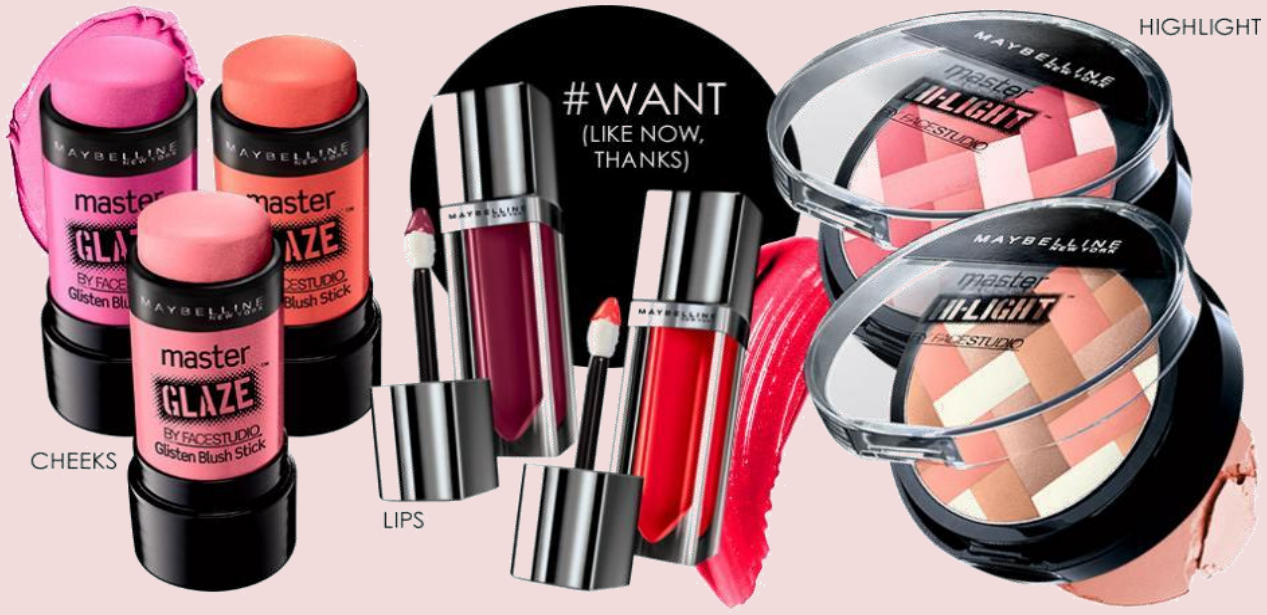
REPORT ON

HEALTH HAZARDS

IN

COSMETIC PRODUCTS



INTRODUCTION

Safety Issues Pertaining to Cosmetics

The Indian consumer has the 'right to be protected against marketing of goods and services which are hazardous to life and property' (Consumer Protection Act 1986).

Since the dawn of civilization cosmetics have constituted a part of routine body care not only by the upper strata of society but also by middle and low class people. Since few decades there is a big boost in cosmetic industries, by the production of the various types of the cosmetics which are needed for the care and beautification.

In the past three years, the Indian wellness industry which includes slimming products and services, fitness services and equipment and cosmetic treatments has witnessed a highest growth of around 490 billion. The beauty care market consisting of salons, cosmetic treatment centres and cosmetic products which is currently estimated to be around 190-200 billion is expected to reach over 400 million by 2015 and hence likely to become the main contributor to the growth of Indian cosmetic industry. The Indian cosmetics industry is estimated at Rs. 15,000 crore and is expected to grow at over 10% annually. It was assumed that cosmetics were supposed to help women look beautiful, but recent changes in the fast growing industry and advertising have smartly lured even men into buying "men" cosmetics thus expanding the industry even further!

