

# Additives in tobacco products

## Menthol

**Additives are substances intentionally added to tobacco products by tobacco industry in order to render toxic tobacco products palatable and acceptable to consumers.**

Menthol is a natural compound found in several plants of the mint family e.g. the peppermint, cornmint, and spearmint herbs. When consumed it imparts a minty taste and smell, and has a characteristic cooling effect.

### General uses

Menthol is also produced synthetically for commercial use, and is widely used in the food, flavour, oral hygiene, cosmetic, and pharmaceutical industries. The tobacco industry is one of the main users of menthol.

### Reported tobacco industry uses

Menthol is one of the most commonly used additives in the tobacco industry. It has been used in tobacco products since the 1920s to suppress the harshness of smoke and as a soothing alternative for smokers suffering from colds. Menthol is the only type of tobacco additive that is sold as a particular type of cigarette i.e. 'Menthol cigarettes'. Menthol is added to cigarettes to provide a distinctive (brand-specific) mint flavour to the inhaled smoke. The menthol is added to several parts of the cigarette: either directly to the tobacco, the inner foil of the cigarette packet, the filter paper, or more recently as a crushable capsule inside the filter for a stronger effect.

The amount of menthol added to the cigarette depends on whether it is being produced as a "menthol" cigarette. Mentholated cigarettes contain menthol at levels that are up to 0.45 % of the total weight of the tobacco used in one cigarette (although levels up to 2 % are also reported). Non-mentholated cigarettes can contain menthol at much lower levels that make up between 0.01 to 0.03 % of the total weight of tobacco.

### Harmful health effects

Menthol is generally regarded as safe for use in food and cosmetics. However, this does not suggest it is safe when

inhaled from smoking cigarettes. Although studies show that when a mentholated cigarette is burnt, almost all of the menthol is released into the smoke unchanged, a small amount (0.5 %) does burn and can form compounds such as benzo[a]pyrene and benzene. These chemicals have been classed as human cancer-causing agents by the International Agency for Research on Cancer (a leading expert cancer organisation).

Menthol numbs the throat and increases the smoothness of the smoke, which masks the harsh effects of cigarette smoke and thereby makes it easier to smoke. Menthol cigarette smokers also tend to inhale more deeply for the cooling effect. These effects (together with the minty taste) particularly appeals to young people as studies have shown that menthol cigarettes are commonly used in adolescents and is often their first cigarette brand of choice.

Tobacco manufacturers recognise that the cooling effect of menthol makes for a pleasurable smoking experience and, therefore, also add menthol to the tobacco used in non-menthol (i.e. regular) cigarettes. This provides a smoother and less harsh smoke without the mint taste. Other tobacco additives used for this purpose include peppermint, spearmint, thyme and eucalyptus oils, and the chemical methyl salicylate. Consequently, by adding menthol, tobacco manufacturers increase the attractiveness and appeal of cigarettes.

The sensory experience from smoking menthol cigarettes can make it difficult to stop as the pleasurable taste, odour, and cooling effects may reinforce the smoking habit. Indeed, menthol's numbing effects on the lungs may allow many smokers to inhale more deeply to get their nicotine fix.

Menthol's use in medicinal products can also give smokers a false sense of safety. Studies have shown that menthol cigarette smokers often have the wrong impression that the compound offers them some sort of health protection compared to non-menthol cigarettes. This can encourage continued consumption and helps sustain the smoking habit and thus greater exposure to the toxic substances in cigarette smoke.

#### Additives in tobacco products

e.g. menthol



can **increase**

- attractiveness,
- addictiveness and
- toxic emissions

therefore **increase** smokers' exposure to toxic smoke emissions

**Increase**

- health risk,
- cancer risk,
- morbidity and
- mortality

**Lifetime smokers lose an average of 14 years of life**

Smokers die younger

[http://ec.europa.eu/health/tobacco/law/pictorial/index\\_en.htm](http://ec.europa.eu/health/tobacco/law/pictorial/index_en.htm)

