zNose®
A portable GC used to detect and analyze odorous compounds
Electronic Sensor Technology
Newbury Park, Ca.

Odor Evaluation Technical Conference
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Who is Electronic Sensor Technology Inc?

Founded in 1995 as LP

A Public Company – 2005 - ESNR

Technology Based on SAW Detection

Registered as zNose®

The zNose® is an ultra-fast gas chromatograph with a surface acoustic wave (SAW) detector

Uses GC principles but on a smaller scale.

The electronic nose portion of the zNose™ consists of a SAW detector. SAW detectors are sometimes used in electronic noses to detect airborne VOCs

In the sample mode, the zNose® pre-concentrates every sample before analysis
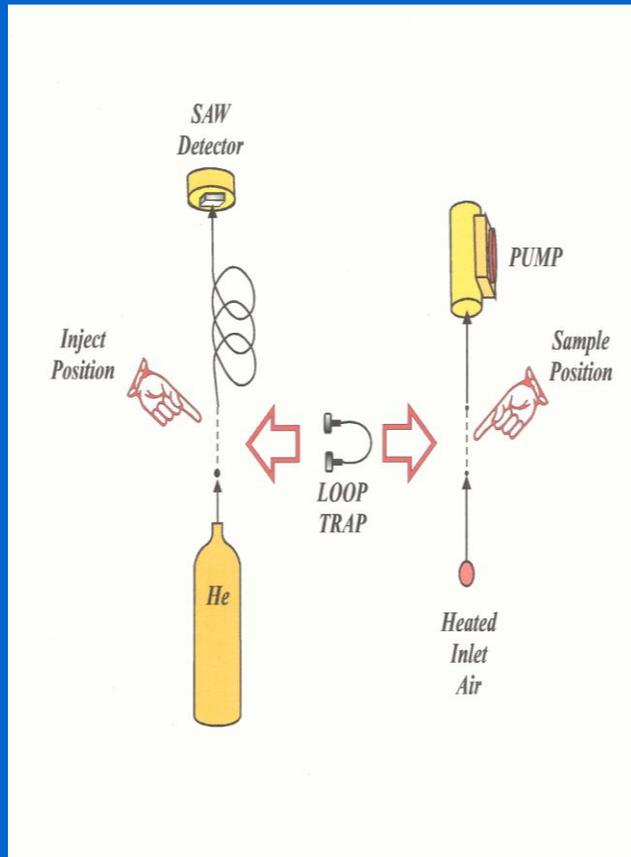
The vapor sample is pre-concentrated onto a Tenax trap through a multi-port valve.

Sampling times are normally programmable from 1-60 seconds.

Very small (1 < microliter) liquid samples can be injected into the system

Setting the method

METHOD ... ram Files\MicroSense\Method Files\10ps-2a1b_60.mth

File   Close

Column Temperature Profile

220
200

40

0
0   14.0   34.0   64

Check Rules

Temp Test

Description

10ps-2a1b_60.mth
10 deg/sec
40-180 deg

Initial Settings: (C)