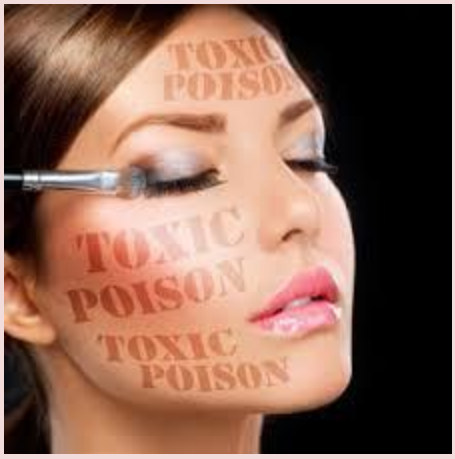
Since the list is so long it is obvious that some or many of these products can contain chemicals which are not exactly healthy or actually toxic to the human body.

Moreover, cosmetics are used almost on a daily basis; hence even minute amounts of chemicals which are applied regularly will cause a cumulative effect.

In recent times attention has been focused on cosmetics, disinfectants and other personal body care products as major sources of heavy metals in human systems. Metals in nail polishes reach the body through the porous keratinized nails. Research in metal concentration of cosmetics is raising awareness on direct ingestion and skin absorption of metals, since they are daily used and are applied to the thinnest areas of facial skin, such as the pre-ocular areas and lips, where absorption is very high.

Heavy Metals in Cosmetics

Heavy metals are naturally occurring, are present in the environment and can make their way in trace quantities into raw materials. These substances end up in the products we consume and use every day.



They can be found in pigments and other raw materials in all industries including the cosmetics industry. Some include the preservative thimerosal (mercury), the progressive hair dye lead acetate and a number of tattoo pigments such as red cinnabar (mercuric sulfide)

Metals have been found as contaminants in a range of cosmetic products including sunscreen, foundation, nail polish, lipstick and whitening toothpaste. Heavy metals like lead, arsenic, mercury, aluminium, zinc, chromium and iron are found in a wide variety of personal care products including lipstick, whitening toothpaste, eyeliner and nail colour. Some metals are intentionally added as ingredients, while others are contaminants. Exposure to metals has been linked to health concerns including reproductive, immune and nervous system toxicity.

While some metals are contaminants of the chemical combining process, others serve as colourants. For instance, chromium is used in a very small number of products as a colourant, and iron oxides are common colourants in eye shadows, blushes and concealers. Some aluminium compounds are colourants in lip glosses, lipsticks and nail polishes. In addition, some colour additives may be contaminated by heavy metals, such as D&C Red 6, which can be contaminated by arsenic, lead and mercury.

Dermal exposure is expected to be the most significant route for cosmetic products since the majority of cosmetics are applied to the skin. Dermal absorption of heavy metals is typically low, with absorption of individual elements influenced by a number of factors including physical-chemical properties of the mixtures. Oral exposure can occur for cosmetics used in and around the mouth, as well as from hand-to-mouth contact after exposure to cosmetics containing heavy metal impurities. Inhalation exposure is expected to be negligible.

Assessment of dermal absorption by a single component in a cosmetic product is complex and depends on factors such as the concentration in the product, the amount of product applied, the length of time left on the skin and the presence of emollients and/or penetration enhancers in the cosmetic product. Given this complexity, and the lack of well-conducted dermal absorption studies incorporating these factors, determination of heavy metal limits in cosmetics based on human health risk alone is a challenge.

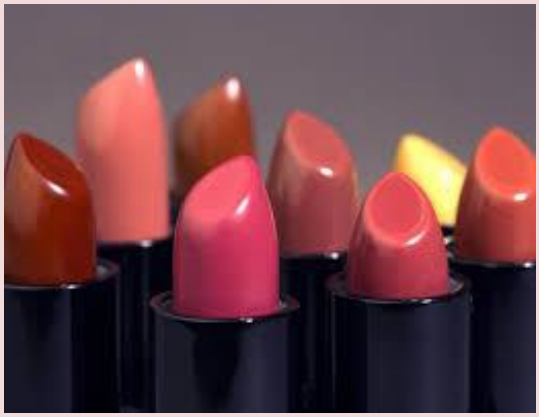
KAJAL

Eyes are one of the most delicate and sensitive organs of the body and protecting them from harmful external factors. Various ingredients go in the making of cosmetics. While most of them may be fine for our skin, there are still some ingredients that can cause possible damage to the eyes.

