Presentation to Tobacco Science Research Conference

September 30, 2014

Altria

Altria Client Services

Passive Vaping Scientific Research

"Little is known about the environmental impact of e-cigarettes."

"A study evaluating the indoor air quality in other various locations (eg, *[sic]* car, home, office, school and public indoor areas such as transit stations) during and after e-cigarette use would provide important information about environmental impacts. This information should be collected using a representative sample of the e-cigarette products currently available."

Source: Hoshing Chang, Tobacco Control (2014), 23:ii54-ii58

Questions*

- What are the levels of e-vapor constituents in room-air where e-vapor products are used?
- What is the exposure to e-vapor constituents in non-users?

* All study participants are adult vapers 21+ or adult cigarette smokers 21+ who indicate an interest in e-cigarettes.

Sampling Strategy

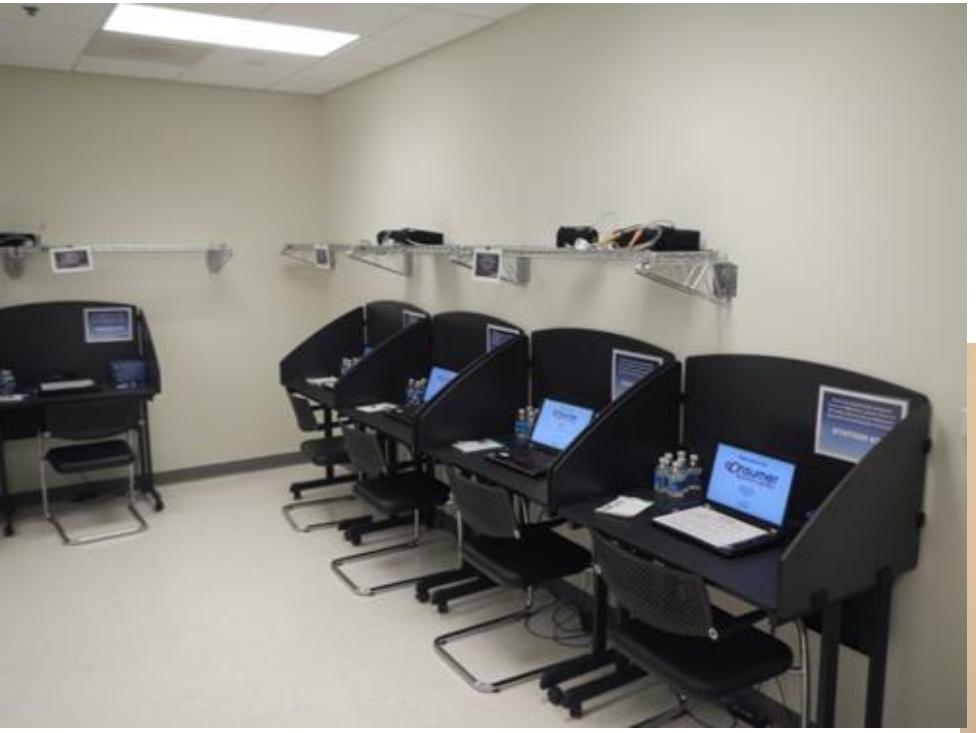
▪ Selected Chemicals - Nicotine - Propylene glycol - Glycerol (Glycerin) - Menthol - Total suspended particulates	▪ Direct reading measurements - Nicotine - Menthol - Ultra fine particle counter
▪ NIOSH Methods	▪ Active Samples - Selected chemicals

