The Truth

Behind the Ingredient Myths

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No doubt you've read the chain e-mail that details the evils of a compound called sodium lauryl sulfate (SLS). Or perhaps you've read one of the many brochures, pamphlets, or books which quote "University Studies" that prove you are poisoning your children or yourself every time you use a shampoo or toothpaste made with certain ingredients. You may even believe that certain chemicals in personal care products are responsible for a huge increase in the number of cancers since the early 1900s. The question is, are these stories or beliefs based on facts or fiction?

Certainly, there are compounds that are known to be carcinogenic (that is, they have been linked to the development of cancer). These include asbestos, DDT, lead, mustard gas, radon, and dozens of other chemicals. Several government agencies and reputable universities keep up-to-date lists of these carcinogens and make them available to the public. (One of these lists is maintained by the State of California's Environmental Protection Agency and can be found at www.oehha.org.)

On the other hand, there are several compounds, like SLS and propylene glycol (PG), that are rumored to be harmful, when, in fact, all reputable science appears to say otherwise.

A Needle of Truth in a Haystack of Misrepresentation

The trouble is, when confronted with false stories, websites, brochures, and news reports, the average consumer has a difficult time finding the truth. Many of the statements are supposedly from medical journals and obscure publications where the research originally appeared. Others aren't attributed to any source at all. And because some references go back more than 20 years, tracking down the information can be nearly impossible.

It's a lot like searching for a needle in a haystack. You have to dig deep to get beyond the misrepresentations. Fortunately, if you know where to look and what questions to ask, it's usually possible to expose these false claims. Most of the "bad" stories about common ingredients fit into one or more of seven broad categories. As you work to determine the truth of the claims made about ingredients in the products you use, ask yourself if the stories you're hearing follow one of these argument patterns:

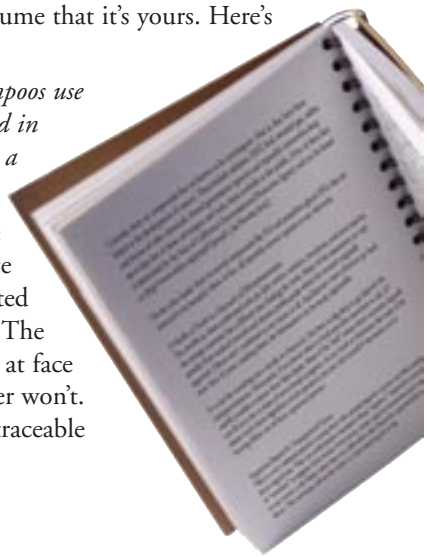
Argument Pattern #1: Unsupported Claims

This is a very common practice among those who spread negative rumors and false stories about ingredients. They use authoritative statements from "experts," "university researchers," or "scientists" to support their stories. Even worse, many negative statements aren't attributed to any source at all. Many times these are wild claims that beg to be supported by real evidence. This technique allows the writer to claim anything he or she wants—after all, who can say whether or not the claim is true? Here are a couple of examples found on the Internet that use this technique:

> *"Researchers estimate the nitrate absorption of one shampoo is equal to eating a pound of bacon!"*

Notice this claim is not substantiated with a source. Which researchers? From what laboratory or university? Where can we learn about the kinds of tests they performed? What variables did they isolate? What were the effects in the control group? To make matters worse, we aren't even told which shampoo is so bad. It could be any shampoo. You, the reader, are supposed to assume that it's yours. Here's another example:

> *"90% of all commercial shampoos use detergents that can be retained in tissues up to 5 days even after a single drop."*



Even if this wild claim were true, where can we substantiate it? This statement isn't attributed to a source—scientific or not. The reader is supposed to accept it at face value. But the intelligent reader won't. When confronted with an untraceable

source, ask for the substantiation. Without a reputable scientific source to substantiate these kinds of claims, don't accept them as truth. Incidentally, neither of the statements quoted on the previous page is true.

