

Sodium Laureth Sulfate

There has been much concern recently concerning SLS. The e-mail (bottom of article) has been circulating since at least 1998 SLS or Sodium Lauryl Sulfate, and Sodium Laureth Sulfate (properly abbreviated SLES) are commonly used products in tooth pastes and shampoos. They are primarily used for creating a foaming action. The reason these are used is they are only needed in very small amounts, and they have been used for years without any health concerns. There are no studies (that are worth the paper they are written on) I can find that link either of these chemicals to cancer. Numerous sites across the Internet have labelled this email letter a hoax.

Unlike fluoride, which has hazards that are, very well documented SLES and SLS which are not the same but cited as such by the hoax is without doubt a hoax. However it is worth noting that Sodium lauryl sulfate is well known to be a skin and eye irritant and can cause dermatitis with prolonged contact in high concentrations. Results of some tests on animal tissues indicate that it's mutagenic — i.e., it may be related to abnormal cell mutations — though the evidence is inconclusive. Even so, scientists familiar with the substance insist it is not dangerous in the concentrations found in personal care products.

This is based as mentioned above on high concentrations the fact remains that to pick one product out the actual amount is between 0.04% and 0.07% not very high (Green Things). The manufacturer mentioned that they use it in their creams as a binding agent, and would prefer not to use it but the cream 'just falls apart' without it.

Daily Bread would prefer not to have any product, which contains chemicals such as SLS or SLES. We do not believe a hoax such as this even if it of some concern to people on the use of any chemicals is the right way. The stories are misinformation, which is wrong. Its worth noting that some other ingredients may be more of an hazard some of these may be in fact actual natural ingredients! But that's another subject.

Therefore at Daily Bread you will find some products that do contain it, Kingfisher toothpaste being one. The Ecologist magazine states the hazards with this substance but yet recommends Kingfisher as one of the better toothpastes.

One manufacturer of products that we stock mentions that it contains NO SLES on the label. However the same manufacturer admits that it is a marketing ploy, as they themselves believe that there is nothing wrong with it!

Here is a FAQ on the subject.

- ?? Q: Is sodium laureth sulfate commonly found in shampoos and toothpastes?
A: Shampoos, frequently; toothpastes, occasionally. (It's much more common to find the harsher surfactant sodium *lauryl* sulfate in toothpastes.)
- ?? Q: Is sodium laureth sulfate known to cause cancer?
A: No. The chemical does not appear on any official list of known or suspected carcinogens.
- ?? Q: Is sodium laureth sulfate properly abbreviated as "SLS?"
A: No. The correct abbreviation is "SLES." The chain letter confuses this compound with another: sodium *lauryl* sulfate, which *is* abbreviated "SLS." The two substances are related, but not the same.
- ?? Q: Is sodium laureth sulfate used to scrub garage floors?
A: No.

?? Q: What about the other one – sodium lauryl sulfate – is *it* used to scrub garage floors?

A: No doubt! SLS is a powerful surfactant (wetting agent) and detergent. It is used in both industrial cleaning products and, in lesser concentrations, personal care products.

?? Q: Is sodium lauryl sulfate commonly found in shampoos and toothpastes?

A: Yes, both. It's also found in shaving creams and other lathering products.

?? Q: Ah. Well, then, is SLS a known carcinogen?

A: No, it is not on any official list of known or suspected carcinogens. But it is a harsher chemical than SLES, which is why SLES is typically used in baby shampoos instead. Sodium lauryl sulfate is well known to be a skin and eye irritant and can cause dermatitis with prolonged contact in high concentrations. Results of some tests on animal tissues indicate that it's mutagenic — i.e., it may be related to abnormal cell mutations — though the evidence is inconclusive. Even so, scientists familiar with the substance insist it is not dangerous in the concentrations found in personal care products.

?? Q: Would a manufacturer freely admit to consumers, as claimed in the message, that it knowingly uses a carcinogen in its products "because we need that substance to produce foam?"

A: Of course not.

?? Q: Is it true that my chances of getting cancer are "1 out of 3" in the '90s?

