

**Chemical (Free) Reactions: Exploring Colloquial Understanding of the Term “Chemical Free” and Subsequent Consumer Attitudes**

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**ABSTRACT:**

Marketers use the term *chemical free* to promote a range of products even though every product is made of chemicals. Regulatory bodies suggest that consumers have a colloquial understanding that a chemical free product means it is safer than others. Three different studies explore whether there is indeed a colloquial understanding of the term and evaluate the effects of how people interpret the term on attitudes towards ads and brands as well as purchase intentions. Results indicate that different interpretations of the term exists, interpretations are related to an individual’s overall concerns with chemicals in society, and interpretations can affect attitudes toward the ad and the brand, but rarely purchase intentions.

In the past decade or so, marketers have begun branding a number of different products as being chemical free: such products include Burt's Bees Chemical Free Sunscreen, Chemfree Non Toxic Chemical Free Toilet Bowl Cleaner, Bug Drug 100% Pure Chemical Free insect repellent and PurEco reusable chemical free dryer sheets.

However, a number of groups such as scientists and journalists see branding a product as chemical-free as problematic since everything in the physical world is made of chemicals. The word chemical is a synonym for matter, and natural substances such as water (H<sub>2</sub>O) and air (O<sub>2</sub>) are simple chemical compounds. According to author Deborah Blum, the term chemical free is used as a type of heuristic or consumer decision-making rule. In an article about her discovery of chemical-free honey, Blum wrote:

“Of course, when people advertise chemical-free honey, they don't really mean it. They mean a product free — so far as they know — of industrial or synthetic chemical compounds. It's a concept invented by a marketing genius to sell products, and embraced by consumers looking for products that are extra-safe.”

But do most consumers see that marketers mean something other than what an advertisement is actually saying? The Advertising Standards Authority (ASA) in the UK says that they do: the ASA believes that consumers have what is termed a “colloquial understanding” that a product is not really free of chemicals but instead the product contains natural rather than synthetic chemicals. However, research has not been conducted to show that indeed this colloquial understanding exists and is as inculcated into society as the ASA seems to believe.

Chemist Sharon Neufeldt (2011), writing about the use of scientific terms as buzzwords, suggested that writers and journalists often use chemical terms in a “rather whimsical” way. She indicated that some journalists can revert to what she refers to as hyperboles such as “some chemicals are always bad”, which can then lead to chemophobia, or the fear of chemicals in society (Entine 2011). Neufeldt stated that the correct use of scientific terms requires substantial context (for example, quantity and concentration of a presumably dangerous chemical) so consumers can understand the statement correctly. She further argued that using broad terms like *chemical free* could undermine consumer efforts to think rationally about any type of messages about chemicals—instead, consumers may revert to heuristics that suggest that chemicals are always bad for society.

We recently conducted a study that had three goals. The first goal was to examine if there was indeed a colloquial understanding of the term chemical free. In a survey of over 300 consumers, the results show that a range of definitions about the term exists. Some individuals reflected the colloquial view advocated by the ASA that a chemical free product was less toxic than others. However, almost one-fifth of respondents to the survey believed that a product advertised as chemical free truly contained no chemicals—a physical impossibility. Other individuals, though, indicated a high level of scepticism when and they indicated that it was impossible for a product to be chemical free. Individual’s definitions of the term seem to be related to their own attitudes toward chemicals in society: those with positive attitudes about chemicals are more likely to believe that *chemical free* is a false

claim. Those with negative attitudes are more likely to believe that a chemical free product is indeed bereft of chemicals.

Two additional studies show that these beliefs affect people's attitudes towards brands, toward ads, and toward purchase intentions of chemical free products. In our next two studies, people examined one of two ads for (in the first study) a sunscreen and (in the second study) a baby wipe. The difference between the ad pairs was that one sunscreen ad and one baby wipe ad mentioned that the product was chemical free in the headline, and one ad did not.

People who had negative attitudes toward chemicals tended to react more positively to the ad stating that the product was chemical free, while people who had positive attitudes toward chemicals tended to react negatively to the ad labelled as chemical free. Given that these attitudes are associated with how individuals interpret the term chemical free, we see a connection between one's evaluation of what the term means and how they react to the term in an advertisement.

Is it ethical to use the term *chemical free* in product advertising? We suggest that the term can be deceptive, as people will define chemical free products as something they are not. This deception may mislead consumers to make poor purchase decisions. In our sunscreen example, for instance, the product ingredients for the chemical-free sunscreen are the same as other sunscreens not labelled chemical-free. If *chemical free* becomes a heuristic (a decision making rule) indicating that one product is *safer than other brands*, the

fact that the chemical free sunscreen has the same ingredients as most sunscreens on the market would suggest a deception that harms competition as well as consumers.

The bottom line is that this study showed that some consumers appear to lack a basic understanding of chemistry that would allow them to interpret the term correctly. As a result, there are strong public policy implications that warrant a re-evaluation by both the FTC and the ASA. The range of interpretations, coupled with the fact that different interpretations influence purchase intentions, suggest that it is unethical for the term to be used. At a minimum, advertisers need to provide information to help consumers understand what brands specifically mean when the term is used.