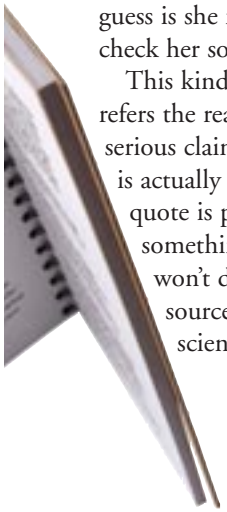
Argument Pattern #2: Supported by an Untraceable Source

Worse than claims without substantiation, are claims that have a "real" source that can't be traced because a specific reference is not given, or because the person making the claim has been sloppy with attribution. It is not uncommon to find quotes attributed to non-existent publications or attributed to the correct publication with an incorrect reference date. Here's an example from an article that recently appeared in *Alive*, a Canadian consumer magazine:

> *"The Journal of the American College of Toxicology reports that sodium lauryl sulfate is easily absorbed into your skin and builds up in the heart, liver, lungs, and brain even if you wash it right off after using it!"*

It appears we have a source to trace this claim to. But notice, the writer has left off the journal number, date, and volume information that would make it easy to check. If, the reader is lucky enough to locate the report (*Journal of the American College of Toxicology*, Volume 2, Number 7, 1983), she will search its 55 pages in vain looking for any reference to SLS building up in the heart, liver, lungs, or brain. The report doesn't even address the issue (neither does any other reputable publication we could locate). Instead the report reviews dozens of studies of SLS and ammonium lauryl sulfate (ALS) which show these ingredients are safe to use in products like shampoo and shaving cream. The report concludes, "Sodium lauryl sulfate and ammonium lauryl sulfate appear to be safe in formulations designed for discontinuous, brief use followed by thorough rinsing from the surface of the skin." That's not exactly the idea you get from the quote above. So why did the author (who happens to be a doctor) write this? Our guess is she read the information somewhere and didn't check her source to make sure it was true.

This kind of attribution is particularly harmful because it refers the reader to a real article about SLS. And it makes a serious claim about the safety of SLS that one might assume is actually in the report. The only way to learn that the quote is pure fiction is to read the entire report—something an unscrupulous writer assumes the reader won't do. The lesson is clear—make sure there is a real source, find the background material, and read the science before believing any dubious claims.



Argument Pattern#3: He Said, She Said

Closely related to the technique of referring to "untraceable sources" is simply misquoting or misrepresenting research by competent scientists. This is the most common type of argument used against the ingredient sodium lauryl sulfate. Critics of this ingredient commonly refer to research conducted by Dr. Keith Green of the Medical College of Georgia. Here is an example taken from the literature of a company called Neways that is notorious for negative statements about SLS:

> *"Sodium Lauryl Sulfate has several side effects. It has been documented to cause: 1.) Improper eye development in children. Affects protein structures and keeps childrens [sic] eyes from developing properly. 2.) Cataracts. 3.) Nitrate absorption (as much as eating one pound of bacon with each shampoo) nitrates are known carcinogenic agents. 4.) Penetration into systemic tissues (brain, heart, liver). 5.) Proven skin irritant. The aforementioned has been documented by Dr. Keith Green of the Medical College of Georgia ..."*

Similarly inaccurate statements have been released as a Conference Summary courtesy of a group called Research to Prevent Blindness, Inc. Again, Dr. Green is listed as the writer of that summary which misrepresents his actual research. The question is, do these statements accurately represent the science? And for the answer, we have to go all the way back to the source—Dr. Keith Green at the Medical College of Georgia.

Paula Begoun, syndicated columnist for *The New York Daily News* and author of the book *Don't Go Shopping for Hair Care Products without Me*, did just that. She asked him about his research. According to her, Dr. Green responded that "the Neways people took my research completely out of context and probably never read the study at all." He went on to say, "My work was completely misquoted. There is no part of my study that indicated any development of cataract problems from either SLS or SLES. And the body does not retain those ingredients at all. We did not even look at the issue of children so that conclusion is completely false because it never existed." Finally, Dr. Green reiterated, "the eyes showed no irritation with the 10 dilution substance used. If anything, the animal studies indicated no risk of irritation whatsoever!"