Sensor	Column	Valve	Inlet	Trap	Flow (ccm)
60	40	165	200	250	3.0

SAMPLE PUMP INJECT WAIT FOCUS WAIT RAMP DATA BAKE END

0.0   0.5   10.5 11.0 13.0 13.0 14.0 14.0 34.0 64.0

PUMP INJECT SAMPLE WAIT FOCUS RAMP DATA BAKE FAN

Odor Evaluation Applications

- Foundry Detailed Analysis
- Rendering Plant Testing
- Phenol Analysis

Equipment used in Foundry Analysis
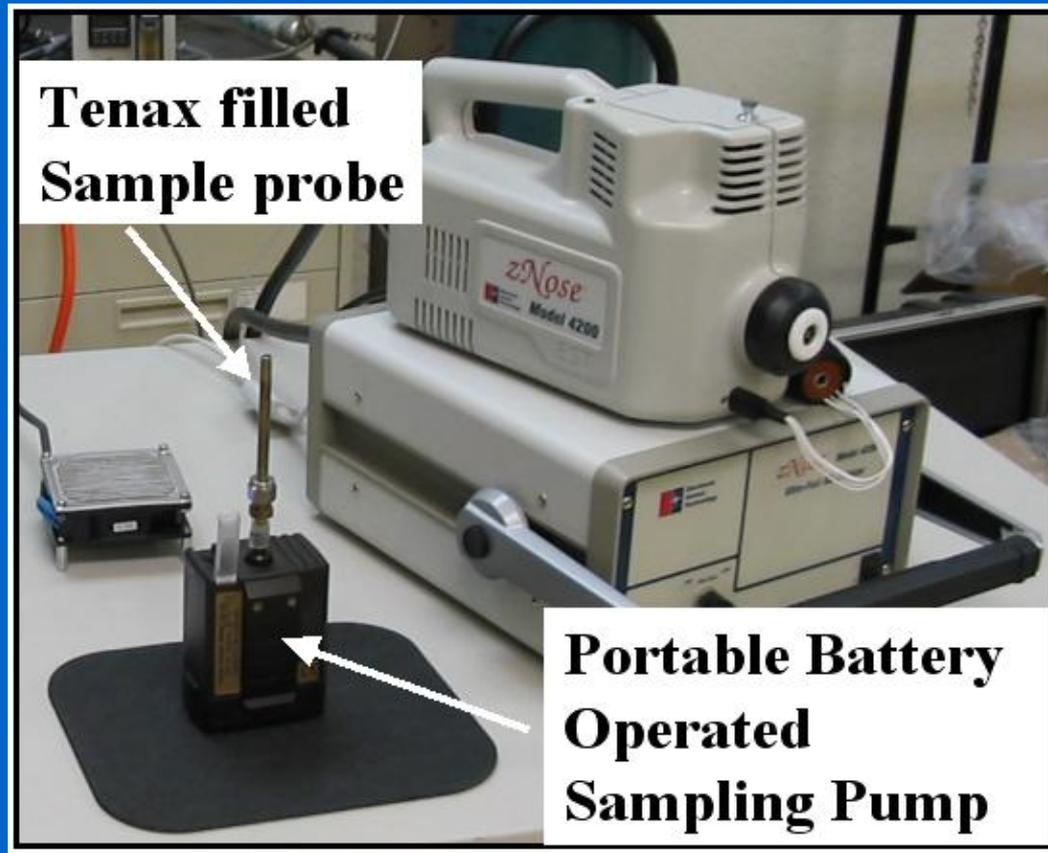
Calibrating with n-Alkanes
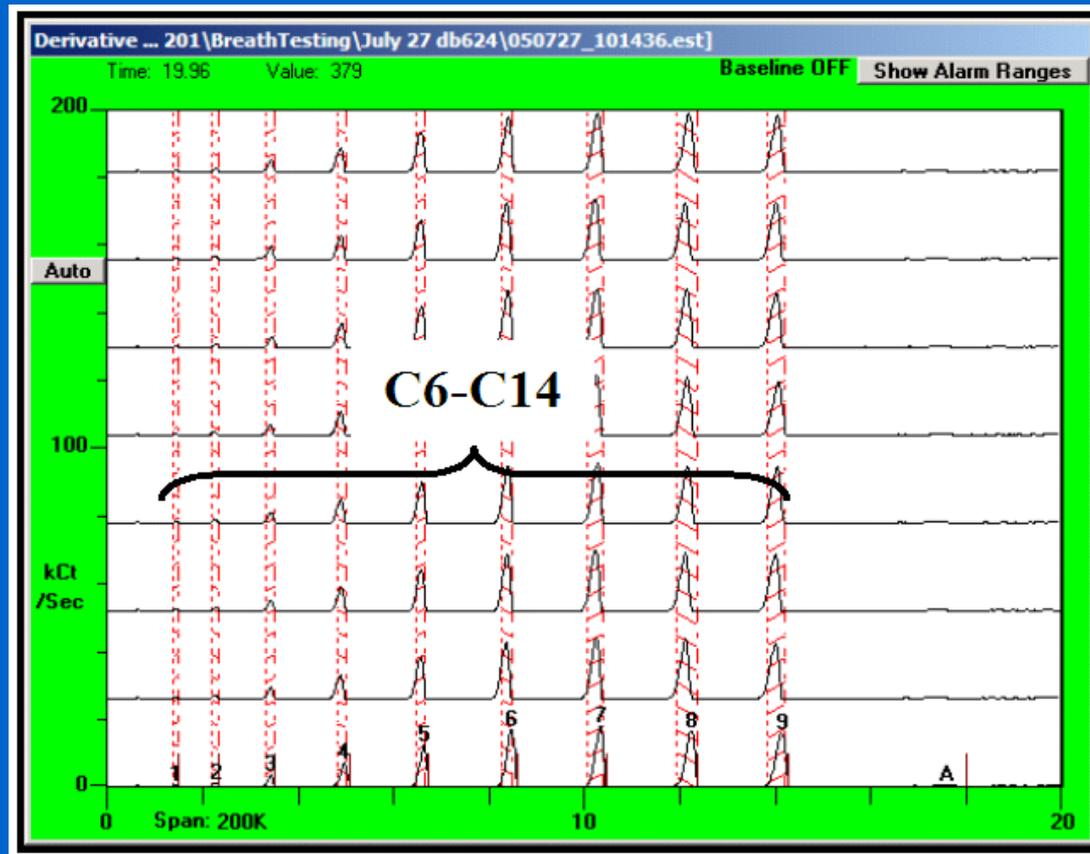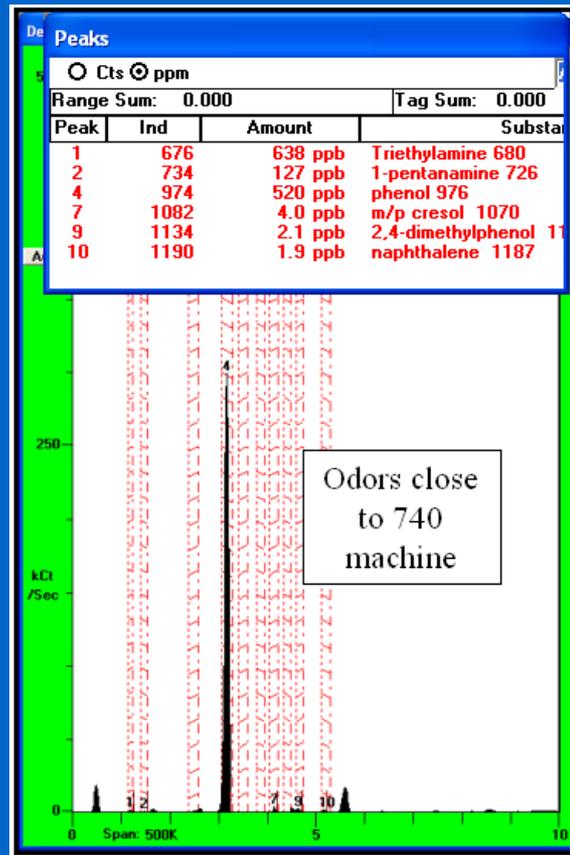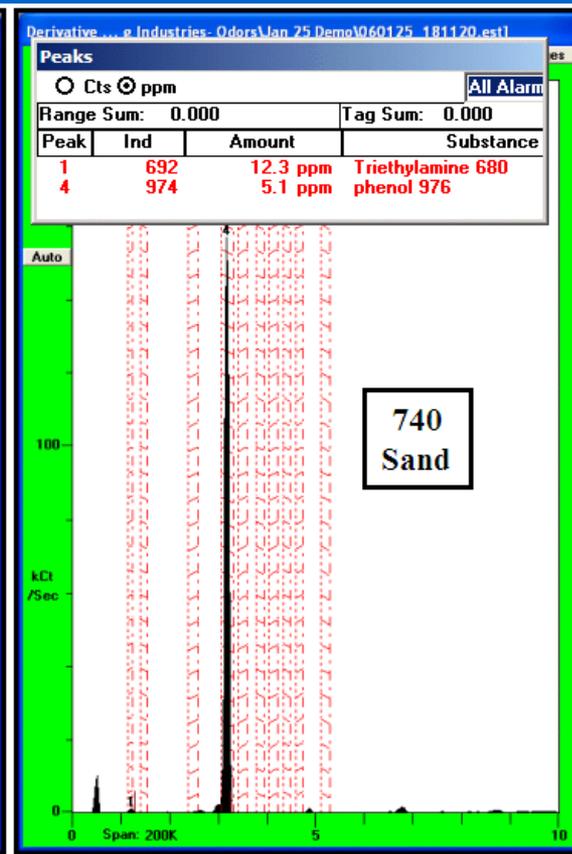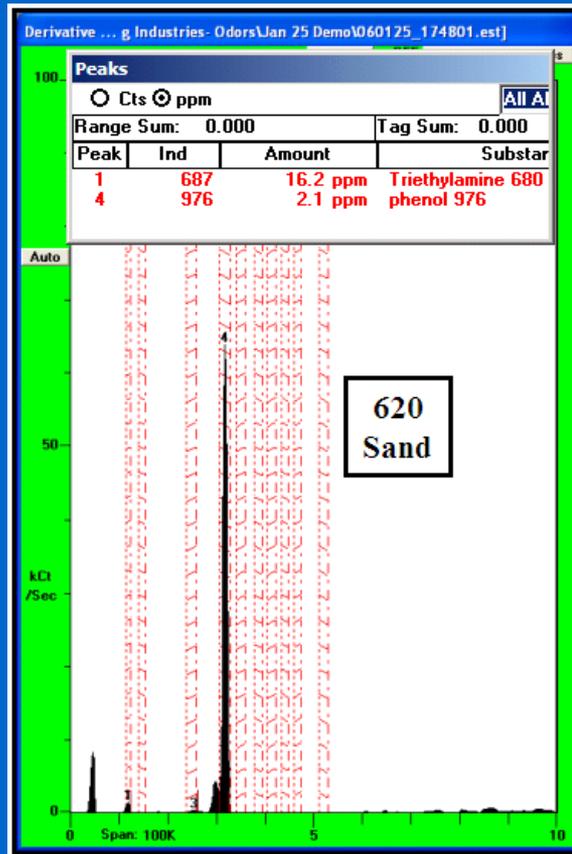
Foundry Analysis core measurements

