

Whether differentiating a product from its competitors through the use of flavours, creating a flavour extension to a brand, or improving the smoking experience of a PREP, it is crucial to involve the flavourist from the outset of the product design, according to Tom Cravotta, President TTI

Discerning taste offers development options

Cigarette specifications, performance, mainstream and sidestream deliveries continue to be scrutinised by consumers and government agencies. Among the performance demands are reduced deliveries of tar and other specific harmful components, reduced ignition propensity, reduced ingredients and lower costs, to mention but a few. Despite this, the industry must continue to provide products to satisfy and exceed consumer taste expectations.

As George Cassels-Smith CEO of Tobacco Technology Inc (TTI) comments: "It is clear that flavouring technologies will play a critical role in the evolution of tomorrow's cigarette products. TTI – an anomaly in the flavours sector as it focuses solely on the tobacco industry rather than primarily on the food sector – has been, and continues to be, focussed on developing innovative flavouring solutions for the tobacco products of the future. Successful new products will be the result of the co-ordinated product development efforts of cigarette manufacturers with flavour technology, filter, paper and other component suppliers."

Turning first to potentially reduced exposure products (PREPs) TTI President Tom Cravotta said: "Cigarette design systems used to reduce the levels of harmful components negatively impact the taste character of mainstream smoke. TTI has developed various flavour systems to compensate for these negative attributes." Reduced risk cigarettes use various construction features to reduce mainstream smoke deliveries of various harmful chemical components. The phases of these components include gaseous, semi-volatile and non-volatile.

"Filter ventilation is widely accepted as an effective method for gas phase reduction." Continued Mr Cravotta "Increased ventilation, however, is relatively non-selective in mainstream smoke component reduction. For example, a highly ventilated (eg 70% ventilation) menthol cigarette would not deliver sufficient menthol in smoke to satisfy a menthol smoker without dramatically increasing the menthol application to the cigarette. A full flavour (12-15 mg) product requires approximately 4000 ppm menthol while an ultralights (3-5 mg) would require 8000 ppm menthol applied to the cigarette for a similar subjective menthol perception.

"The non-selective nature of filter ventilation can be compensated for with the application of flavour systems to fortify the levels of tobacco flavonoids lost through the ventilation process. It is essential for the flavour system to be designed for each specific cigarette product to properly adjust for the leaf blend and all cigarette construction features."

Carbon filters more selectively remove various harmful components from mainstream smoke (eg hydrogen cyanide). Carbon filters, unfortunately, do impart their own flavour to mainstream smoke, often characterised as dry, dusty and metallic. Since traditional carbon loads (25 mg. per filter) do not sufficiently "scrub" the mainstream smoke of targeted

harmful components, cigarette and filter manufacturers are increasing carbon loads. When carbon is loaded at relatively high levels (above 50 mg per filter) the mainstream smoke flavour dramatically suffers. TTI has developed several flavour systems which, when applied to the carbon or filler, greatly reduce the off-taste of the carbon filters.

Dr Jimmy Wu, TTI President, Asia, related that American Blend cigarettes may increasingly become the norm as the blend allows greater reduction in tar yields while retaining flavour when compared with Virginia cigarettes which tend to lose flavour dramatically below 8 mg tar yields. "This is especially apparent in the Japanese market where cigarettes with tar yields as low as 1-3 mg are being well received."

TTI has actively developed alternative flavour application points, such as to filters, cigarette paper, stem and reconstituted tobacco. Indeed, as Mr Cravotta points out: "Direct application to cigarette components, other than the filler itself, offers benefits to the production process as well as quality."

Application of flavours directly to the cigarette paper, during or after the paper making process, allows for many process and product improvements. When applied directly to the cigarette paper, specifically designed flavour systems reduce the harshness and cellulosic taste of high basis weight or wood pulp papers. These papers are designed for use in low sidestream products or when a stronger paper is required for high speed cigarette makers.

Application of ameliorants and anti-harshness flavour systems directly to tobacco by-products has been well received in the industry. These systems are designed to reduce the harshness and cellulosic taste of the tobacco by-products without changing the aromatic signature of the finished cigarette. This allows for increased by-product inclusion in the leaf blend resulting in reduced leaf blend costs and reduced tar deliveries.

Both distinctive and contemporary flavour systems can be designed for application during the filter rod fabrication without the need for any "top-flavour" application. The flavour system must be designed carefully incorporating flavour components which, after cigarette making and packing, equilibrate throughout the cigarette product and yield the desired subjective smoke flavour attributes. The advantages of these systems is reduced solvent emissions in primary processing since no top flavour is required as well as reduced "clean-up" requirements in primary processing such as top flavour cylinders, filler conveyance systems to and from cut filler silos and cigarette maker hoppers and garnitures.

While flavouring was once primarily a way to differentiate one's product from its competition, the role of flavourist in the tobacco industry has evolved to encompass a wide range of aspects of modern product design – from making PREPs and RIP products palatable, to reducing costs through different modes of flavour application. 



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