

TOBACCO PRODUCT ADDITIVES

ESSENTIAL FACTS

Globally, tobacco use is the leading cause of preventable death. Tobacco use kills nearly 6 million people each year. Unless action is taken to prevent tobacco use, it will kill 8 million people worldwide annually by the year 2030.¹ Tobacco companies intentionally use many additives in tobacco products to increase their appeal and addictiveness.

Tobacco Product Additives Make Products More Addictive

The nicotine in tobacco is extremely addictive. Tobacco companies use additives to enable smokers to extract nicotine from tobacco more easily, speed up nicotine absorption by the lungs, and enhance the delivery of nicotine to the brain.³

- Ammonia compounds convert nicotine molecules into a “freebase” form, which allows the nicotine in tobacco to be absorbed more quickly and easily by the lungs.⁴ Ammonia compounds also reduce the harshness of tobacco smoke, which allows the lungs to inhale tobacco smoke more deeply.⁵
 - Ammonia technology played an important part in turning Marlboro from a relatively marginal cigarette brand in the 1960s and early 1970s into the world’s best-selling cigarette.⁶ Marlboro sales rose sharply in the 1970s and have remained at high levels for decades.⁷
 - By the end of the 1980s, five of the six largest tobacco companies in the United States were using ammonia technology.⁷
 - Ammonia compounds are among the most frequently used additives, by volume, in the tobacco industry.⁸

- Sugar additives also enhance the impact of nicotine.^{5,9,10}
 - When sugar additives are burned in cigarettes, many toxic compounds are produced, including formaldehyde, a known carcinogen and acetaldehyde, a potential carcinogen. Acetaldehyde is believed to interact with nicotine to enhance nicotine’s addictive effects by making receptors in the brain more receptive to nicotine.^{3,11,12}

Tobacco Product Additives Make Products More Attractive

Since the nicotine in tobacco makes tobacco smoke harsh and difficult to smoke, tobacco manufacturers use additives to alter the taste and reduce the harshness of tobacco smoke.^{3,12}

- Sugars are naturally present in tobacco, but tobacco companies also add sugars to their products. Sugars make tobacco products more palatable by reducing the harsh taste of tobacco, particularly for first-time users, and also make smoke easier to inhale.¹¹

For decades, tobacco manufacturers have manipulated the taste, smell and even the appearance of tobacco products to increase their appeal to target groups like youth, women and specific ethnic groups.

- Menthol cools and numbs the throat to reduce the irritation a smoker feels when smoking and make tobacco smoke feel smoother.^{3,9}
 - Menthol makes it easier for beginner smokers to tolerate smoking.^{13,14}
- *Levulinic acid* and other organic acid salts reduce the harshness of nicotine, making tobacco smoke feel smoother and less irritating.⁶
 - Levulinic acid desensitizes the upper respiratory tract, increasing the potential for cigarette smoke to be inhaled deeper into the lungs.^{6,15}
 - Tobacco-industry research suggests that the levulinic acid also changes the chemistry of the brain to make it more receptive to nicotine by possibly

Tobacco product additives are ingredients added to tobacco products that serve to modify flavor, regulate combustion, moisturize, preserve, or act as solvents for other additives.²

enhancing the binding of nicotine in brain cells.^{6,12,15} Thus, levulinic acid may also contribute to increased nicotine absorption and enhance the impact of nicotine.¹⁵

- Candy-like flavoring additives such as liquorice, chocolate, cocoa, and vanilla improve the taste of tobacco products and also reduce their harshness.
 - Flavoring additives, even when not present in large enough quantities to be considered “characterizing flavors”, boost the sweetness of tobacco.^{3,6}
 - When burned in a cigarette, liquorice and chocolate produce toxins, including cancer-causing chemical compounds such as *formaldehyde*, *benzo(a)pyrene*, and *benzene*.¹⁶
 - Cocoa contains *theobromine*.
 - Theobromine is a bronchodilator. It expands the airways of the lungs to allow more air to flow through them.⁶
 - Theobromine also makes tobacco smoke feel less irritating.⁶
 - Theobromine makes it easier to inhale tobacco smoke more deeply.^{6,9}
 - Liquorice contains *glycerin*.
 - Glycerin may also act as a bronchodilator.^{6,12}
- Guar gum (a plant extract) and its derivatives are added to cigarettes to help with binding and wrapping tobacco in the cigarette paper. A number of compounds are generated during the heating of guar gum.
 - *Furfural* and *diacetyl* are two compounds whose smell and taste serve to increase the attractiveness of smoked tobacco products.¹⁶

- Guar gum produces several toxic compounds that are either known to cause cancer in humans (e.g. *formaldehyde*, *benzo[a]pyrene* and *benzene*) or thought to cause cancer in humans (e.g. *acetaldehyde* and *styrene*).¹⁶
- Tobacco companies add humectants (or moisturizing substances) such as *glycerol* and *propylene glycol* to tobacco products to prevent the tobacco from drying out and increase tobacco product shelf life. Humectants have other effects.
 - By keeping tobacco moist, humectants improve the palatability of cigarettes by reducing the irritability of tobacco smoke.²
 - *Glycerol* generates many products when burned, including acrolein, a toxic substance that causes irritation in the respiratory tract.²
 - *Propylene glycol* produces *propylene oxide* when burned. *Propylene oxide* is suspected to cause cancer in humans.²
- Other additives make tobacco products more attractive in other ways.
 - *Magnesium oxide* makes tobacco smoke whiter.
 - Cinnamon reduces the odor of tobacco smoke.
 - Coloring agents (e.g., inks and pigments) make products more appealing.
 - The addition of vitamins, fruits and vegetables, amino acids, and essential fatty acids added to some tobacco products could create the false impression that tobacco products have health benefits.
 - *Caffeine* and *taurine* could convey that tobacco products boost energy and vitality.
- Partial Guidelines for implementation of these articles require manufacturers and importers of tobacco products to:
 - Disclose information to governmental authorities about the ingredients (including additives) in tobacco products.
 - Provide government authorities with statements about the purpose of including each tobacco product ingredient and other relevant information.¹⁸
- Parties are also urged to:
 - Prohibit or restrict ingredients that may be used to increase palatability in tobacco products;
 - Prohibit or restrict coloring agents in tobacco products that increase the attractiveness of tobacco products; and
 - Prohibit ingredients in tobacco products that may create the impression that they have a health benefit, including increased energy and vitality.

Tobacco Product Additives Need Regulation

Article 9 and 10 of the WHO Framework Convention on Tobacco Control require Parties to regulate the contents and emissions of tobacco products, tobacco product disclosures, and the methods by which they are tested and measured.¹⁷

KEY MESSAGES

- **Tobacco product additives increase the addictiveness of tobacco products.**
- **Tobacco product additives make products more attractive, especially to youth, women, and other target markets.**

- **The Partial Guidelines for Articles 9 and 10 of the WHO FCTC recommend that countries regulate tobacco product ingredients by requiring that manufacturers and importers disclose information about ingredients and banning ingredients such as additives that make tobacco products more addictive or attractive.**

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