

Supplementary Materials for:

Little Cigars, Filtered Cigars, and Their Carbonyl Delivery Relative to Cigarettes

Samantha M. Reilly, Ph.D.[†]; Reema Goel, Ph.D.[†]; Zachary Bitzer, Ph.D.[‡]; Ryan J. Elias, Ph.D.[‡]; Jonathan Foulds, Ph.D.[†]; Joshua Muscat, Ph.D.[†]; John P. Richie, Jr., Ph.D.^{†,*}

[†]Department of Public Health Sciences, Pennsylvania State University Tobacco Center of Regulatory Science (TCORS), Pennsylvania State University College of Medicine, Hershey, PA.

[‡]Department of Food Science, Pennsylvania State University, College of Agricultural Sciences, University Park, PA.

***Corresponding Author.** Department of Public Health Sciences, Pennsylvania State University Tobacco Center of Regulatory Science (TCORS), Pennsylvania State University College of Medicine, 500 University Dr. – Mail Code: CH69, Hershey, PA, USA 17033. Phone: 717-531-5381; E-mail: jrichie@psu.edu

Supplementary Table 1: Carbonyl Delivery of each product on a Per Puff Basis with Number of Puffs Given for the ISO Method

Product Type	Brand	Formaldehyde (µg/puff)	Acetaldehyde (µg/puff)	Acetone (µg/puff)	Acrolein (µg/puff)	Propionaldehyde (µg/puff)	Crotonaldehyde (µg/puff)	MEK (µg/puff)	Number of Puffs
Little Cigar	Captain Black Sweets	1.6 ± 0.1	75.0 ± 8.8	32.9 ± 4.3	6.7 ± 1.5	5.5 ± 0.6	1.2 ± 0.1	4.7 ± 0.4	12
	Winchester	1.1 ± 0.1	84.7 ± 1.2	41.2 ± 5.0	7.7 ± 0.2	5.8 ± 0.3	0.8 ± 0.1	5.1 ± 0.1	10
Filtered Cigar	Cheyenne	1.7 ± 0.1	58.3 ± 2.3	23.2 ± 1.0	4.3 ± 0.3	3.8 ± 0.5	1.5 ± 0.3	5.2 ± 0.6	16
	Criss Cross	1.3 ± 0.1	39.7 ± 4.4	23.3 ± 0.3	3.3 ± 1.0	2.4 ± 0.6	0.6 ± 0.1	3.3 ± 0.6	24
Cigarettes	3R4F	2.0 ± 0.1	50.4 ± 2.8	18.0 ± 1.1	5.4 ± 0.5	3.2 ± 0.1	0.2 ± 0.1	2.6 ± 0.1	9
	1R6F	2.5 ± 0.3	35.1 ± 0.8	11.8 ± 0.1	3.8 ± 0.2	2.2 ± 0.7	1.9 ± 0.1	1.9 ± 0.4	8

Supplementary Table 2: Carbonyl Delivery of each product on a Per Puff Basis with Number of Puffs Given for the HCI Method

Product Type	Brand	Formaldehyde (µg/puff)	Acetaldehyde (µg/puff)	Acetone (µg/puff)	Acrolein (µg/puff)	Propionaldehyde (µg/puff)	Crotonaldehyde (µg/puff)	MEK (µg/puff)	Number of Puffs
Little Cigar	Captain Black Sweets	5.5 ± 0.2	151.6 ± 5.5	73.9 ± 1.8	15.5 ± 0.7	11.3 ± 0.6	2.9 ± 0.4	11.0 ± 0.7	10
	Winchester	6.2 ± 1.6	204.1 ± 11.7	101.7 ± 1.5	21.9 ± 1.2	13.6 ± 0.7	4.5 ± 0.8	18.0 ± 4.2	9
Filtered Cigar	Cheyenne	2.5 ± 0.9	139.9 ± 4.7	62.5 ± 4.4	12.4 ± 1.0	9.9 ± 0.6	2.4 ± 0.1	10.1 ± 0.5	18
	Criss Cross	1.5 ± 0.1	115.3 ± 4.3	46.7 ± 2.0	9.3 ± 0.1	6.2 ± 0.4	1.9 ± 0.0	10.8 ± 0.6	18
Cigarettes	3R4F	5.4 ± 0.2	131.0 ± 11.8	50.6 ± 5.2	15.6 ± 1.2	8.9 ± 0.5	4.2 ± 1.2	12.0 ± 1.3	11
	1R6F	7.4 ± 0.5	119.9 ± 0.6	44.1 ± 0.5	15.0 ± 0.2	8.1 ± 0.5	4.0 ± 0.6	12.0 ± 2.8	9