A: Yes, with a few qualifications. The problem with stating probabilities in this case is that there's no way to generalize accurately. The reasons are: 1) cancer risks for individuals vary according to a host of factors, including gender, race, habits, and family history; and 2) the likelihood of any individual contracting cancer is also a function of their age. For example, if you're 20 years old, the odds are much greater that you'll contract cancer in your lifetime than they are if you're 50, simply because there's a longer time span involved.

That said, the longer answer is: For an "average person" (that is, someone of no particular age or gender who lives nowhere in particular and inherited no genes from his or her parents), the chances of getting cancer over a lifetime work out to somewhere between 1 in 3 and 1 in 2, at present.

?? Q: Were the chances of getting cancer in the 1980s "1 out of 8,000?"

A: No, that's absurd. Cancer rates were approximately the same two decades ago as they are now; if anything, they were a bit higher.

?? Q: Really? Aren't cancer rates rising?

A: No, in the United States they have been falling, though at a fractional rate and there's no telling if that trend will continue.

?? Q: Is cancer a "virus," as alleged in the email?

A: No.

?? Q: Is the chain letter a hoax?

A: Most likely. At the very least, it contains egregiously inaccurate information. But we can only guess at the motives of whoever launched it.

?? Q: Where did the misinformation come from?

A: Well, if you're asking who started the chain letter, there's no way of knowing. As to the misinformation itself, it turns out that there are a good many Web pages containing very similar — and in some cases identical — statements. It's a good bet that it all came from the same source at some point in time.

Interestingly, all these Websites are maintained by "independent distributors" for multi-level marketing companies hawking "natural" personal care products, etc. As a matter of fact, the majority of URLs returned in a standard Web search on

the keywords "sodium laureth sulfate" point to versions of the same propaganda. Assuming all this information did come from the same source, the author of our chain letter and some of these Web entrepreneurs are sloppy copyists at the very least, and/or intent on slanting the "facts" to suit their purposes.

In the chain letter, for example, the cancer rate in the 1980s is alleged to be "1 out of 8,000"; the Web pages tend to say that was the cancer rate in 1901. That sounds more reasonable, but it's no cause to assume the Websites are entirely accurate. On some of them, the ratio cited for 1901 is not "1 out of 8,000," but "1 out of 80." Again, some of these authors are either making it up as they go along, or copying the information very carelessly.

Misinformation has a way of multiplying.

Many of the pages I looked at were littered with inaccuracies, deceptive statements and outright lies. One even alleges that "In 1993 it was documented that sodium lauryl sulfate (SLS) and sodium laureth sulfate (SLES) were the leading cause of blindness in children" — as if claiming they're carcinogens weren't inaccurate enough. Another page links prominently to a site vending quack cancer cures. In some cases, the texts cite legitimate medical studies, but in a misleading way, making it appear as if the studies prove much more than they actually did. Another site provided links to back up their claims but oddly the links were to pages that stated that there was not much wrong with SLS or SLES.

Small wonder that by the time this information made its way into chain letter form, virtually every statement in it was outrageously false.

What's worse, as the chain letter circulates, the information continues to degrade. One of the more recent variants of the email gives the abbreviation of sodium laureth sulfate as "SLY," which is doubly wrong.

- ?? Q: Do you think the chain letter may have been deliberately started to frighten people into using other products?
A: I suspect it, but there's no way to know for sure, and I can't prove it. For all we know, someone came across this stuff by accident, innocently believed it to be true, and decided to share it with others.
- ?? Q: Do you really think that was the case?
A: I doubt it.
- ?? Postscript: The old adage, "Where there's smoke, there's fire," may apply here. While the "facts" stated in the sodium laureth sulfate warning are almost entirely false, there may be other potentially hazardous substances in name-brand personal care products

Tech stuff

'Sodium dodecyl sulfate' ([SDS](#) or NaDS) ([C](#) [H](#)₃(CH₂)₁₁, [O](#) [SO](#)₃, [Na](#)) (FW 288.38), also known as 'sodium lauryl sulfate' ([SLS](#)), is an [ionic detergent](#) that is used in household products such as [toothpastes](#), [shampoos](#), shaving foams and [bubble baths](#) for its thickening effect and its ability to create a lather. The molecule has a tail of 12 carbon atoms, attached to a [sulfate](#) group, giving the molecule the [amphiphilic](#) properties required of a detergent.