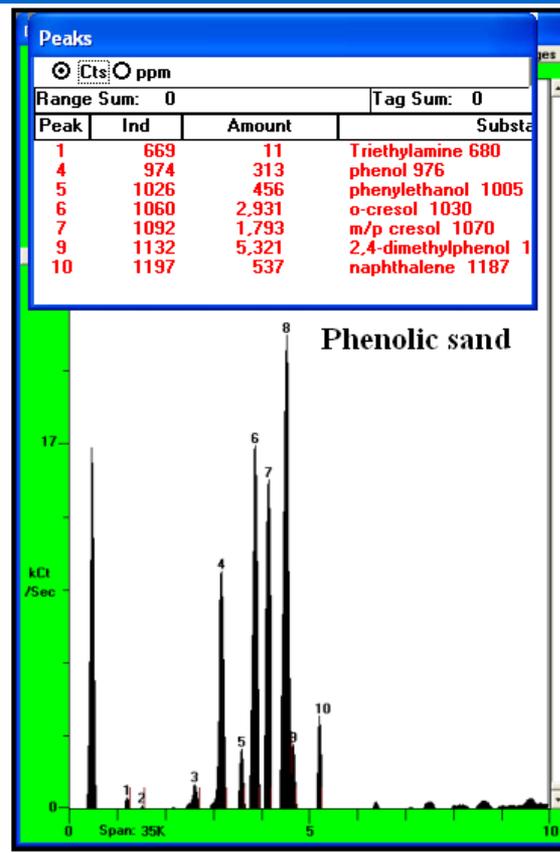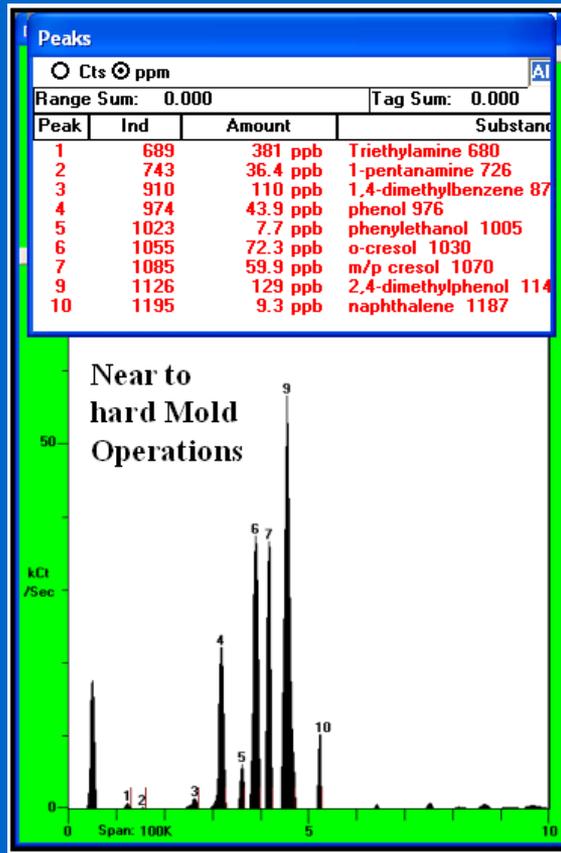# Foundry analysis near 620 Sand Molding Machine
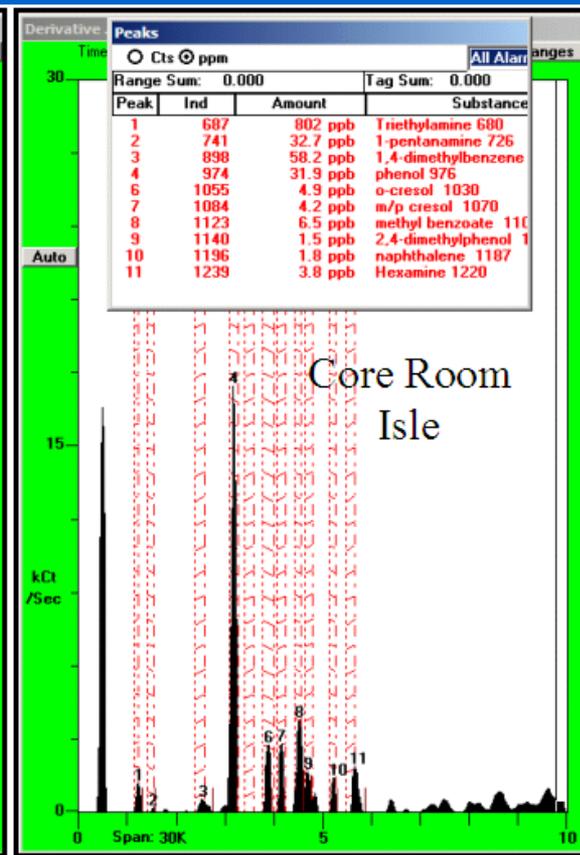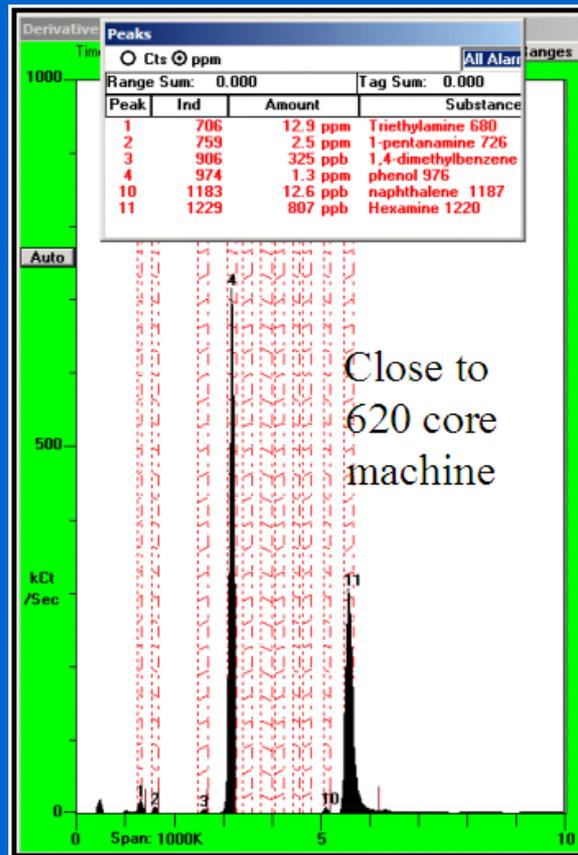
