4-dioxane readily enters the skin. It is produced by acid- catalyzed dehydration of di- ethylene glycol, which is obtained from the hydrolysis of ethylene oxide<sup>(10)</sup> be found in as many as 22% in more than 25,000 cosmetics products in the Skin Deep Database, but is not found out on ingredient labels<sup>(11)</sup> It is found in shampoo, liquid soap, bubble bath, hair relaxers, others. The product label that mentions the following ingredients such as sodium Lauretha sulfate, PEG compounds, chemicals that include the clauses xylol, cetrarate and owlet should be avoided<sup>(4)</sup>

## ACRYLATES

Acrylates (ethyl salt, group methacrylate, and methyl group methacrylate) area unit ingredients found in artificial nail merchandise (acrylic nails, nail enhancing polishes). Inhalation and skin contact area unit 2 main exposure routes. Despite proof of adverse skin, eye, and throat reactions to those chemicals, they still be employed in nail merchandise<sup>(1)</sup> The International Agency of analysis on Cancer (IARC) and U.S. Environmental Protection Agency (EPA) classify alkyl group salt as human substance. In spite of the proof of adverse skin, eye, and throat reactions to those chemicals, they're employed in nail merchandise. Its Acrylates or polyacrylates, belong to the family of vinyl polymers made up of salt monomers. They're the esters, salts and conjugate bases of propenoic acid and its derivatives. In line with the EFSA, the most toxicity risks of amide area unit "Neurotoxicity, adverse effects on male replica, organic process toxicity and carcinogenicity". It's found in artificial nail merchandise like acrylic nails and nail enhancing polishes. The merchandise label that mentions the following. Even if the FDA prohibited 100% liquid methyl group methacrylate in 1974, no explicit rules prohibited its use at concentrations lesser than 100% in cosmetic products. Across the US, at least 32 states prohibit the exclusive use of methyl methacrylate in nail salons<sup>(12)</sup>

**Side effects:** Include cancer, developmental and reproductive toxicity, organ system toxicity, cellular and neurological damage and irritation. Substitute of acrylates is xanthan gum. It is a microbial polysaccharide produced from *Xanthomonas campestris*. As compared to others polysaccharide it is quite stable against chemical and enzymatic degradation.<sup>(10)</sup>

### Parabens

Are the preservatives used to keep your skincare and makeup fresh germ-free? They are found in a variety of products, from soaps to lotions and makeup. Research shows that they cause increased production of the hormone estrogen (female sex hormone) and interfere with reproductive and brain function. Parabens (including methyl parabens, isobutyl parabens, propylparabens, and others) are a family of preservatives that manufacturers use in skin care products to help prevent the growth of bacteria and mold.<sup>(2)</sup>

Parabens are preservatives used in a wide variety of personal care products to prevent development of microbes. They are endocrine disruptors due to their ability to imitate estrogen. Mixed with other estrogenic chemicals they influence the progress of malignant melanoma through their estrogenic and genotoxic activities. Some studies have also shown that parabens have potential developmental and reproductive toxicity. Some types of parabens are banned in Denmark (propyl and butyl paraben, their isoforms and their salts) in cosmetics products for children up to 3 years. They are produced by the esterification of para – hydroxybenzoic acid with proper alcohol, such as methanol, ethanol or n-propanol. More than 0.5% is toxic. They are harmful to corneal and conjunctival epithelial cells also irritate the eye. It is found in shampoos, conditioners, lotions, shower cleansers and scrubs. The product label that mentions the following ingredients such as ethyl paraben, butylparaben, methylparaben, propylparaben, isobutyl paraben, isopropyl paraben should be avoided<sup>(13)</sup>

**Side effects:** - Endocrine disruption, cancer, developmental and reproductive toxicity. Substitute of paraben is sodium benzoate. It is produced by the neutralization of benzoic acid<sup>(10)</sup>

