CDS solutions

*APPLICATIONS INFORMATION USING ADVANCED SAMPLE HANDLING TECHNOLOGY*

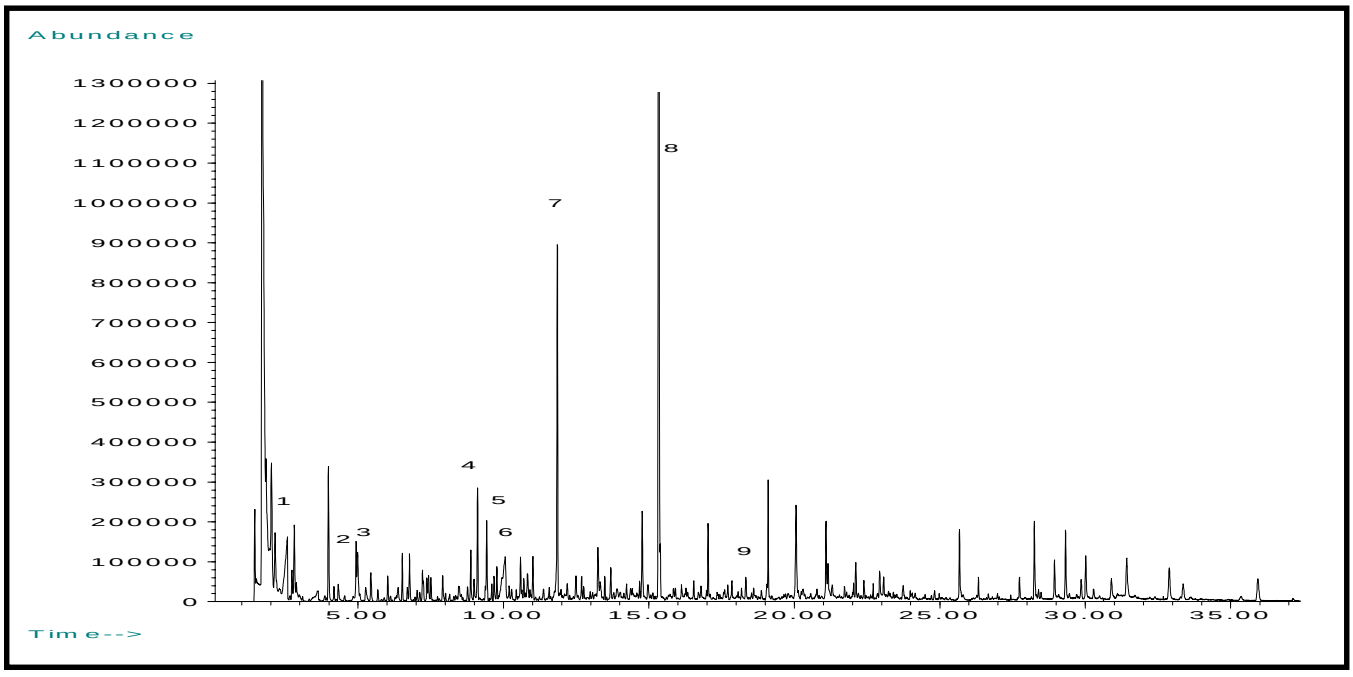
# Pyrolysis-GC/MS of Tobacco with Menthol

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 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 |



## 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.

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