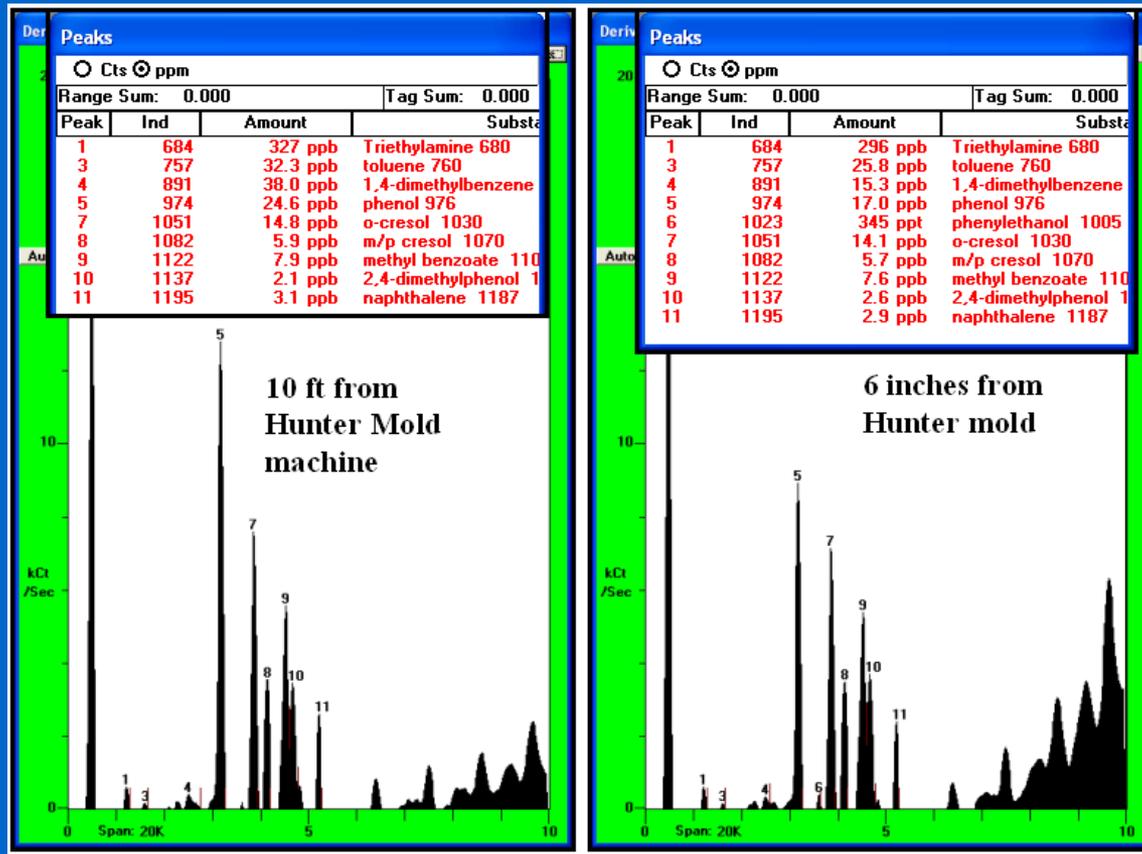# Foundry Analysis Odors near 740 sand machines
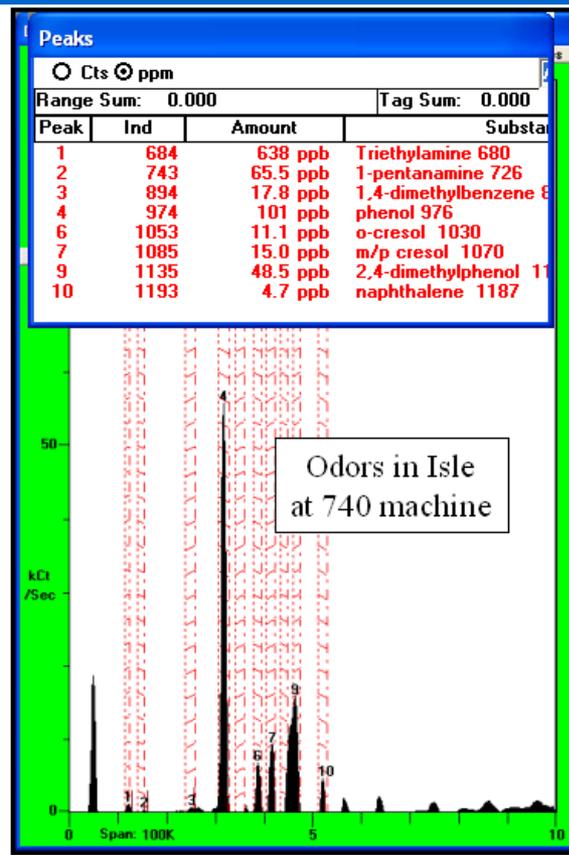
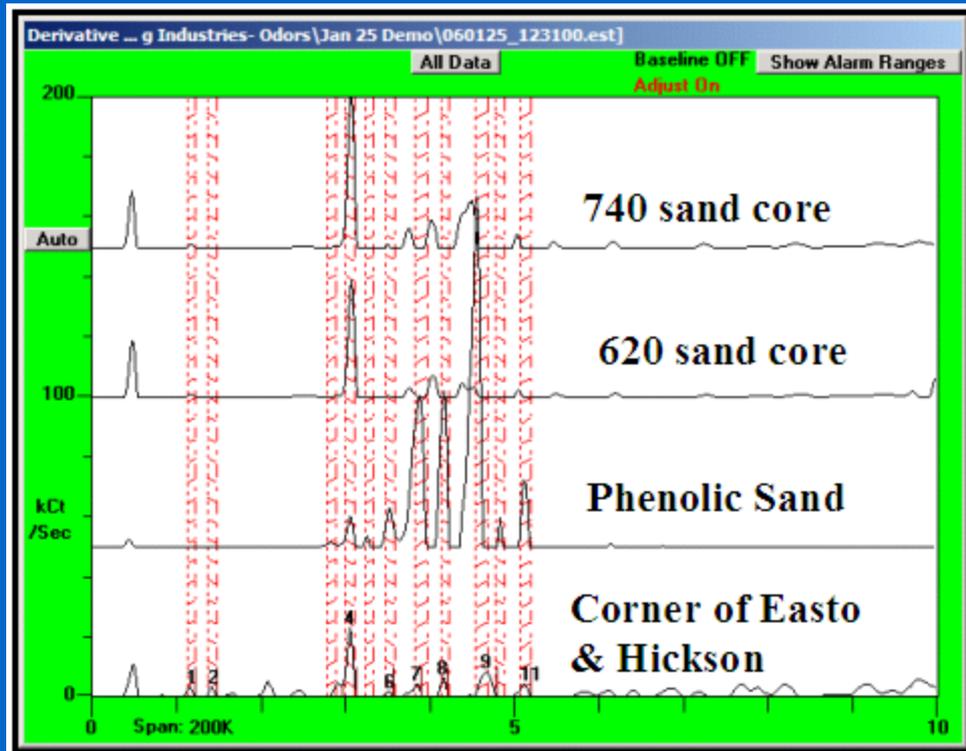# Foundry Analysis of 10 grams of sand from each location in 40 ml vial