### FRAGRANCE

The International Fragrance Association (IFRA) lists 3,059 materials that are reported as being used in fragrance Compounds. Of these 3,059 ingredients, some (such as acetaldehyde, benzophenone, BHA, BHT, benzyl salicylate, benzyl benzoate, butoxyethanol, butylphenyl methylpropional, methyl chloride, methylene chloride, diethyl phthalate, essential oil mixtures, methyleugenol, formaldehyde, ethanolamines, methanol, oxybenzone, propyl paraben, resorcinol, styrene, synthetic musks, titanium dioxide, 1,4-dioxane, ethylbenzene and vinyl acetate) have evidence linking them to health effects including cancer, reproductive toxicity, allergies and sensitivities<sup>1</sup> The International Fragrance Association lists 3,059 ingredients that are announced as fragrance compounds. They are acetaldehyde, benzophenone, BHA, BHT, benzyl salicylate, benzyl benzoate, butoxyethanol, butylphenyl methylpropional, methyl chloride, methylene chloride, diethyl phthalate, methyleugenol, formaldehyde, ethanolamines, methanol, oxybenzone, propyl paraben, resorcinol, styrene, synthetic musks, titanium dioxide, 1,4- dioxane, ethylbenzene and vinyl acetate have proof of linking them to health risks such as cancer, reproductive toxicity, allergies and sensitivities. These are synthetic compounds derived from petroleum and natural gas, known as petrochemicals. They are linked to number of health risks which are classified as allergens, hormone disrupters, asthma triggers, neurotoxins and carcinogens. It is found in sunscreen, shampoo, soap, body wash, deodorant, body lotion, makeup, facial cream, skin toner, serums, exfoliating scrubs and perfume. The product label that mentions the following ingredients such as fragrance, perfume and parfum should be avoided. A study of 2016 estimated health issues from fragrance. This valuation of a casual sample of US residents found that 99.1% of members are exposed to fragranced products at least once a week from their own use, others' use, or both. Participants also reported wide list of health issues experienced when exposed to fragrance ranging from migraines and asthma to gastrointestinal complications and cardiovascular complications. Present laws do not offer the FDA with the right to give disclosure or public safety of fragrance ingredients. In the U.S., industries are required to list ingredients on the label; however, this regulation excludes the individual constituents of fragrance in order to preserve fragrance trade secrets. The International Fragrance Association and the Research Institute for Fragrance Materials (RIFM) improve and set intended standards for chemicals in fragrance module of products. The US, Canada, and Europe rely on IFRA and RIFM. Read<sup>(10)</sup>

**Side effects:** - Harmful effects such as migraine headaches, asthma attacks, respiratory problems, neurological problems and contact dermatitis.<sup>(10)</sup>

### Toluene

Toluene is a chemical usually observed in nail polish and hair dyes. It is a risky petrochemical solvent that may be poisonous to the immune system and may cause delivery defects. Because of this, be particularly cautious and keep away from nail polish containing toluene totally whilst you're pregnant. Toluene is a poisonous chemical utilized in nail merchandise and hair dyes. Exposure to toluene can bring about transient outcomes along with headaches, dizziness and cracked skin, in addition to extra severe outcomes along with reproductive harm and breathing complications<sup>(15)</sup>

### Phthalates

A phthalate is a plasticizer this is brought to plastic to preserve it from turning into brittle. Phthalates are utilized in cosmetics in the main in fragrances, and also can be located in different non-public care products, which include hair spray and nail polish. Examples include: DBP, DEHP, DEP and others. Like parabens, phthalates are endocrine disruptors and can cause hormonal and reproductive problems and birth defects.<sup>4</sup> Phthalates have been banned from cosmetics in the European Union, but still remain prevalent in U.S. products such as color cosmetics, fragranced lotions, body washes and hair care products, nail polished treatment. These chemicals are linked to endocrine disruption, developmental and reproductive toxicity, and possibly to cancer<sup>1</sup> Phthalates are forbidden from cosmetics in the European Union, but is still dominant in U.S. products. These ingredients are linked to endocrine disruption, developmental and reproductive toxicity, and possibly to cancer. They are used as plasticizer in cosmetics. They are manufactured by addition of an excess of branched or normal alcohols to phthalic anhydride in presence of catalyst. They act as endocrine disruptors and cause moderate reproductive and developmental toxicities<sup>(10)</sup>