Most commercially produced 'kajal' contain high levels of lead. Studies have revealed that 'kajal' comprises of galena (PbS), minium (Pb_3O_4), amorphous carbon, magnetite (Fe_3O_4), and zincite (ZnO). Prolonged application may cause excessive lead storage in the body, affecting the brain and bone marrow, causing convulsions and anaemia. While the rules of mentioning the ingredients in a product on the label are rather strict in the US, in India, they are a little relaxed. Cosmetics are regulated under the Drugs and Cosmetics Act 1940 and Rules 1945 which state that there is no need to mention the ingredients label on cosmetic packs of less than 60 ml for liquids and 30g for solids and semisolids. This poses a problem for eye cosmetics as they generally come in smaller packs. What one needs to be careful about while buying eye make-up is to avoid products which contain mercury, lead and parabens. These are extremely harmful and their prolonged usage can cause various health hazards and may even lead to blindness in some cases. You may not be able to notice any problems initially but using it regularly will lead to deposits of harmful chemicals in your body. In order to avoid this, opt for branded products where you can check with the store or company about the ingredients in the product and discard it if it irritates your eye or skin at any point

LIPSTICK

The primary ingredients found in lipstick are wax, oil, alcohol, and dye. Though, lead is not an ingredient of the lipsticks, it might be present as impurities in the colour additives. The type of pigment used in lipsticks also contributes to its heavy metal content. No lipstick lists lead as an ingredient. The amounts are small, but the presence of lead in lipstick, which is ingested and absorbed through the skin, raises concerns about the safety of a cosmetic product that is widely popular among women.



Urged on by both consumers and the cosmetics industry, the U.S. Food and Drug Administration conducted its own testing in 2010. The FDA's results were even more astonishing: The agency detected lead in all 400 lipsticks tested, ranging from 0.9 to 3.06 ppm -- four times higher than the levels observed in the study done by Campaign for Safe Cosmetics. The FDA said, "We have assessed the potential for harm to consumers from use of lipstick containing lead at the levels found in both rounds of

testing. Lipstick, as a product intended for topical use with limited absorption, is ingested only in very small quantities. We do not consider the lead levels we found in the lipsticks to be a safety concern."

Likewise, the cosmetics industry also doesn't see this as an issue, saying that the dose makes the poison -- in other words, the trace amounts of heavy metals in lipsticks are not harmful.

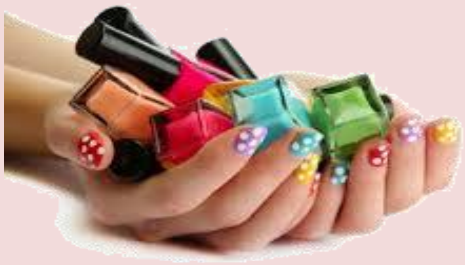
But the FDA noted, "Although we do not believe that the lead content found in our recent lipstick analyses poses a safety concern, we are evaluating whether there may be a need to recommend an upper limit for lead in lipstick in order to further protect the health and welfare of consumers."

Indeed, what the FDA and the cosmetics industry have been ignoring is cumulative exposure and potential long-term adverse effects. (CNN, April, 2014)

It's true that a single lipstick application will not lead to harm. And the good news is that not all lipsticks contain detectable levels of lead or other heavy metals. The problem is when women who wear lipstick apply it two to 14 times a day. Women are not only applying lipsticks several times a day, but they also are doing this in the span of a whole lifetime, which means that exposure to lead and other heavy metals adds up and can potentially affect their health.