Foundry Analysis ambient air near hard molding machine vs sand samples

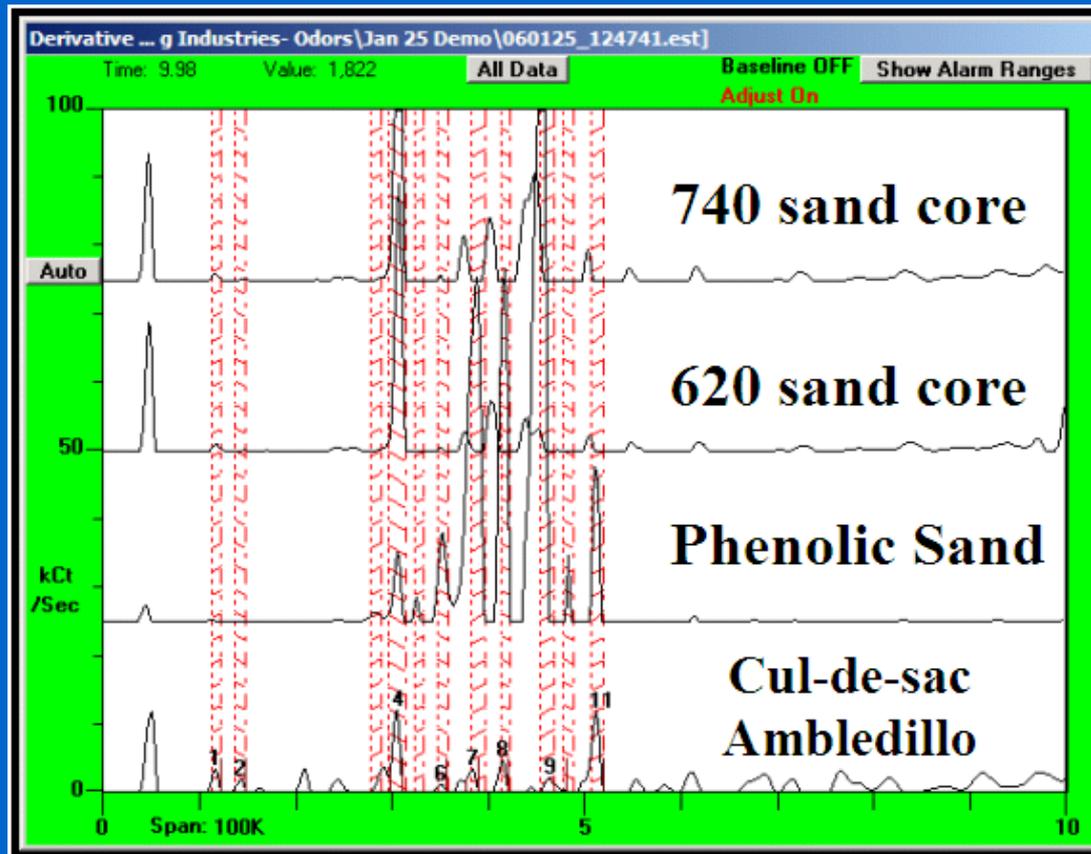# Foundry Analysis Hunter mold machine vs actual measurement near part
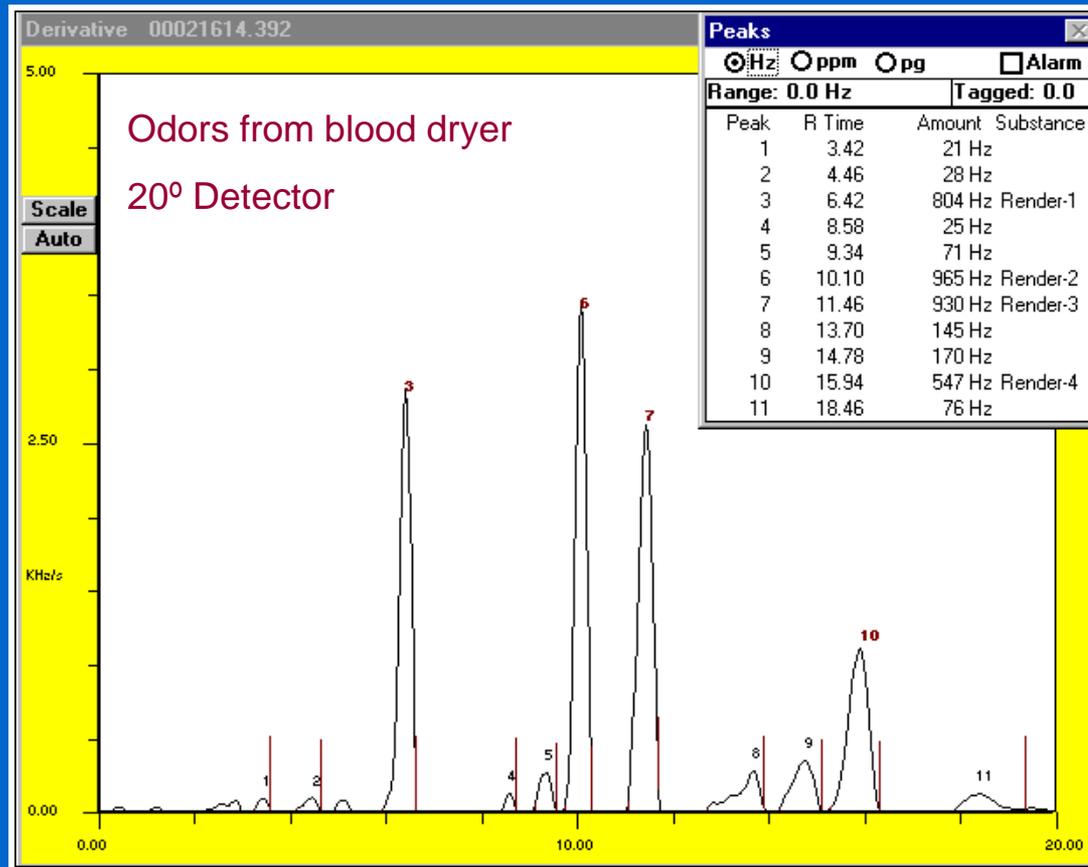
Foundry Analysis neighborhood measurements