# Additives in tobacco products

## General information

The tobacco industry is made up of many companies that make and sell different types of tobacco products. Whether it is smoked, chewed, sniffed or inhaled second-hand, the use of these tobacco products can and does cause debilitating and life-threatening diseases, as well as premature death. The cigarette is the single most commonly used tobacco product in the European Union (EU). Most people are aware that smoking cigarettes is harmful, as thousands of compounds are produced and released in the smoke, some of which (hundreds) are toxic. But what people may not be aware of is that most tobacco manufacturers add ingredients other than tobacco to cigarettes that affect the chemical make-up of the smoke. These ingredients are known as tobacco additives and are reportedly used, for example, to:

- give a cigarette a particular flavour;
- control the way the cigarette burns;
- keep the tobacco moist thus preventing it from drying out.

To some people, the reasons for adding these substances to a consumer product may appear perfectly reasonable. They may argue that this is not necessarily a bad thing as it makes for a better consumer experience. However, helping people to better tolerate and enjoy a product like cigarettes, which is well known to be toxic and carcinogenic, is an entirely different issue and a matter of great concern.

Additives can make cigarettes more attractive by disguising some of the undesirable effects of inhaling burnt tobacco. For example, they:

- mask the bitter taste and harsh smell of the smoke that is inhaled;
- make the inhaled smoke milder, reducing the irritation of the airways (which essentially silences any warning that the smoke is dangerous);
- turn the ash and smoke white;
- improve the appearance of cigarettes.

Ultimately, by using additives, tobacco manufacturers encourage cigarette use in people who may otherwise be deterred from smoking due to the unfavourable characteristics of raw tobacco. The more pleasant the cigarette, the easier it is for a

smoker to sustain their habit, and therefore the more likely it is that they could become addicted.

Studies have also shown that burning tobacco additives can result in the formation of harmful compounds. However, it is very difficult to consider the effects of a single additive in isolation due to the overall combined effect of all the chemicals present in the tobacco smoke. Moreover, the burnt derivatives of some additives are also known to indirectly boost the effects of nicotine on the brain (nicotine being the main reason why people become addicted to smoking).

Despite this, the tobacco industry is allowed to use additives and continues to do so, on the basis that they have been considered safe for use in food or cosmetics by relevant regulatory authorities. However, this is not a sufficiently scientific basis upon which to justify their use in tobacco products. This is because people do not generally consume/use these food and cosmetic products in a state where the additives are burnt (from being exposed to very high temperatures) and then inhaled. In food and cosmetic goods, consumers are exposed to these additives in a completely different way to how they would be exposed to them through smoking tobacco products. Therefore, these additives should not be considered to have comparable effects on the body when consumed in this way. Furthermore, the fact that these additives can make tobacco products more attractive and increase their use is particularly concerning given the toxic and addictive nature of tobacco products.

Tobacco manufacturers also market 'natural' or 'clean' cigarettes that reportedly have no chemicals or additives. However, potential consumers of these cigarettes are reminded that there is no such thing as a safe cigarette, because the smoke that is produced still contains carcinogens and other toxic compounds that come from the tobacco itself.

### Take home message

Tobacco manufacturers make cigarettes more attractive, which encourages their use, and makes it easier for anyone smoking to become addicted.

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This fact sheet on the tobacco additive *menthol* has been created by the German Cancer Research Center (DKFZ), Heidelberg, Germany. It is part of a series of 14 fact sheets on tobacco additives written in the context of the EU project Public Information Tobacco Control (PITOC). The fact sheets aim to inform the public on the general uses, tobacco industry uses and harmful health effects of selected tobacco additives.

Seven of these fact sheets have been created by the German Cancer Research Center (DKFZ), Heidelberg, Germany, and seven by the National Institute for Public Health and the Environment (RIVM), Bilthoven, the Netherlands. The introduction (or rather the general information) is a common product. The electronic versions of the fact sheets can be found on the DKFZ website <http://www.dkfz.de/de/tabakkontrolle> (carob, cellulose, guar gum, liquorice, menthol, prune juice and vanillin) and the RIVM website <http://www.tabakinfo.nl> (2-furfural, ammonium compounds, cocoa, glycerol, propylene glycol, sorbitol and sugars; additionally, a fact sheet on the tobacco smoke compound acetaldehyde is available).



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