

Additives are used to make tobacco products more acceptable to the consumer.

# Tobacco **FACT** Sheet

[www.tobaccoprevention.org](http://www.tobaccoprevention.org)

## What's in a cigarette?

### **Cigarette composition**

Cigarettes look deceptively simple, consisting of paper tubes containing chopped up tobacco leaf, usually with a filter at the mouth end. In fact, they are highly engineered products, designed to deliver a steady dose of nicotine. Cigarette tobacco is blended from two main leaf varieties: yellowish 'bright', also known as Virginia where it was originally grown, contains 2.5-3% nicotine; and 'burley' tobacco which has higher nicotine content (3.5-4%). US blends also contain up to 10% of imported 'Oriental' tobacco which is aromatic but relatively low (less than 2%) in nicotine.

Additives are used to make tobacco products more acceptable to the consumer. They include humectants (moisturizers) to prolong shelf life; sugars to make the smoke seem milder and easier to inhale; and flavorings such as chocolate and vanilla. While some of these may appear to be quite harmless in their natural form they may be toxic in combination with other substances. Also when additives are burned, new products of combustion are formed and these may be toxic.

The nicotine and tar delivery can also be modified by the type of paper used in the cigarette. Using more porous paper will let more air into the cigarette, diluting the smoke and (in theory) reducing the amount of tar and nicotine reaching the smoker's lungs. Filters are made of cellulose acetate and trap some of the tar and smoke particles from the inhaled smoke. Filters also cool the smoke slightly, making it easier to inhale. They were added to cigarettes in the 1950s, in response to the first reports that smoking was hazardous to health. Tobacco companies claimed that their filtered brands had lower tar than others and encouraged consumers to believe that they were safer.

### **Tobacco Smoke**

Tobacco smoke is made up of "sidestream smoke" from the burning tip of the cigarette and "mainstream smoke" from the filter or mouth end. Tobacco smoke contains thousands of different chemicals which are released into the air as particles and gases. Many toxins are present in higher concentrations in sidestream smoke than in mainstream smoke and, typically, nearly 85% of the smoke in a room results from sidestream smoke. The particulate phase includes nicotine, "tar" (itself composed of many chemicals), benzene and benzo(a)pyrene. The gas phase includes carbon monoxide, ammonia, dimethylnitrosamine, formaldehyde, hydrogen cyanide and acrolein. Some of these have marked irritant properties and some 60, including benzo(a)pyrene and dimethylnitrosamine, have been shown to cause cancer. One study has established the link between smoking and lung cancer at the cellular level. It found that a substance in the tar of cigarettes, benzo(a)pyrene diol epoxide (BPDE), damages DNA in a key tumor suppresser gene.

### **What is tar?**

Tar, also known as total particulate matter, is inhaled when the smoker draws on a lighted cigarette. In its condensate form, tar is the sticky brown substance which can stain smokers' fingers and teeth yellow-brown. All cigarettes produce tar but the brands differ in amounts.

### **Why low tar cigarettes are no safer than higher tar cigarettes**

Following the discovery in the 1950s that it was the tar in tobacco smoke which was associated with the increased risk of lung cancer, tobacco companies, with the approval of successive governments, embarked on a program to gradually reduce the tar levels in cigarettes.

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Although there is a moderate reduction in lung cancer risk associated with lower tar cigarettes, research suggests that the assumed health advantages of switching to lower tar may be largely offset by the tendency of smokers to compensate for the reduction in nicotine (cigarettes lower in tar also tend to be lower in nicotine) by smoking more or inhaling more deeply. A study by the American Cancer Society found that the use of filtered, lower tar cigarettes may be the cause of adenocarcinoma, a particular kind of lung cancer. There is no evidence that switching to lower tar cigarettes reduces coronary heart disease risk.

### **Nicotine**

Nicotine, an alkaloid, is an extremely powerful drug. The way in which nicotine causes addiction is similar to heroin and cocaine. Just 60mg of pure nicotine placed on a person's tongue would kill within minutes. Nicotine is contained in the moisture of the tobacco leaf: when the cigarette is lit, it evaporates, attaching itself to minute droplets in the tobacco smoke inhaled by the smoker. It is absorbed by the body very quickly, reaching the brain within 10-19 seconds. It stimulates the central nervous system, increasing the heart beat rate and blood pressure, leading to the heart needing more oxygen. Ammonia is added to cigarettes to speed up the delivery of the nicotine to the brain, transforming the acid form (slow moving) of nicotine into a base form (fast moving).

### **Carbon Monoxide**

Carbon monoxide, the main poisonous gas in car exhausts, is present in all cigarette smoke. It binds to haemoglobin much more readily than oxygen, thus allowing the blood to carry less oxygen. Heavy smokers may have the oxygen carrying power of their blood cut by as much as 15%.

### **Five tips for quitting**

*Studies have shown that these five steps will help you quit and quit for good. You have the best chances of quitting if you use these five steps to develop and maintain your own quit plan.*

1. *Get ready.*
2. *Get support.*
3. *Learn new skills and behaviors.*
4. *Get medication and use it correctly.*
5. *Be prepared for difficult situations.*

*Talk to your health care provider, they can help. If you do not have insurance or just need to talk call the Washington Tobacco Quitline.*

**Tobacco Quit Line**

**1-800-QUIT-NOW**

toll-free

1-800-784-8669

**QUITLINE.COM**

*We also recommend:*

[www.secondhandsmokesyou.com](http://www.secondhandsmokesyou.com)

[www.cdc.gov/tobacco](http://www.cdc.gov/tobacco)