In other words, Dr. Green's study of SLS didn't show any of the negative effects listed in the quote above. But this hasn't stopped unscrupulous people from making the same claims over and over. In fact, The Medical College of Georgia threatened legal action against the company that

appears to be most responsible for perpetuating the false information. In a letter to the President of Neways, attorneys for Dr. Green wrote: "…your citation of his work was not simply a misinterpretation, it was plainly wrong. By citing his research in support of erroneous conclusions, you have libeled Dr. Green. In fact, [you have] even attributed quotations to Dr. Green which he has never written or spoken, and which he would not ever write or speak."

Of course, you don't have to believe Paula Begoun or Dr. Green's attorneys. You can read the research yourself in *Lens & Eye Toxicity Research* 6: 37-41, 1989. Also useful for reference is the more easily found "Final Report on the Safety Assessment of Sodium Lauryl Sulfate and Ammonium Lauryl Sulfate," which appeared in the *Journal of the American College of Toxicology*, Volume 2, Number 7, 1983. This second article reviews several studies on the safety of SLS, and comes to the same conclusion as Dr. Green's research.

Argument Pattern #4:Scary Comparisons

Interestingly, one of the most effective ways to allege that an ingredient is dangerous, is to talk about other uses for that ingredient and related compounds. By comparing something you use on a daily basis to a substance you wouldn't dream of using on your body or in your home, a dishonest writer can scare consumers away from perfectly safe products. Here is an example from the Internet:

"Propylene Glycol is a cosmetic form of a mineral oil found in automatic brake and hydraulic fluid, and industrial antifreeze."

-www.aromaleigh.com

True enough, propylene glycol (PG) can be found in products like antifreeze (although most antifreezes are made with ethylene glycol, a very different compound). But take a closer look at what the writer is doing. PG is not anti-freeze, it is an ingredient with a very low freezing point. It just so happens that, in addition to PG, anti-freeze also contains water. Does that make water bad? Water, propylene glycol, and dozens of other ingredients also happen to be in shampoos, lotions, and deodorants. Isolating one of these ingredients and implying that it is poisonous or dangerous grossly misrepresents the truth. Here's yet another example:

"Sodium Lauryl Sulfate is… probably the most dangerous ingredient used in skin and hair-care products. In the cleaning industry, SLS is used in garage floor cleaners, engine degreasers, and car-wash soaps. It is very corrosive and readily attacks greasy surfaces."

-www.healthy-communications.com

It's true, SLS is used in many of these products for the same reason it is used in shampoos and other personal care products—it is effective for creating foam. But that doesn't make it corrosive, poisonous, or even dangerous. It isn't, as the evidence mentioned above makes clear. Instead of taking "scary comparisons" at face value, the reader would be much better off checking the actual research for herself.

Another way unscrupulous writers scare the uninformed is by quoting Material Safety Data Sheets (MSDS). Difficult to understand, these information sheets are legal documents written to limit the liability of ingredient producers in the case of misuse or a spill. They are generally written so handlers have proper direction for dealing with chemicals at concentrations as high as 100%. Here is an example of information taken from an MSDS by an MLM company and used to scare consumers about propylene glycol:

"May be harmful by inhalation, ingestion or skin absorption. May cause eye irritation. Exposure can cause gastro-intestinal disturbances, nausea, headache and vomiting, central nervous system depression."

-From Material Safety Data Sheets (MSDS)

Finding a Material Safety Data Sheet is relatively easy. Finding the one quoted here has proved impossible. It may exist, but even the company that published the information couldn't provide the entire data sheet for review. However, we did receive an MSDS for propylene glycol from a company called Mallinckrodt Baker, Inc. that provides the following information:

"Inhalation: No adverse effects… Not expected to require first aid measures."

