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# Ethanolamine Compounds (MEA, DEA, TEA And Others)

Ethanolamines are present in many consumer products ranging from cosmetics, personal care products and household cleaning products. Both have been linked to liver tumors. The European Commission prohibits diethanolamine (DEA) in cosmetics, to reduce contamination from carcinogenic nitrosamines. [1]



## WHAT ARE ETHANOLAMINES?

Diethanolamine (DEA) and triethanolamine (TEA) are key examples of ethanolamines—a chemical group comprised of amino acids (the building blocks of proteins) and alcohols. They are used in a wide range of applications including cosmetics and personal care products.

DEA is used as an emulsifier in shampoos, cleaners, and detergents.<sup>[1][3]</sup> TEA is used as fragrance, pH adjuster and emulsifying agent.<sup>[4][5]</sup> When ethanolamines are used in the same product as certain preservatives that break down into nitrogen, they can form nitrosamines. Nitrosamines are a class of more than a dozen different chemicals, which the International Agency for Research on Cancer lists individually as possible and known carcinogens.<sup>[6]</sup> The National Toxicology Program Report on Carcinogens lists 15 individual nitrosamines as reasonably anticipated human carcinogens.<sup>[7]</sup> In cosmetics formulations, DEA may react with other ingredients to form a carcinogen called nitrosodiethanolamine (NDEA) which is absorbed through the skin.

**Found In**

- Soaps
- Shampoos
- Hair conditioners and dyes
- Lotions
- Shaving creams
- Paraffin and waxes
- Household cleaning products
- Pharmaceutical ointments
- Eyeliners
- Mascara
- Eye shadows
- Blush
- Make-up bases
- Foundations
- Fragrances
- Sunscreens

## What to look for on the label

- Triethanolamine
- Diethanolamine
- DEA
- TEA
- Cocamide DEA
- Cocamide MEA
- DEA-cetyl phosphate
- DEA oleth-3 phosphate
- Lauramide DEA
- Linoleamide MEA
- Myristamide DEA
- Oleamide DEA
- Stearamide MEA
- TEA-lauryl sulfate [2].

## Health Concerns

**Cancer:** Nitrosodiethanolamine (NDEA) is listed as a carcinogen in the National Toxicology Program's Report on Carcinogens. Experimental studies show that NDEA causes liver cancer and kidney tumors in rats and cancer of nasal cavity in hamsters.

[7]. TEA and DEA have found to be hepatocarcinogenic (producing or tending to produce cancer in the liver) in female mice.[4][8][9].

**Bioaccumulation:** Studies show that 52 to 68 percent of DEA in hair dyes, body lotions and shampoos remain on the upper layers of the skin after exposure.[10].

**Organ system toxicity:** Studies have found that DEA affects human male reproductive health. DEA alters sperm structure, causing abnormalities that affect the sperm's ability to swim and fertilize the egg.[11]. DEA accumulates in the liver and kidney, causing organ toxicity and also possible neurotoxic effects such as tremors.[12]. Another study suggests that memory function and brain development in offspring could be permanently affected by mothers' exposure to DEA.[13].

## Vulnerable Populations

Babies & Children (<https://www.safecosmetics.org/population/babies-children/>),  
Pregnant Women (<https://www.safecosmetics.org/population/pregnant-women/>),  
Women of Color (<https://www.safecosmetics.org/population/women-of-color/>).

## Regulations

The European Commission prohibits DEA in cosmetics due to concerns about formation of carcinogenic nitrosamines.

## How to Avoid?

Read the labels on cosmetics, personal care products and household cleaning products, and avoid those containing with words DEA, TEA and MEA.

### Explore other Chemicals

**Preservatives** (<https://www.safecosmetics.org/chemicals/preservatives/>)

**Petrolatum, Petroleum Jelly** (<https://www.safecosmetics.org/chemicals/petrolatum/>)

**Fragrance** (<https://www.safecosmetics.org/chemicals/fragrance/>)

**Quaternium-15** (<https://www.safecosmetics.org/chemicals/quaternium-15/>)

**Toluene** (<https://www.safecosmetics.org/chemicals/toluene/>)

**Phthalates** (<https://www.safecosmetics.org/chemicals/phthalates/>)

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### Looking for a Safer Alternative?

Use Clearya's app to find non-toxic products! Clearya alerts you to toxics and helps you find safe products.



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## Your Action Helps

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## By Products



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