**Side effects:** - Endocrine disruption, developmental and reproductive toxicity, cancer<sup>(10)</sup>

### Formaldehyde

Formaldehyde is a preservative protected in lots of cosmetics products. It's an acknowledged carcinogen this is related to asthma, neurotoxicity, and developmental toxicity. It may be located in preservatives along with quaternium-15, DMDM hydantoin, and imidazolidinyl urea. Three Formaldehyde and formaldehyde liberating components are used as preservatives in shadeation cosmetics. It is a studied human carcinogen. Studies of employees which can be discovered to excessive degrees of formaldehyde, like commercial employees and embalmers, have skilled that formaldehyde reasons myeloid leukemia, and cancers of the paranasal sinuses, nasal hollow space and nasopharynx. It is produced industrially via way of means of the catalytic oxidation of methanol. Most not unusualplace catalysts are silver metallic or an aggregate of an iron and molybdenum oxides. More than 0.2% is poisonous and it could purpose sensory infection and pores and skin sensitization. It is located in Nail polish, nail glue, eyelash glue, hair gel, hair-smoothing products, child shampoo, frame soap, frame wash, cooler cosmetics. The maximum not unusualplace aspect impact of formaldehyde in cosmetics is pores and skin infection, such as scalp burns and hair loss, consistent with Alexandra Scranton, Director of Science and Research for Women's Voices for the Earth, a country wide employer that works to put off poisonous chemical substances impacting women's health. But this is now no longer very in all likelihood with the low degrees generally located in cosmetics, until someone is notably touchy to the substance, she says. Plus, low degrees of formaldehyde had been located to purpose infection of the eyes, nose, throat, and pores and skin.<sup>(14)</sup>

**Side effects:** - Cancer, skin irritation.

Substitute of formaldehyde is sodium benzoate which is produced by neutralization of benzoic acid with caustic soda or soda ash<sup>(9,10)</sup>

### Oxybenzone (and other chemical sunscreens)

Oxybenzone (and different chemical sunscreens) Sunscreens are available exclusive forms: chemical and mineral filters. The maximum not unusualplace sunscreens available in the marketplace use chemical filters along with avobenzone, oxybenzone, octocrylene, and encapsule. In 2019, the FDA launched studies that confirmed extensively used chemical UV filters are absorbed with inside the frame in considerable quantities proper after application. And in 2020, the FDA launched that exhibits six chemical UV filters are detectable at the pores and skin and withininside the bloodstream weeks after application. Blood checks confirmed concentrations of oxybenzone had been extra than one hundred eighty instances the FDA's stage of situation after an unmarried application, and soared to extra than 500 instances after four days of ordinary use. This is quite problematic. These chemical compounds are regarded endocrine disruptors that mean they are able to block or regulate right hormone feature withininside the frame. Oxybenzone, that's located in 40% of chemical sunscreens, is connected to hormone disruption, terrible beginning outcomes, decreased male fertility, and probable cancer. In short, that is one of the maximum vital skin care substances to avoid! Chemical sunscreens have to be averted in any respect costs—specifically with children! Oxybenzone also can be located in sunscreen, SPF lotions, lip balm, and makeup, and tinted moisturizers. Stick with mineral-simplest sunscreens, which create a barrier at the floor of the pores and skin to bodily jump or replicate the sun's rays from the pores and skin<sup>(3)</sup>

### Carbon Black

Carbon black is a darkish black powder used as a pigment in cosmetics along with eyeliner, mascara and lipstick. It is produced thru incomplete combustion of carbon-based absolutely products at the side of coal tar and has been associated with improved incidence of maximum cancers and horrific outcomes on organs...<sup>(4)</sup> Information from the observe on rats performed with the aid of using Kim and coworkers shows that carbon black publicity will increase the cardiovascular chance with the aid of using inducing hyperhomocysteinemia and platelet hyperactivity, eleven though those outcomes can be variable relying on particle length and publicity time span<sup>(16)</sup> Carbon black is a darkish black powder used as a pigment in cosmetics. Homocysteine is biomarker for cardiovascular toxicity following carbon black expos it is produced with the aid of using the response of hydrocarbon gasoline along with oil or fuelling with a restricted deliver of combustion air at temperature of 1320 to 1540 diplomas Celsius. The National Institute for Occupational Safety and Health encouraged publicity restriction for carbon black is 3.5mg/m<sup>3</sup><sup>(17)</sup>

