

**Supplemental Table 1. Nicotine, Propylene Glycol, and Glycerol by Flavor and Condition.**

Condition	Flavor	mgNIC/gTob	%PG	mgPG/gTob	%Glycerol	mgGlycerol/gTob
+F+H	Apple	1.52 ± 0.04	1.58 ± 0.12	15.84 ± 1.45	15.54 ± 1.42	155.39 ± 17.34
+F+H	Double Apple	1.6 ± 0.05	0.83 ± 0.1	8.26 ± 1.23	22.96 ± 1.89	229.57 ± 23.09
+F+H	Lemon	1.73 ± 0.07	0 ± 0	0 ± 0	23.96 ± 0.62	239.57 ± 7.65
+F+H	Mandarin	2.22 ± 0.01	0 ± 0	0 ± 0	21.33 ± 1.01	213.29 ± 12.42
+F+H	Strawberry	1.83 ± 0.05	0.11 ± 0.01	1.11 ± 0.07	36.88 ± 0.61	368.79 ± 7.51
+F+H	Vanilla	2.07 ± 0.02	2.59 ± 0.16	25.95 ± 1.93	17.69 ± 1.37	176.86 ± 16.75
+F-H	Double Apple	2.36 ± 0.12	0.82 ± 0.09	8.2 ± 1.07	1.6 ± 0.14	15.99 ± 1.68
+F-H	Lemon	2.4 ± 0.1	0 ± 0	0 ± 0	24.13 ± 1.41	241.26 ± 17.29
+F-H	Mandarin	2.29 ± 0.22	0 ± 0	0 ± 0	1.97 ± 0.08	19.67 ± 1.03
+F-H	Strawberry	1.98 ± 0.17	0.03 ± 0	0.34 ± 0.04	21.87 ± 1.26	218.65 ± 15.41
+F-H	Vanilla	2.56 ± 0.15	0.29 ± 0.03	2.86 ± 0.42	1.6 ± 0.14	16.01 ± 1.76
-F+H	Zaghloul (US)	4.52 ± 0.2	0 ± 0	0 ± 0	4.01 ± 0.26	40.11 ± 3.22
-F-H	Zaghloul (Germany)	4.48 ± 0.17	0 ± 0	0 ± 0	2.19 ± 0.2	21.9 ± 2.48

Note: WT constituent analysis was conducted as follows: 0.4 g of the tobacco was soaked in 12 ml of concentrated NaOH (5N) to transform all protonated nicotine into the free base form; the latter was extracted with toluene multiple times to achieve maximum extraction, then an aliquot of the organic phase was run against hexadecane as internal standard using gas chromatography-mass spectrometry for quantification. For propylene glycol and glycerol, 0.5 g was soaked in 8ml methanol, and aliquot was analyzed on gas chromatography coupled to flame ionization detector. WT=waterpipe tobacco; NIC = nicotine; Tob = tobacco; PG = propylene glycol.