Pyrolysis-GC/MS of Tobacco with Menthol

Application Note

Tobacco

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The material used in cigarettes is a carefully formulated product of natural tobacco together with a variety of additives. Analytical pyrolysis can reveal both the materials produced from the tobacco at high temperatures as well as the volatile additives. Pyrolysis has also been applied to the study of the papers used in cigarette manufacture,as well as the filter material.

In this example, a small (~250 μG) sample of the tobacco from a mentholated cigarette was pyrolyzed at 700°C for 15 seconds. The resulting pyrogram shows a wide range of natural products, including nicotine and levoglucosan, which is a product of cellulose, as well as additves, including glycerine and menthol. Selected peaks from the pyrogram are identified in Table I.

Table I

Peak number	Compound
1	Acetic acid
2	Propylene glycol
3	Toluene
4.	Limonene
5	Phenol
6	Glycerine
7	Menthol
8	Nicotine
9	Levoglucosan

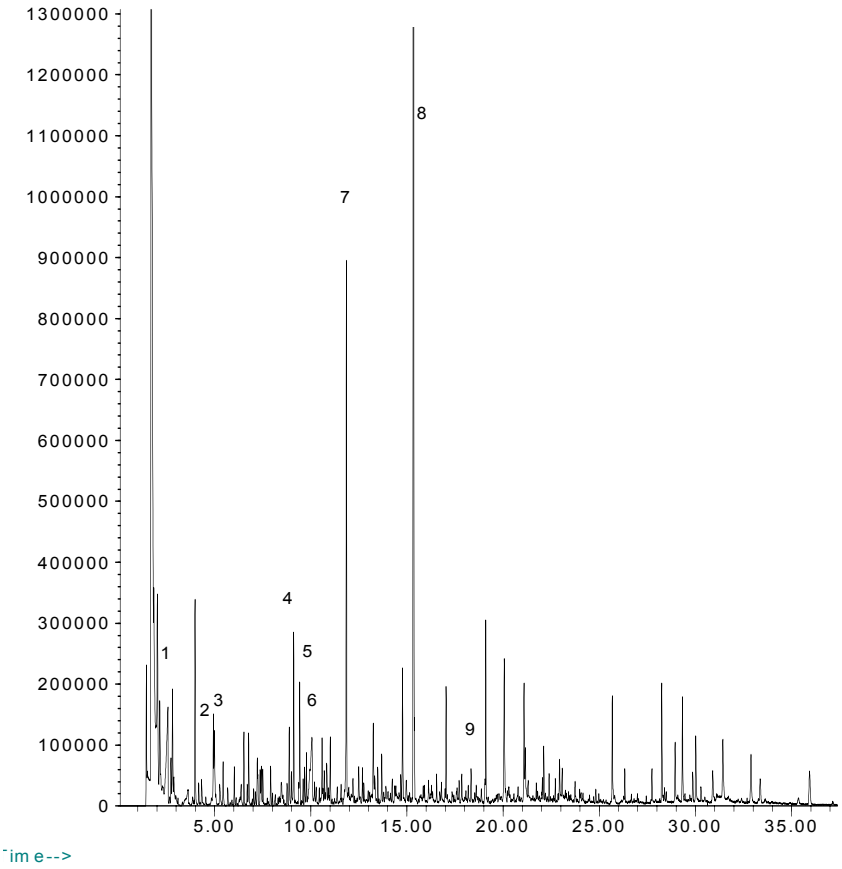

Figure 1. Tobacco with Menthol

Instrument Conditions

Pyroprobe Autosampler

Valve Oven:	300°C
Pyrolysis:	700°C
Time:	15 seconds

GC/MS

Column:	35% phenyl (30m x 0.25mm x .25μm)
Carrier:	Helium, 50:1 split
Injector:	300°C
Oven:	40°C for 2 minutes
	8°C/min to 300°C hold 12 minutes

FOR MORE INFORMATION CONCERNING THIS APPLICATION,
WE RECOMMEND THE FOLLOWING READING:

W. S. Schlotzhauer and O. T. Chortyk, Recent Advances in Studies on the Pyrosynthesis of Cigarette Smoke Constituents, J. Anal. Appl. Pyrolysis, 12, (1987) 193.