Fine-Tuning Marlboro

When Brown & Williamson delved into the mysteries of Marlboro, it dug out more than just ammonia.

The study of Marlboro states, for instance, that the amount of sugar in a U.S. Marlboro had risen to 12.3% of the blend by the end of 1986, compared with 9.5% before 1983. Although the study doesn't explain the reason for this increase, the FDA's report on nicotine manipulation says that sugars are often added to tobacco blends to smooth out the harsh taste of smoke. The taste becomes harsher as nicotine levels rise, according to the FDA.

Brown & Williamson's report also observes that Philip Morris has increased the level of "reducing sugars"—those sugars that specifically interact with ammonia to enhance tobacco flavor—to 8.6% from 5.9% during the same period.

Philip Morris didn't respond to questions about the Brown & Williamson documents.

Retaining Moisture

Brown & Williamson further reported an increase in certain other Marlboro additives. Its analysis says that after 1988, Marlboro's level of two so-called humectants—glycerine and propylene glycol—jumped 15% and 36% respectively. The Marlboro study says these humectants "can influence the blend's equilibrium moisture content, moisture retention capability, and smoke quality."

The FDA has said that by maintaining moisture, humectants ensure that the nicotine content of a blend doesn't fall. They also help smoke particles that contain nicotine to combine into larger particles, making smoke smoother and easier to inhale, the FDA report says.

Levels of acetaldehydes, a class of chemicals in smoke, have risen, too, the Brown & Williamson competitive report shows. The data reflect a 40% increase between 1982 and 1991 in acetaldehydes in U.S. Marlboros King Size. In its report on nicotine manipulation, the FDA said that, in the early 1980s, Philip Morris conducted research into the optimal ratio of acetaldehyde to nicotine "that would maximize the positive reinforcing effects of cigarettes; i.e. maximize their potential to produce dependence in smokers."

Letting Air In

Besides fine-tuning Marlboro's chemistry over the past two decades, Philip Morris has also changed certain aspects of how the product is put together, Brown & Williamson's report says. Among those changes, the report says, has been a sharp increase in the amount of air that smokers can draw through the filters of U.S. Marlboro. The competitive analysis says that Philip Morris didn't ventilate its Marlboro King Size filters at all in 1978. However, ventilation was apparent by 1979, and it had increased significantly by the end of the following decade.

The Marlboro study doesn't elaborate on the reason for this increase. The FDA's report says that with ventilation the manufacturer "has selectively reduced tar while delivering a higher percentage of available nicotine to the smoker."

—Alix M. Freedman