**Side effects:** - Cancer (Possible), Organ device toxicity<sup>(10)</sup>

### COAL TAR

Coal tar is derived from coal. It is a byproduct of the manufacturing of coke, a stable gasoline that consists of primarily carbon, and coal gas. Coal tar is used basically for the manufacturing of subtle chemical substances and coal-tar products, inclusive of creosote and coal-tar pitch. Certain preparations of coal tar have long been used to treat various skin conditions, such as eczema, psoriasis, and dandruff.<sup>5</sup>The general population may be exposed to coal tars In environmental contaminants and via using coal tar arrangements to deal with pores and skin problems together with eczema, psoriasis, and dandruff. Occupational publicity to coal tar or coal-tar pitch will increase the hazard of pores and skin cancer. Other types of cancer, including lung, bladder, kidney, and digestive tract cancer, have also been linked to occupational exposure to coal tar and coal-tar pitch<sup>(6)</sup>

Pyridine, a coal tar constituent, has been related to neurological damage...Pyridine Effects include emotional and sleep disturbances, as well as loss of coordination.<sup>(7)</sup>

### Ethanolamine compounds

The European Commission forbids di-ethanolamine in cosmetics, to lower adulteration from carcinogenic nitrosamines that are formed after the reaction of DEA with other Ingredients.DEA and TEA (tri- ethanolamine) found as hepatocarcinogenic in female mice. It is used as PH adjuster and emulsion stabilizer.DEA gets collected in the liver and kidney, which causes organ toxicity. [11] Another study commends that memory function and brain development in baby could be eternally affected by mother's exposure to DEA. Triethanolamine is comprised of the response of ethylene oxide with aqueous ammonia, additionally produced are ethanolamine and diethanolamine Female C3H mice were used to determine morphological response of mouse skin exposed to single application of 1%, 5% or 10% ethanolamine in acetone. It is found in soaps, shampoos, hair conditioners and dyes, lotions, shaving creams, etc. The product label that mentions the following ingredients such as triethanolamine, diethanolamine, cocamide

DEA, cocamide MEA, DEA-cetyl phosphate, DEA olet-3 phosphate, lauramide should be avoided. The European Commission bans DEA in cosmetics due to formation of carcinogenic nitrosamines. It is biodegradable.<sup>(10)</sup>

**Side effects:** - Cancer, environmental concerns (bioaccumulation), organ system toxicity.

Substitute of ethanolamine compounds is lecithin. It is made by hydrating soy, safflower, or corn oil. Canolaseeds are dried, pressed, and then extracted with hexane. The mixture is then filtered and heated to remove hexane, then bleached and dried.<sup>(10)</sup>

### BENZOPHENONE

Benzophenone is utilized in non-public care merchandise which include lip balm and nail polish to shield the goods from UV light. Derivatives of benzophenone, such as benzophenone-2 (BP2) and oxybenzone (benzophenone-3 or BP3) are common ingredients in sunscreens. Benzophenone-3 (BP-3) has been widely used in sunscreens and many other consumer products, including cosmetics.<sup>(8)</sup>

**Side effects:** Cancer, endocrine disruption, developmental and reproductive toxicity, organ system toxicity, irritation, ecotoxicity.<sup>(10)</sup>

### BUTYLATED COMPOUNDS

Butylated hydroxy anisole (BHA) and butylated hydroxytoluene (BHT) are used as preservatives in a variety of personal care products. Both of these chemicals are also used as preservatives in foods. These chemicals are linked to several health concerns including endocrine disruption and organ-system toxicity.<sup>(9)</sup>

**Side effects:** - Cancer, endocrine disruption, developmental and reproductive toxicity, organ system toxicity, irritation, ecotoxicity. Substitute of benzophenone is titanium dioxide. The natural source is mined ilmenite ore, which contains 45-60% TiO<sub>2</sub>. From this, or an enriched derivative known as titanium slag, pure TiO<sub>2</sub> can be created using the sulphate or chloride procedure. It is naturally acceptable to photo catalyst, high chemical stability and non-toxicity.<sup>(10)</sup>

### PABA

PABA (para-amino benzoic acid) and PABA derivatives are commonly used in sunscreens B (UVB) filters.<sup>4</sup> Studies performed on rats and on samples suggest that PABA may disrupt thyroid activity by decreasing the levels of thyroxin.<sup>(13,18)</sup> UV radiation is more likely to damage DNA in the presence of PABA, and DNA damage to the skin increases the risk of skin cancer.<sup>(19,20)</sup>