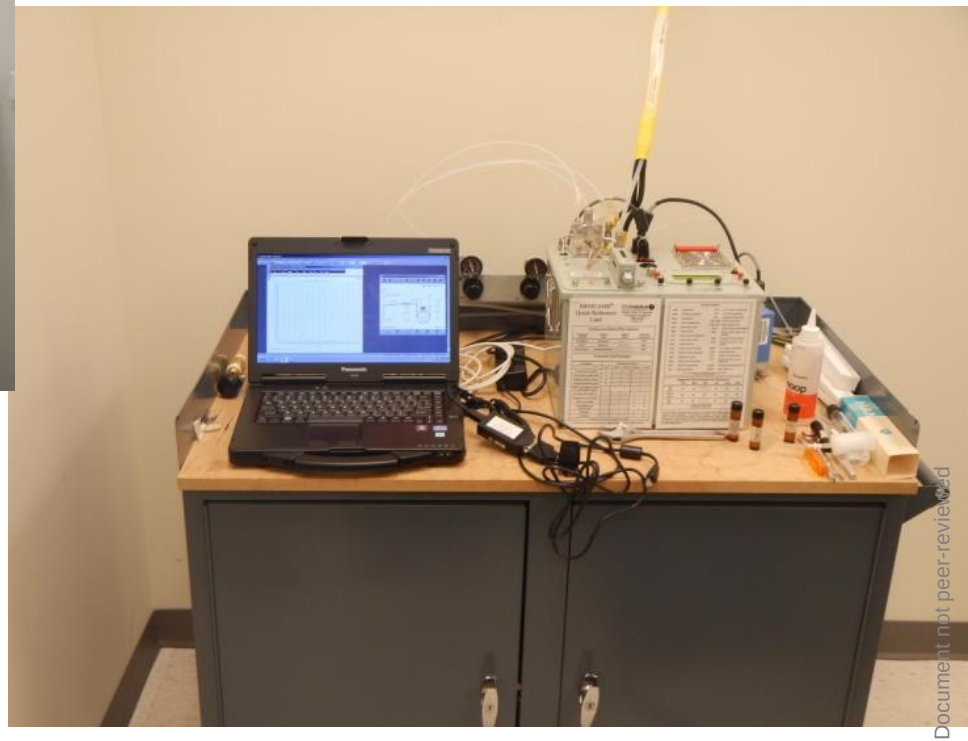
IH Pilot Study – Study Conduct

Timing						
Date	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8
Product Type	Baseline	Non-menthol	Menthol	Non-menthol	Menthol	Baseline
Timing	8 hour	12 hour	12 hour	12 hour	12 hour	8 hour
Sessions	NA	6	6	6	6	NA
Prototypes (Nu Mark)	None	BC 101 BC 235 BC 790	BC 203 BC 674 BC 819	BC 142 BC 307 BC 589	BC 415 BC 628 BC 739	None

- Participant Instruction – take up to 6 puffs before rating, use products consistently
- 4892 cubic foot volume
- 1.47 air changes per hour
- Three to twelve participants per session (total number of participants: 184)

Room and Equipment





Specific Results – Active Sampling

Results			Exposure limits mg/m3	Magnitude below limits†
Chemical	Detection Limit	Results		
Nicotine	0.015 mg/m^3	<0.015 mg/m^3	0.5 (0.25)	33 (16) times less than exposure limit*
Propylene Glycol	0.065 mg/m^3	<0.065 mg/m^3	10 (5)	153 (76) times less than exposure limit
Glycerol	0.077 mg/m^3	<0.077 mg/m^3	15 (7.5)	195 (97) times less than exposure limit
Menthol	0.18 mg/m^3	<0.18 mg/m^3	9.6 (4.8)	53 (26) times less than exposure limit
Total Suspended Particulates	0.153 mg/m^3	<0.153 mg/m^3	15 (7.5)	98 (49) times less than exposure limit

* Sources for exposure limits: OSHA, AIHA, Internal

† Based on Detection Limit ( ) Based on 12 hour exposure limit

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Specific Results – Direct Reading