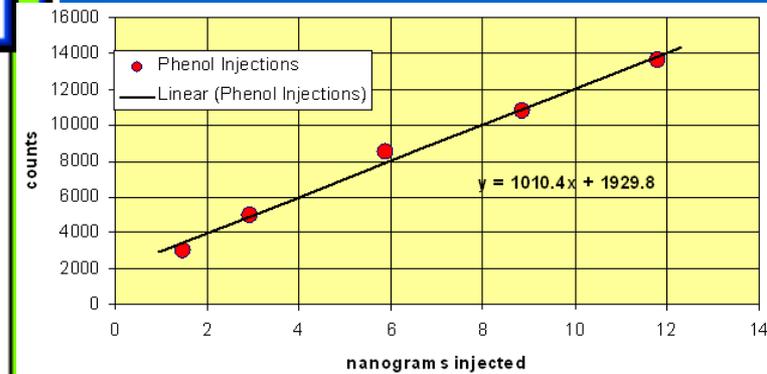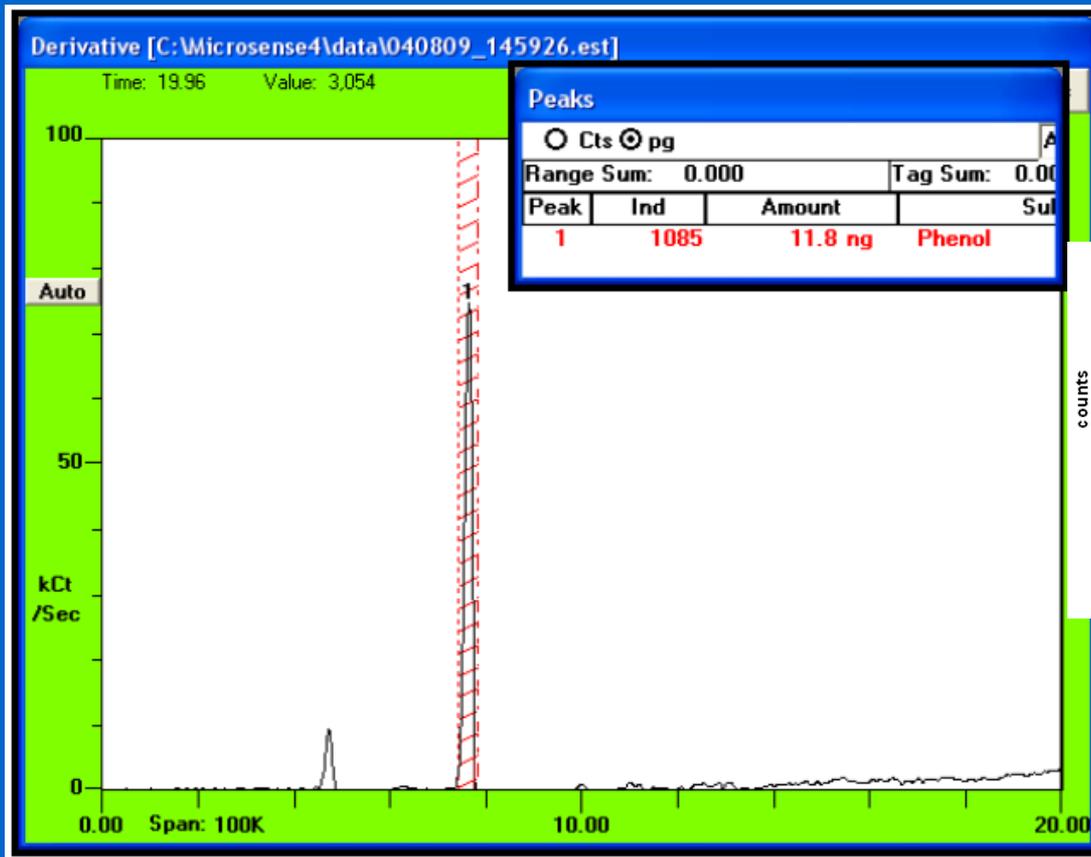# Foundry measurements in Cul-de-sac

