

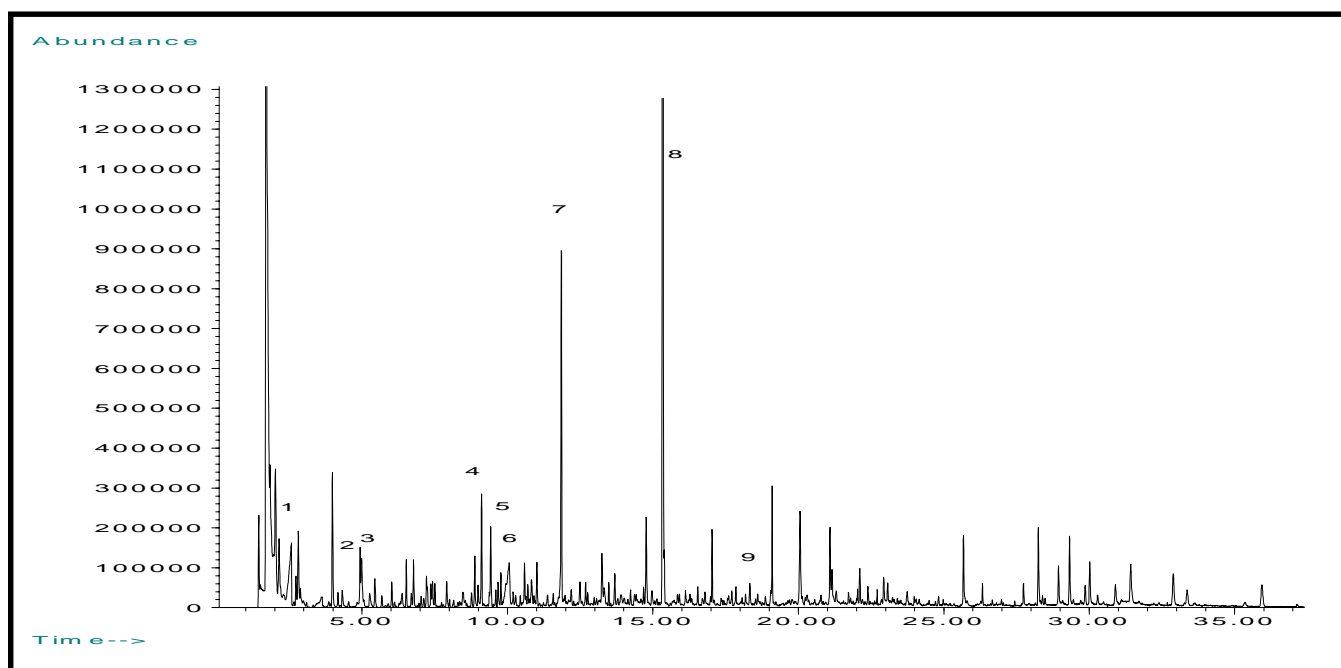
Pyrolysis-GC/MS of Tobacco with Menthol

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 additives, 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



Equipment

The tobacco shown here was analyzed using a CDS Pyroprobe Model 2500+ Pyrolysis Autosampler, interfaced to an HP6890 gas chromatograph which was equipped with an HP5973 Mass Selective Detector

Model 2500+ Conditions

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

GC Conditions

Carrier: Helium
Split: 50:1
Column: Rtx-35MS
30 m x 0.25 mm ID
Detector: MSD

GC Program:

Initial: 40°C for 2 minutes
Ramp: 8°C/min.
Final: 300°C

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.

Additional literature on this and related
applications may be obtained by
contacting your local CDS Analytical
representative, or directly from CDS at
the address below.



CDS Analytical, Inc. has been a leader in the design and manufacture of laboratory instruments for sample preparation and analysis since 1969. We are dedicated to providing the best possible instruments for both research and routine analysis. Well known in the field of pyrolysis, CDS manufactures the Pyroprobe® 1000, 2000 and 2500 autosampler for the introduction and analysis of solid materials by GC, MS and FT-IR. CDS offers a complete line of dynamic headspace instruments for the analysis of volatile organic compounds in environmental, pharmaceutical and food applications, including the model 6500 16 position autosampler for complex, multicomponent materials investigation. Our customers, their requirements and applications are important to us. To help meet your needs, we offer a wide range of analytical information and the services of our applications laboratory. If you would like additional information, please contact us at the address below, call us at 1 800 541 6593, or log onto www.cdsanalytical.com.