

AUTHORS: Henry L. Chung.
John C. Aldridge

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ANALYSIS OF SALEM LIGHT 100 CIGARETTES (93-33)

OBJECTIVE:

The purpose of this study was to analyze and compare the customer complaint cigarettes with the control cigarettes.

SUMMARY:

The complaint SALEM Light 100 cigarette samples (93-33) were submitted by Ron Thomas. The customer claimed that the cigarettes "smelled like gas or kerosene". The complaint cigarettes were analyzed by the on-line purge-and-trap/GC/MS technique. Control SALEM Light 100 cigarettes were analyzed in the same manner for comparison. Extra compounds were found in the complaint SALEM Light 100 cigarettes compared to the control SALEM Light 100 cigarettes. These compounds were hydrocarbons (aliphatic, cyclic, aromatic and polyaromatic) and are listed in Table 1.

STATUS:

This study is complete.

KEYWORDS:

CUSTOMER COMPLAINT SALEM LIGHT 100 CIGARETTES 93-33 RON THOMAS

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SMELL GASOLINE KEROSENE HEADSPACE GAS CHROMATOGRAPHY MASS
SPECTROMETRY ALIPHATIC CYCLIC AROMATIC POLYAROMATIC
HYDROCARBONS

Table 1. Compounds Found in Complaint SALEM Light 100 Cigarettes^a (93-33).

Mass Abundance ^b (Counts)	Compound ^c
128916	Nonane, 2-methyl-
135891	Octane, 2,6-dimethyl-
18272	Cyclohexane, 1-methyl-4-(1-methylethyl)-
70823	Cyclopentane, 1-methyl-3-(1-methylpropyl)-
1103356	Decane
431750	Benzene, 1-ethyl-4-methyl-
387437	Benzene, 1,2,4-trimethyl-
84512	Decane, 4-methyl-
306551	Benzene, 1-ethyl-3-methyl-
79884	Cyclohexane, butyl-
46363	Cyclopentane, pethyl-
1193702	Benzene, 1,2,3-trimethyl-
37643	Benzene, butyl-
103158	Benzene, 1-methyl-2-propyl-
24488	Decane, 3-methyl-
42721	Decane, 2-methyl-
176349	Benzene, 1-methyl-4-(1-methylethyl)-
82191	Benzene, 1-methyl-3-(1-methylethyl)-
22423	Naphthalene, decahydro-
446582	Undecane
295581	Benzene, 1-methyl-4-propyl-
156316	Benzene, 1-methyl-3-propyl-
240884	Benzene, 1-methyl-2-(1-methylethyl)-
26906	Benzene, 1,3-diethyl-
122467	Benzene, 1-methyl-2-propyl-
90937	Benzene, 2-ethyl-1,4-dimethyl-
84771	Benzene, 2-ethyl-1,3-dimethyl-
169026	Benzene, 1-ethyl-2,4-dimethyl-
78179	1H-Indene, 2,3-dihydro-1-methyl-
29508	Benzene, 1-ethyl-3,5-dimethyl-
25042	Benzene, 1,2,4,5-tetramethyl-
37093	Benzene, 1,2,3,5-tetramethyl-
26162	Dodecane
42720	1H-Indene, 2,3-dihydro-5-methyl-
19102	Benzene, pentyl-
55231	Benzene, 1,2,3,4-tetramethyl-

- a = Three cigarettes were used for analysis.
- b = Mass abundance is the total abundance of ions in a mass spectrum for each compound with units of counts. Mass abundance (counts) can be used to compare the relative amount of compounds in the samples. An approximate amount of compound can be obtained by comparing this value with a response factor of 100,000 counts/2.054 μ g of benzene-d₁, assuming a one-to-one response. Each value above represents a single analysis and typical deviations for the technique used range between 5-30%.
- c = The compounds detected do not include water, carbon monoxide and compounds with a molecular weight lower than 29.

APPENDIX:

Experimental

The volatile compounds in the cigarettes were purged at 80°C for 10 minutes, trapped with Tenax, and then analyzed by GC/MS. A 60 m X 0.25 mm ID (0.25 µm film thickness) DB-1701 fused silica capillary column was used for compound separation. The GC oven temperature was held at 35°C for 10 minutes, programmed to 220°C at 3°C/min and held for 48 minutes. The mass spectrometer was operated at 70 eV in the EI mode. The mass range scanned was from 29-500 atomic mass units. The volatile compounds were identified by mass spectra.