### Mica

The National Institute for Occupational Safety and Health has set contact limits. It is a naturally occurring mineral dust frequently used in makeup foundations. It is a respiratory irritant. Long-term inhalation of mica dust may affect lung scarring which leads to coughing, shortness of breath, weakness, and weight loss.<sup>(23)</sup> Mica is a naturally occurring mineral dust often used in makeup foundations, as filler in cement and asphalt, and as insulation material in electric cables.<sup>(4)</sup> These minerals are used as color additives in cosmetics. They also have reflective properties, allowing for a shimmery effect in mineral foundations. The metaphoric rock called schist as a by-product of processing feldspar and kaolin resources, from placer deposits, and form pegmatite. Mica is colored with yellables blue 1, red 28 and many other FD and C dyes derived from petroleum and forbidden in many countries because of potential links to cancer. It is found in makeup products, shingles, wallpaper, insulation, cement and asphalt. Look on the label for mica, muscovite. It is biodegradable.

**Side effects:** - Irritation, cancer, etc. Substitute of mica is fluorophlogopite.<sup>(10)</sup>

### Octinoxate

Octinoxate is an UV filter found in hair color products and shampoos, sunscreen, lipsticks, nail polish, and skin cream.<sup>4</sup> Octinoxate filters UV-B rays from the sun. It doesn't protect against UV-A rays. It is an UV filter found in hair color products and shampoos. It grows cell proliferation in cells that increase in response to estrogen exposure which can increase the risk of breast cancer. They also reduce the level of thyroid hormones in blood.<sup>(24)</sup> It is produced by mixing methoxy-cinnamic acid and 2-ethylhexanol compounds which are not dangerous. When combined together, they create a clear liquid that doesn't dissolve in water. According to the U.S. FDA recommended that use levels should be up to 7.5 percent. It is found in hair color products and shampoos, sunscreen, lipstick, nail polish, skin creams. The product label that mentions the following ingredients such as octinoxate, o methoxycinnamate (OMC), parsol, parsol MCX, parsol MOX, and 2-ethylhexyl p-methoxycinnamate should also be avoided. In spite of the abundant concerns about octinoxate toxicity and the effect on human body systems, it is sanctioned worldwide. In U.S. it is necessary to be registered on labels as an active ingredient. To avoid the ingredient in sunscreen, read the list of active ingredients and skip products that depend on it.<sup>(25)</sup> Numerous studies have reported that octinoxate exhibits antiandrogenic activity, which is linked to harmful effects on reproductive organ development in male and female fetuses exposed in utero.<sup>(4)</sup>

**Side effects:** - Endocrine disruption, reproductive and developmental toxicity, organ system toxicity.

Substitute of octinoxate is zinc oxide. It is powdered, oxidized zinc derived from the naturally occurring mineral, zincite, and routinely used in consumer products.

### NITROSAMINES

Nitrosamines can be found in nearly every kind of personal care product. Nitrosamines are probable human carcinogens (group 2A). There is also some evidence of endocrine disruption at very low doses.<sup>(4)</sup> N-nitrosodiethanolamine, one form of nitrosamine, accumulates in the liver, bladder and other organs and leads to chronic toxic health effects.<sup>(26)</sup>

Are possible human carcinogens and acts as wetting agent in some cosmetics? There is evidence of endocrine disruption at very low doses. N-nitroso-diethanolamine, one form of nitrosamine, gathers in the liver, bladder and other organs and leads to chronic toxic health effects. They are formed by the reaction between nitrates or nitrites or certain amines. This semi-volatile compound is highly toxic and is suspected human carcinogen. At higher doses, it has been shown to be a hepatotoxin that causes liver fibrosis and cancer in several species. It is determined in almost each sort of non-public care product label that mentions the following ingredients such as DEA or TEA should be avoided and also can indicate Presence of nitrosamines. Banned or observed hazardous to be used in cosmetics in Canada. Nitrosamines are produced with the aid of using reactions of chemical combos in merchandise and consequently now no longer cited on the aspect label; consumers can't tell which product contains them. The FDA began

observing personal care products for nitrosamines in 1979, and issued a report declaring that products containing nitrosamines are seen to be adulterated and focus to FDA enforcement. It is biodegradation is temperature dependent in different soil types.