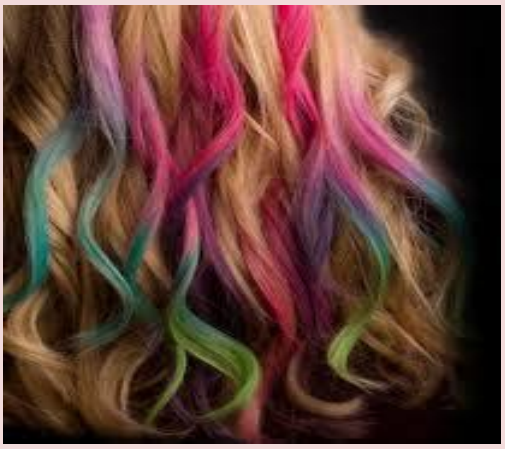
NAIL POLISH

Small amounts of metals are present in most of the polishes and may cause exposure if nails are bitten or chewed and the polish ingested. The formulation starts with a synthetic polymer solubilised in a chemical solvent. Various additives can be used to alter the flexibility / hardness of the film and other characteristics of the polish. Dyes and pigments are solubilised or suspended into the solution to provide a wide variety of color options and effects. Chemicals which are most concerning are the solvents (solubilisers) and plasticisers. Two specific ingredients whose safety has been called into question are the plasticiser, **Dibutyl Phthalate** and solvent, **Toluene**. The colourants typically used are either synthetics or iron oxides which may contain heavy metals.



HAIR COLOUR

While hair dyes have always been a witches brew of chemicals, two specific compounds may be responsible for the increased risk of non-Hodgskin's lymphoma and other cancers. Phenylenediamine isn't the only hazard found in hair dyes. Coal tar colors, which are listed on hair dye labels as FD&C or D&C colours, are derived from the tar found in bituminous coal. The problem is that this thick tar also contains a number of toxic contaminants, including benzene. Some coal tar colours also contain heavy metals impurities, including lead and arsenic, both of which cause cancer and can disrupt hormones. Although many of the synthetic colours used in hair dyes have never been tested for safety, the World Health Organisation considers them all possible carcinogens.



KEY FINDINGS OF TESTING

1) We tested 12 brands each of **Lipsticks** (Lakme Enrich Lipcolor, Colorbar USA Crème Touch, Maybelline New York, Revlon Super Lustrous, Coloressence Mesmerising Lip Colour, MakeOver Profeessional, 7 Heaven's Super Matte, T.Y.A. Herbal Lips, Passion, Kiss Beauty, Tian Nuo, ADS Professional), for the presence of heavy metals- Lead and Arsenic.

   Nail Polish (Lakme True Wear Nail Colour, Colorbar USA Nail Lacquer, Revlon Nail Enamel, Maybelline New York Bright Spark, LookEver Fashion Beauty Life Nail Lacquer, B.O. Nail Polish Nail Lacquer, W7 Nail Inc, Surbhi Nail Enamel, Ebony Color Craze Nail Enamel, Vove Power Lasting Nail Colour, WOW Ultrashine Nail Enamel, Dozy) , for the presence of heavy metals – Lead and Arsenic.

   Kajal (Loreal Paris Kajal Magique, Lakme Kajal Black Eyeconic, Maybelline New York The Colossal Kajal, Himalaya Herbal Kajal, Khojati Mumtaz Delux Kajal, Blue Heaven Indian Kajal, Rashmi Herbal Kajal, Jai Kajal, Niki Kajal, ADS Kajal Long Wearing Kajal Pencil, Ambar Kajal, Clarion Long wearing matt Kajal/eye liner), for the presence of heavy metal- Lead.

   Hair Colour (Loreal Paris Excellence Crème, Garnier Color Naturals Cream, Revlon New Color n Care, Streax Tender Loving Colour, Indica 10 Min Herbal Hair Colour, Livon Conditioning Cream Colour, Godrej Exper Crème Hair Colour, Colour Mate Hair colour Crème, Neha Natural Hair

Colour, Berina Easy to Use Hair Colour Crème, Panchavati Herbals Color Magic Crème Hair Colour, Bigen Hoyu Powder Hair Colour), for the presence of heavy metal-Lead.

2) The Indian Standards for testing of Lipstick (IS: 9875:1990), Nail Polish (IS: 9245:1994), Kajal (IS: 15154:2002, Hair Dyes (IS: 15205:2002, IS: 8481:2001) specifies detection of heavy metals by AAS method. However, the more precise, latest and accurate method of ICP-MS was used for the detection of these metals.

3) The brands chosen belonged to three categories namely (i) branded with adequate labelling information (ii) unbranded but with satisfactory labelling information (iii) unbranded, cheap, with no labelling information at all.

4) The lead content in the various brands in lipsticks ranged from **Below Quantification Limit (BQL) to 4.97 ppm.**

5) The Arsenic content in the various brands range from **Below Quantification Limit to 9.59 ppm**. (**BIS Limit for Arsenic-2ppm**)

6) The lead content in various brands of nail polish range from **0.22 ppm to 0.58 ppm** by ICP-MS Method.