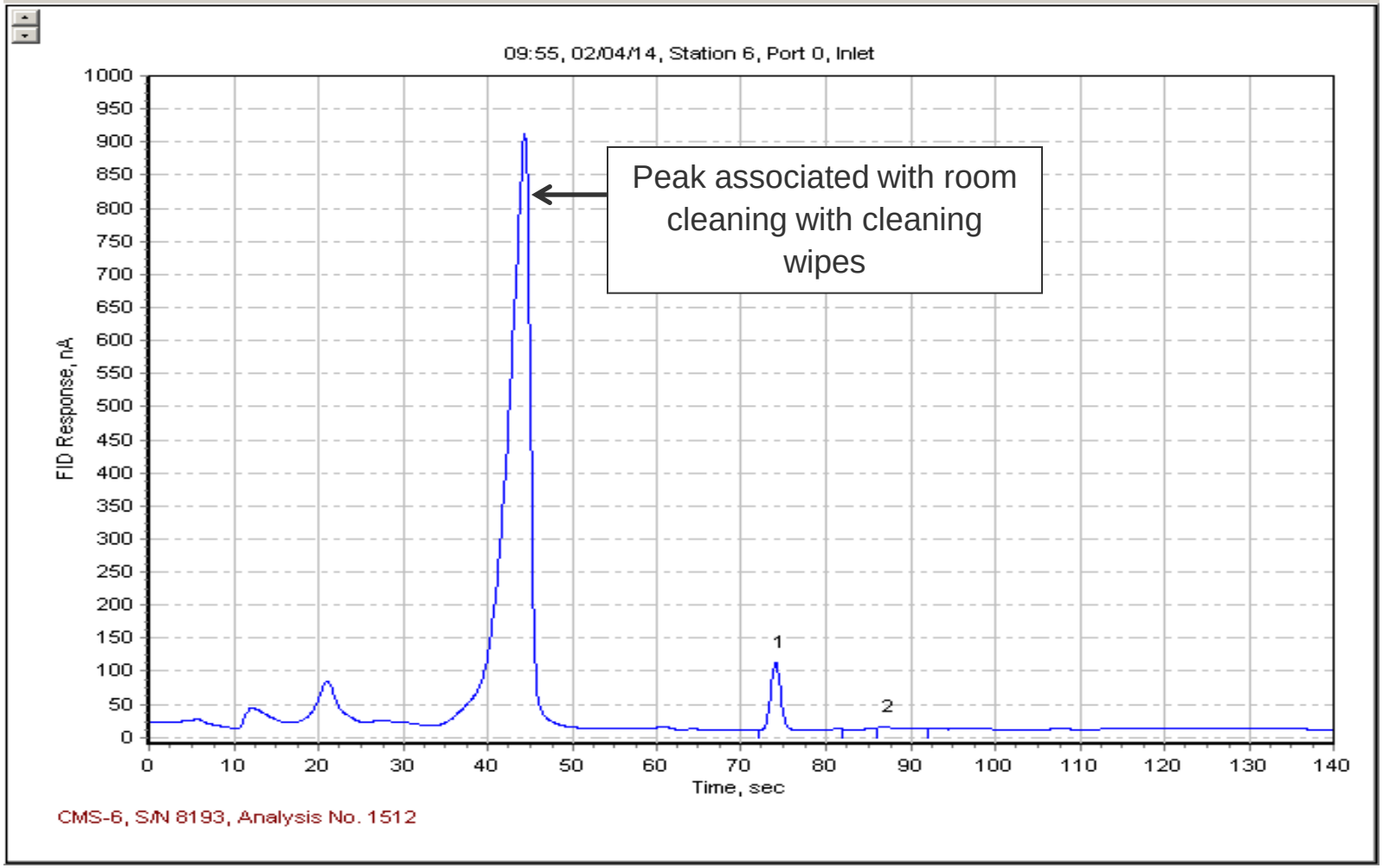
Summary of Direct Measurements using MiniCams® Portable Gas Chromatograph						
Result range for chemicals sampled milligrams per cubic meter of air (mg/m^3)						
Date	3 February Baseline	4 February Non-menthol	5 February Menthol	6 February Non-menthol	7 February Menthol	8 February Baseline
Nicotine	0.00 – 0.01	0.00 – 0.01	0.00 – 0.01	0.00 – 0.01	0.00 – 0.01	0.00 – 0.01
Menthol	0.00 – 0.02	0.01 – 0.25	0.00 – 0.30	0.00 – 0.30	0.00 – 0.26	0.00 – 0.01

Six sessions per day.

Individual samples collected every 320 seconds.

IH Pilot Study – Unanticipated Peak

No	Compd	MGM3	mg/m3	Height	Area	RT	Width	Det	Status
1	ML	0.09	0.0895	102	141	74.1	1.1	FID	RUN
2	NI	0.01	0.00566	3	7	86.8	1.4	FID	RUN



Conclusions

- All samples below applicable exposure limits
  - All constituents below limits of detection