It is prepared by sulphation of [lauryl alcohol](#) (1-dodecanol, dodecyl alcohol, CH₃(CH₂)₁₀CH₂OH) followed by neutralisation with [sodium carbonate](#). It is used in both industrially produced and home-made cosmetics.

Like all detergents (as opposed to true [soaps](#)), it removes natural oils from the [skin](#), and can therefore cause skin irritation. It is particularly irritating to the [eyes](#).

SLS can be converted by ethoxylation to [sodium laureth sulphate](#) (also called sodium lauryl ether sulphate; SLES), which is less harsh on the skin.

In laboratories, SDS is commonly used in [gel electrophoresis](#) ([SDS-PAGE](#)), where its detergent properties help keep the [proteins](#) being studied in a denatured state.

The critical micelle concentration in pure water is 0.0085 M, and the aggregation number at this concentration is around 50.

Copy of 2 emails one of which may not be the original hoax but is close the other a reply.

The original message is shown first, the rebuttal follows:

-----Original Message-----

From: Wendy S. Lin

To: Max Yue Zhang

Date: Tuesday, September 15, 1998 2:06 AM

Subject: Health concern

Just for your info, and please take note of the shampoo you use to wash your hair every night! Girls will definitely use more! Check the ingredients listed on your shampoo bottle, and see if they have this substance by the name of Sodium Laureth Sulfate, or simply SLS. This substance is found in most shampoos, and the manufactures use it because it produces a lot of foam and it is cheap. BUT the fact is that SLS is used to scrub garage floors, and it is very strong. It is also proven that it can cause cancer in the long run, and this is no joke.

I went home and checked my shampoo (Vidal Sasoon), it doesn't contain it; however, others such as Vo5, Palmolive, Paul Mitchell, the new Hemp shampoo, etc.. contains this substance. So I called one company, and I told them their product contains a substance that will cause people to have cancer. They said "Yeah, we knew about it but there is nothing we can do about it because we need that substance to produce foam. By the way Colgate toothpaste also contains the same substance to produce the "bubbles". They said they are going to send me some information.

Research has shown that in the 1980s, the chance of getting cancer is 1 out of 8000 and now, in the 1990s, the chances of getting cancer is 1 out of 3, which is very serious. So I hope that you will take this seriously and pass this on to all the people you know, and hopefully, we can stop "giving" ourselves the cancer virus. This is serious, after you have read this, pass it on to as many people as possible, this is not a chain letter, but it concerns our health.

Michelle Hailey

Executive Secretary

University of Pennsylvania Health System

Office of Legal Affairs

(215) 662-2546

From: Chan, Lillian [mailto:lchan@utmb.edu]

Sent: Wednesday, September 16, 1998 11:55 AM

Everyone,

One annoying (but potentially dangerous) feature of e-mail is that all sorts of misinformation gets passed around. This reflects the gullibility of the general public.

After receiving this email, I called Michelle Hailey at UPenn (her name and contact information was at the bottom of the message) to try to find out her source of information on SLS. She has no idea--she was just passing along an email she got from someone else and unfortunately for her, her name got attached to it. She deserves the hassle she is getting for sending out this email (she's been getting numerous phone calls), but whoever originated it should really be the person taken to task.

The compound mentioned in the e-mail below is sodium lauryl sulfate. Another name for it is sodium dodecyl sulfate or SDS. It is a detergent and is used in all kinds of household goods, (including shampoos for hair as well as for carpets). We use it in the laboratory all the time for solubilizing proteins.

There is NO documented evidence that SDS is carcinogenic. If inhaled (in powder form), it can cause irritation to the mucous membranes. Some of you may have experienced stuffy sinuses when you go into places that have old carpets (for example, motels) that have been shampooed multiple times. That may have been caused by the residual SDS left behind by the carpet cleaning solution. Of course excess amounts of anything, either inhaled or ingested, can cause harm to your health -- even table salt can be harmful.

I strongly urge all of you to be careful and discerning about what you read. Unless solid evidence from reputable (and verifiable) sources are provided, don't believe everything that is in print. Also, please don't pass on anything that you don't know is true. There are just too many alarmists out there already.

Lillian