7) Arsenic content in various brands of nail polish ranged from **Below Quantification Limit to 0.09**.

8) Lead content in various brands of Kajal ranged from **Below Quantification Limit to 48.91 ppm.(BIS Limit-20ppm)**

9) Lead content in various brands of Hair Colour ranged from **Below Quantification Limit to 0.64 ppm.**

10) **The result reveals shockingly high levels of Arsenic in certain Lipsticks brands such as Coloressence Mesmerising Lip Colour (9.59 ppm), 7 Heaven's Super Matte (9.28), Tian Nuo (9.22 ppm), MakeOver Profeessional (8.28 ppm) which falls in the category of unbranded & cheap products. (BIS Limit-2ppm)**

11) **One of the brands of Kajal (Rashmi Herbal Kajal) in the category of unbranded and in expensive brand had extremely high level of lead 48.91 ppm as against the limit of 20 ppm of BIS.**

12) **Also another brand Niki Kajal in the category of unbranded and inexpensive brands had very high lead content of 15 ppm.**

13) However, the rest of the brands of all the 4 categories of cosmetic show heavy metals well within the prescribed limit standards.

14) Certain brands of product tested did not meet with the labelling requirement as per rules 148 of Drug and Cosmetics Rules, 1945. These include:

a) Dozy, Ebony, Wave, VOW, W-7 brands of nail polish did not mention the mandatory labels declaration of manufacturing or marketing address, net weight, safe use, warning and caution, hazardous ingredients, batch number, manufacturing date & expiry date, manufacturing license number.

b) Kiss Beauty, ADS, Tian-Nuo, Passion brands of lipstick did not have the following labelling requirements manufacturing or marketing address, net weight, safe use, warning and caution, hazardous ingredients, batch number, manufacturing date & expiry date, manufacturing license number.

c) Nikki, ADS, Amber, Clarion, Brands of Kajal did not mention the following in their labels manufacturing or marketing address, net weight, safe use, warning and caution, hazardous ingredients, batch number, manufacturing date & expiry date, manufacturing license number.

KEY FINDINGS OF THE SURVEY

Research & Survey on Consumers and Consumer Organisations has been carried out to study and understand the common consumer's concern with respect to safety.

Objective of the survey was to get an idea about the following points
(i) To know the level of awareness about the health hazards of cosmetic products among the consumers
(ii) To understand the consumer's concerns with respect to safety and other related issues and
(iii) To know whether the consumers approach Consumer Organisations to solve their concerns. The following are the summary of the findings.

- We have received 74 responses. Out of these responses 75% of respondents are above 46 years old and 51.5% of the respondents use cosmetics occasionally, 24% of them use cosmetics only once in a month.
- The majority of respondents believe that only branded products can guarantee the quality and standard (26.5%).

- About 19.5% of the respondents like to buy the same brands continuously. 23.9% of the respondents did not like to buy the cosmetics which are tested on the animals (It should be marked on the label). Awareness about the brands was good because more than 30 brands were suggested by the respondents.
- 84.8% of the respondents were satisfied with the cosmetics that they purchase. Only 15.2% of them find some problems with their cosmetics.
- The side effects faced by the respondents are hair loss, irritation etc. Newspaper is the major source of safety information followed by visual media (26.8%) and friends/relatives (15.5%).
- The safety problems faced by respondents were allergic rashes, irritation, headache, asthma etc. Only 5 respondents complained either at consumer court or any other institutions.
- Only 3 persons contacted manufacturers. Out of these respondents, nobody got any positive response from them.
- The very important finding of this survey is that only 25% of the respondents had knowledge about the provisions about safety under the law or Act.

Important Suggestions by the Respondents

There should be mandatory warning on labels about the precautions like – how to use, probable side effects, expiry date and manufacturing date etc. Testing the cosmetics according to different standards and find out the dangerous ingredients, possible side effects etc and disseminated these information through different Medias. Some respondents even suggested that quality symbols like ISI mark should be mandatory for cosmetic products**.**