"Ingestion: Relatively non toxic. Ingestion of sizable amount (over 100 mL) may cause some gastrointestinal upset… Not expected to require first aid measures. Give several glasses of water to drink to dilute."

"Skin Contact: Mild irritant… on prolonged contact… Wash skin with soap and water for at least 15 minutes."

"Eye Contact: May cause transitory stinging and tearing… In case of contact, immediately flush eyes with plenty of water…"

Remember these statements apply to propylene glycol at concentrations as high as 100%. Most personal care products are made with concentrations of less than 10%. And the statements above represent worst-case scenarios. And yet the manufacturer says that PG is not expected to cause side effects any worse than an upset stomach even if you eat nearly four ounces of it (that's the equivalent of eating

more than two full containers of deodorant). And while the manufacturer admits that some people may experience mild skin irritation (similar to dabbing alcohol on your skin), the fact is, this Material Safety Data Sheet leads the reader to believe that PG is safe when used as directed, despite what the unscrupulous website says.

One more note about Material Safety Data Sheets: they are generally written by ingredient producers and attorneys, not scientists or researchers testing the ingredient for its toxicity in personal care products. As such, they are notoriously inconsistent and generally make a bad source to prove any claim of safety—negative or positive. The informed reader will seek out other information to confirm the safety of any ingredient maligned by a quote from an MSDS.

Argument Pattern #5: Outrageous Claims and Fear Mongering

The arguments that fit in this category may sound alarmist, conspiratorial, and even crazy. But when coupled with other kinds of arguments, they're almost believable. Here's an example of this type of claim that has been circulating lately:

> *"Cancer is out of control… Could using industrial cleansers on our skin be the link to cancer? You'll find SODIUM LAURYL SULFATE and PROPYLENE GLYCOL (not to mention hundreds of other chemicals) in toothpastes, shampoos, conditioners, cosmetics, lotions and other common products your loved ones use several times, every day. Could these ingredients possibly have any long-term side effects? Why is the rate of cancer soaring? Why is the rate of heart disease soaring? Where did Alzheimer's come from? Why do so many people need glasses or contacts? Why are we the country leading the world in the proliferation of degenerative disease?*

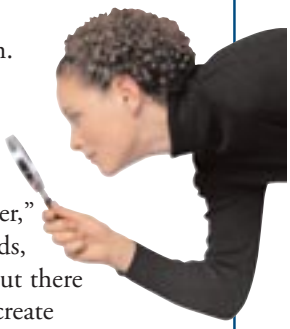
> *"There is something going on... and it's not pretty. When you know the facts about what these chemicals are, where they came from, and what they cause...you'll be shocked... and then you should get angry. There's even a medical study that shows exposure can retard eye development in young mammals!"*

Notice that none of these claims are substantiated with a source. Also notice how the writer asks several questions that link this ingredient to a long list of diseases. By doing this, he implies (without actually saying it) that ingredients like SLS and PG cause cancer, heart disease, Alzheimer's, and blindness. Then notice how the author shifts to "conspiracy" mode, "there is something going on." Maybe there is something going on, but it is completely irresponsible to suggest that these diseases are caused by a single ingredient, absent any credible research. It's simply not believable. Here's another example of fear mongering:

> *"It is well known in Europe that sodium laurel sulfate causes softening of the gums and leads to gingivitis."*

Interestingly, the author is so unfamiliar with the ingredient SLS that she doesn't even spell it correctly. Is this really a "well-known" fact in Europe? According to whom? Where can we read the research? Are serious health risks like this really kept a secret in the U.S. and Canada, two countries that lead the world in medical research and preventative care? The writer would have us believe there is a conspiracy to cause gum disease on the North American continent. Notice, once again, no source is quoted, so we can't check the facts.