**Side effects:** :- Cancer, endocrine disruption, organ machine toxicity. Substitute of nitrosamines is alginates. It is extracted from brown algae such as laminaria species.<sup>(10)</sup>

### PETROLATUM

Petrolatum, or petroleum jelly, derived from petroleum, is frequently utilized in private care products (consisting of lotions) as moisturizing agent<sup>(4)</sup> Petrolatum may be infected with poisonous chemical substances known as polycyclic fragrant hydrocarbons (PAHs). The International Agency for Research on Cancer (IARC) lists 14 PAHs as in all likelihood or viable cancer agents and one PAH as a recognised carcinogen<sup>(27)</sup>

**Side effects:** is that it creates a shielding barrier at the pores and skin that traps dampness in. This barrier moreover traps in serums, abundance sebum, and something is for your pores and skin at that point.<sup>(28)</sup>

### RESORCINOL

Resorcinol is generally utilized in hair dyes and pimples medication. In better doses it's miles poisonous and might disrupt the characteristic of the imperative fearful system (convulsions are said in acute intoxication) and cause breathing problems (breathing failure in acute intoxication). It has additionally been proven that resorcinol can disrupt the thyroid characteristic. It has been proven to have exclusive effects: the inhibition of enzymes concerned in thyroid hormone synthesis (main to hypothyroidism) and the activation of thyroid hormone receptors<sup>(4)</sup> A observe of resorcinol's effects on cells, shows that resorcinol acts like thyroid hormone and as an agonist at thyroid hormone receptors at low doses<sup>(29)</sup>

### TITANUM DIOXIDE

Titanium dioxide is utilized in a number of non-public care products, which include sunscreens, pressed powders, and unfastened powders, as a UV clear out or whitening agent. Inhalable titanium dioxide (in powders) is taken into consideration to be feasible human carcinogen (IARC).<sup>(1)</sup>

Titanium dioxide (TiO<sub>2</sub>) It is applied in a large fashion of personal care products, collectively with color cosmetics which include eye shadow and blush, unfastened and pressed powders and in sunscreens a UV clear out or whitening agent. In creams and creams (dermal publicity), it isn't a threat for unfavorable fitness effects. However, whilst titanium dioxide is inhalable—as it could be whilst in powder form—it's miles taken into consideration a probable carcinogen with the aid of using the International Agency for Research on Cancer. Titanium dioxide nanoparticles do now no longer seem to confer any specific fitness hazards. Titanium dioxide (TiO<sub>2</sub>) is a high-quality white powder or dirt that takes place evidently. It become first deliberately produced to be used as a white pigment in 1923.

It is evidently opaque and bright, which makes it beneficial to be used in paper, ceramics, rubber, textiles, paints, inks and cosmetics It is likewise proof against ultraviolet (UV) light, and is used broadly in sunscreens and pigments which can be in all likelihood to be uncovered to UV light. It is utilized in a huge style of non-public care products, which include colour cosmetics which include eye shadow and blush, unfastened and pressed powders and in sunscreens.

**Health Concerns** The International Agency for Research on Cancer designates titanium dioxide (TiO<sub>2</sub>) as a carcinogen, in large part because of research which have discovered multiplied lung cancers because of inhalation publicity in animals.<sup>(4)</sup>

### CONCLUSION

It is important for the establishment of higher standards in cosmetics in a way of rising alertness about toxic chemicals that should be avoided, supporting safety standards and converting cosmetic industry into safe and non-toxic. Cosmetic and skin lightening products are in highly used in every country, especially among women of all ages, even with the knowledge of risky effect it possess to human health. Skin rashes, multiple stretch marks, yellowish brown coloration, hypertension, diabetes mellitus, renal failure and cancer are some of the toxicological and health hazards related with cosmetic product and which are linked to toxic substances. Avoiding products that contains the ingredients listed in this article may help people decrease their exposure to toxic chemicals from makeup. Many make-up and cosmetic products may contain harmful chemicals. Substituting to non-toxic ingredients can help a person to bind their exposure to potentially harmful chemicals. The role of toxicology in cosmetic and cosmeceutical industry is to ensure that toxic chemicals are avoided and replaced with less toxic, or even better, non-toxic chemicals. The role of toxicology in cosmetic and homiletical industry is to ensure that toxic ingredients are avoided and replaced with less toxic, or even better, non-toxic chemicals. Therefore, I support the campaign for safe cosmetics.

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