Sample testing of a Rendering Plant

Smells from a Rendering Plant
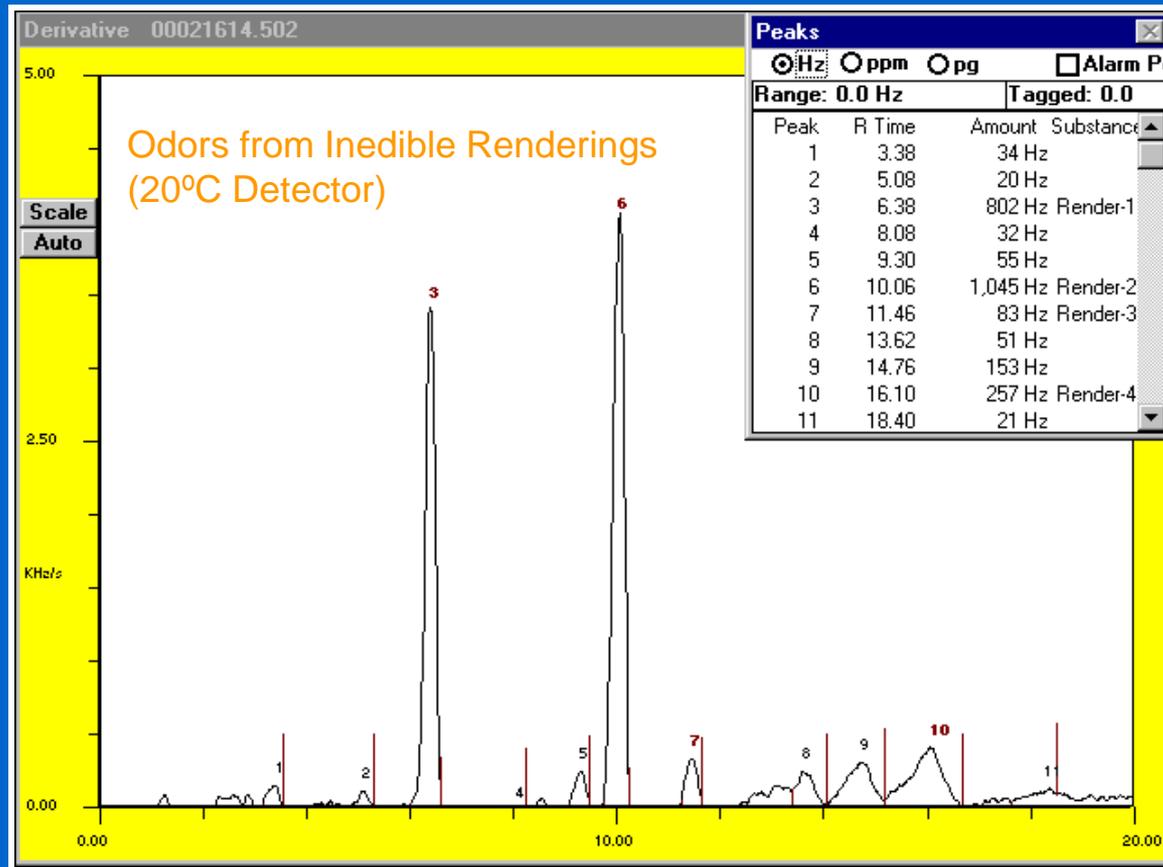
Phenol Analysis (MDL is estimated at 10 Picograms)

Other zNose® Applications and Conclusions

- Environmental - Air, Soil and Water
- Medical
- Security
- Personal care/Cosmetics
- Other life sciences
- Agriculture
- Food and Beverage Quality Control
- Conclusion – the zNose® has been used successfully in a wide range of applications