Argument Pattern #6: Strip Quoting



Fortunately, this kind of dishonest misrepresentation is rare, but it still goes on. Strip quoting is the process of removing a word or two from a sentence to change the meaning of the original text. For example, if you remove the word "not" from the sentence, "SLS has not been linked to cancer," you get a completely new sentence that reads, "SLS has been linked to cancer." It's rare, but there are companies that strip quote in order to create documents in support of their claims.

One MLM company sells a document entitled "Final Report on the Safety of Sodium Lauryl Sulfate" as part of its "Potentially Harmful Ingredients Technical Packet." Nothing wrong with that, except that the report that this document summarizes is actually the same "Final Report on the Safety Assessment of Sodium Lauryl Sulfate *and Ammonium Lauryl Sulfate*" [emphasis added] that we referred to previously. They didn't just remove these words from the title of the report, there are at least six additional references to ALS and its effects that have been stripped out of the original document. Why? Because this company sells products made with ALS, and including ALS on the same report they use to discredit SLS would undoubtedly harm their business. In addition, this bogus report adds "facts" from the "Studies at Georgia Medical College" that don't appear in the actual report at all!

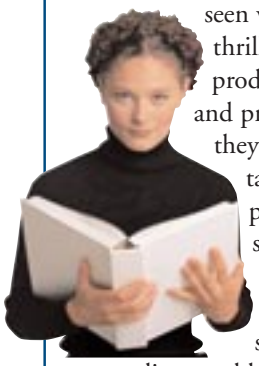
It's almost laughable that at the bottom of this "report" is the following statement: "This article is provided to you in its original, unedited form as an educational and technical service." This is a blatant lie that is easily disproved by checking the orginal document.

Once again, the lesson is clear. The only way to determine

the truthfulness of any claim or argument is to trace it back to the original source. Dishonest companies like the one mentioned here make that task difficult, because they distribute information that appears to be a copy of the original report, when in fact, it isn't real at all.

Argument Pattern #7: Changing the Context

Often, someone makes a claim that is rooted in truth, but is taken out of the original context. Hollywood producers have been known to use this technique to promote movies. For example, a reviewer may report that the movie he has just seen was, "A decent production. Not exactly a thrill-ride, but mildly entertaining." The movie producer then takes a few words from that review and prints, "A thrill-ride… entertaining." Notice, they haven't changed the words, they've simply taken them out of context of the entire passage and made them seem to be something they aren't.



We find this argument type used again and again in literature that discredits safe ingredients. Here is an example from one disreputable company's Internet site:

> *"Propylene Glycol causes significant number of reactions and was a primary irritant to the skin in low levels of concentrations.*
> *-The American Academy of Dermatologists Inc, Jan 1991"*

A side note: this article is so poorly attributed to its source as to make it almost impossible to find. We assume that this quote comes from an article entitled "Propylene Glycol Dermatitis," by Joseph M. Catanzaro, MD and J. Graham Smith, Jr., MD, published in the *Journal of the American Academy of Dermatologists*, Volume 24, Number 1, January 1991.

Upon reading the clinical review, the reader will find several references to irritations caused by propylene glycol. But the quote above has purposefully changed the context. They have left out the contention that the majority of these irritations are in fact, allergic reactions. That is, a small percentage of the population is allergic to this ingredient, just as a small percentage of the population is allergic to peanuts, wheat, bee stings, or any other allergen. For these people, propylene glycol is indeed an irritant in low concentrations. However, for the general population, propylene glycol is a "minimal irritant," that is, it does not irritate in small quantities like those in personal care products.

If a person actually reads the report, they will find it details the safe use of propylene glycol over the past 80 years in products like shampoo, prescription medications, candy flavoring, and therapeutic treatments for dermatitis and calluses. That's right, it can be safely eaten and used topically to moisturize skin—without side effects. One thing the reader will not find in the report is the quote used above by this dishonest company to discredit PG. It simply isn't there. Here's how the researchers summarize their findings:

> *"Short- and long-term toxicologic studies indicate that propylene glycol has a low toxicity when used as a solvent in pharmaceuticals. Given these properties, propylene glycol is an excellent vehicle and solvent for both dermatologic and nondermatalogic formulations."*

Again, an honest investigator will not only quote from research, they will preserve the context of the original article, something that appears difficult for these disreputable companies to do.

Inaccuracies, Typos, and Plain Old Disinformation

One thing the honest investigator will notice almost immediately as she sifts through the dubious claims is the over abundance of mistakes and inaccuracies. Words are misspelled and sources are referenced incorrectly, or not at all. She will also see that the same typos, incorrect sources, and grammatical errors appear over and over as people copy the same old stories and lies into their own disinformation without checking sources (or even spelling) for themselves. One writer makes a dubious claim. It is then picked up by another, then by a manufacturer with a financial interest in belittling an ingredient. Before you know it, the same misinformation is available in hundreds of places on the Internet, in e-mail, in official company information packets and other places. That doesn't make any of it true. In fact, it indicates that virtually all of it is false—and probably all came from the same inaccurate source. As you search through the disinformation, notice how often you see the same arguments and mistakes. Then ask the question, did this information originate from a credible source?

Misinformation Has a Way of Multiplying.

Of course the Internet isn't the only place you'll find disinformation about ingredients like those mentioned above. There is no law or governing body that prevents a writer from printing false information and calling it truth. In fact, in the United States, everyone has a constitutionally guaranteed right to do exactly that. Authors of several alternative "health" books have either unknowingly or

purposely perpetuated the same arguments found on the Internet and in the sales literature of unscrupulous companies. In some cases, an author may have accepted information at face value and not traced their research back to the source. In other cases, the author knows that this kind of scandalous information sells books and helps line his pockets with money. Just because an argument appears in print, doesn't mean it's true. The responsible reader should be skeptical about the claims she reads.

As a general rule, it is best to be cautious when obtaining health-related information from the Internet or from alternative books. Check out the publisher, the author, or the owner of the web site and make sure reliable sources are used. If ever in doubt, check it out. Or talk to your family doctor about your concerns.

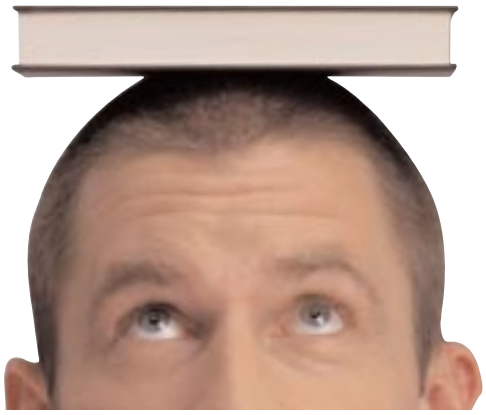
Why are People Spreading These Unsubstantiated Rumors?

Why have dozens of ingredients been given a black eye? Several organizations and individuals have adopted the practice of spreading false statements about commonly used ingredients in order to scare people into using products made without these ingredients. In fact, on virtually every website we found that perpetuated these false statements, we also found a link to a page that sells health or beauty products made without these ingredients. In other words, these rumormongers are making money off of the fear they spread.

If you stop buying your regular shampoo because you are worried about its safety and purchase theirs instead, they make money. And in many cases, you spend more money than you would have otherwise under the mistaken assumption that you are buying a "safer" product. Before you accept these claims as truth, investigate the motives of the person who is spreading this kind of information. As a general rule, reputable companies don't compete by spreading fear and rumors. They compete on the merits and quality of their product line. Do you really want to do business or purchase products from a person or company that has to lie to get you to try their products?

What You Should Do

It all comes down to this—when confronted with questionable information about the safety of the ingredients in the products you use, think, ask questions, and do the research. You are ultimately the person responsible for your family's health. And responsible consumers don't make snap judgments based on spurious, undocumented, or false rumors. Compare the claims you hear to the argument types above and the scientific research. Then act on the correct information you find. In the end, you'll be happier, healthier, and smarter about the choices you make each day.



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