Supporting Information Table S-1: Summary of the physical design attributes and packaging for the 50 commercial cigarettes

Attributes	Ranges
Cigarette rod length (mm)	79.6 - 99.2 mm
Filter length (mm)	15 – 31.9 mm
Filter Ventilation (%)	0.13 – 66.6 %
Paper Porosity (CORESTA units)[a]	17.3 – 72.1 CU
Tobacco weight (mg)	401 – 880.7 mg/cigarette
Draw Resistance (open)(mmWG)[b]	7.7 – 136.2 mmWG
Draw Resistance (closed)(mmWG)[c]	10.1 – 194 mmWG
Tobacco pH	5.29 – 5.61
Flavoring	14 menthol, 36 non-menthol flavored
Length by Class	Kings (25), 100's (21), two Slims (2), and SS (one)[d]
Manufacturers (Number of cigarettes)	5 manufacturers: - RJ Reynolds (20), Phillip Morris International (22), Natural American, Spirit (1), Commonwealth Brands (1) and Lorillard (6).
Brands	35 brands, 50 cigarettes tested
Packaging	36 Hard (HP) and 14 Soft Pack (SP)

[a] CORESTA Units (CU) – measure of air flow(cc/min) passing through a $1cm^3$ test paper at 1.0 kPa pressure; [b] Draw Resistance-Pressure drop determined under ISO smoking conditions, (mmWG, millimeter of water gauge); [c] Draw Resistance-Pressure drop determined under CI smoking conditions; [d] SS, Super Slims

Supporting information Table S-2: Correlation coefficient (r) for associations of individual and total TSNA amounts in unburned tobacco of commercial cigarettes. Lower and upper 95% confidence limits are shown in parenthesis.

TSNAs	NNK	NAB	NAT	NNN	Total
NNK	1				
NAB	**0.705** (0.51, 0.83)				
NAT	**0.375** (0.05, 0.60)	**0.79** (0.61, 0.90)			
NNN	**0.38** (0.10, 0.61)	**0.72** (0.49, 0.86)	**0.646** (0.38, 0.84)		
Total	**0.68** (0.48, 0.81)	**0.94** (0.88, 0.97)	**0.847** (0.70, 0.93)	**0.826** (0.65, 0.94)	1

NNK, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone; NAB, N-nitrosoanabasine; NAT, N-nitrosoanatabine; and NNN, N-nitrosonornicotine; Total, (Sum of NNK, NAB, NAT, and NNN) (ng/cigarette)

Supporting information Table S-3: Correlation coefficient (r) for associations of individual and total TSNAs in smoke by the ISO machine-smoking regimen. Lower and upper 95% confidence limits are shown in parenthesis.
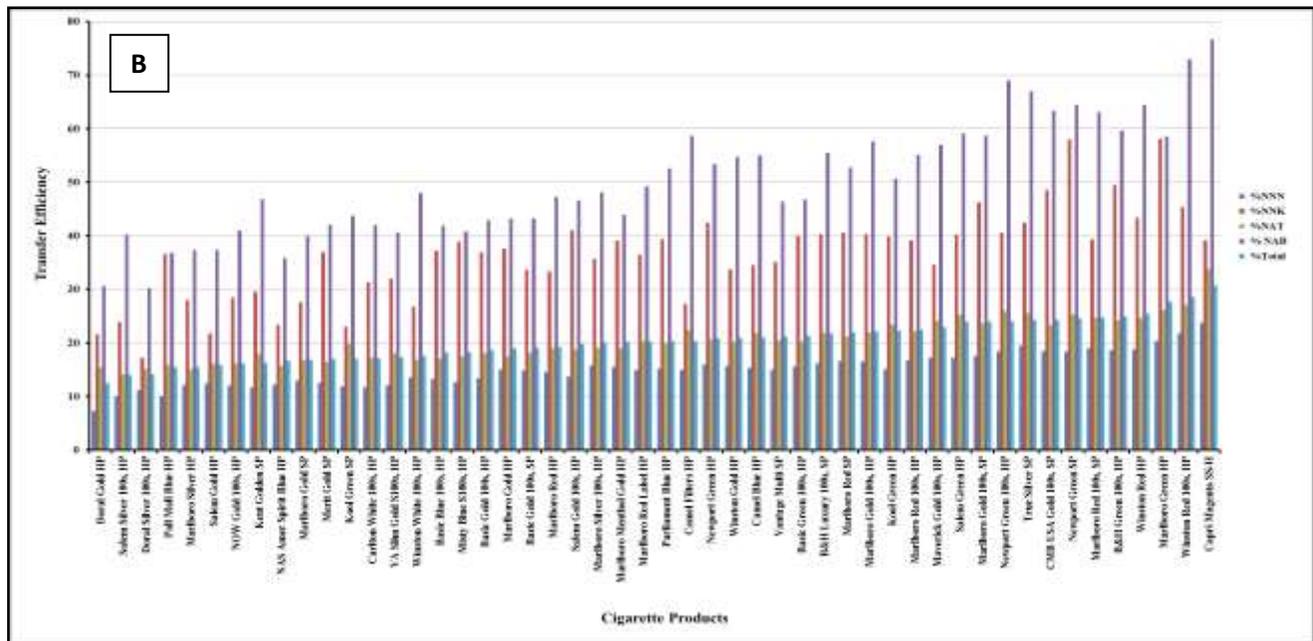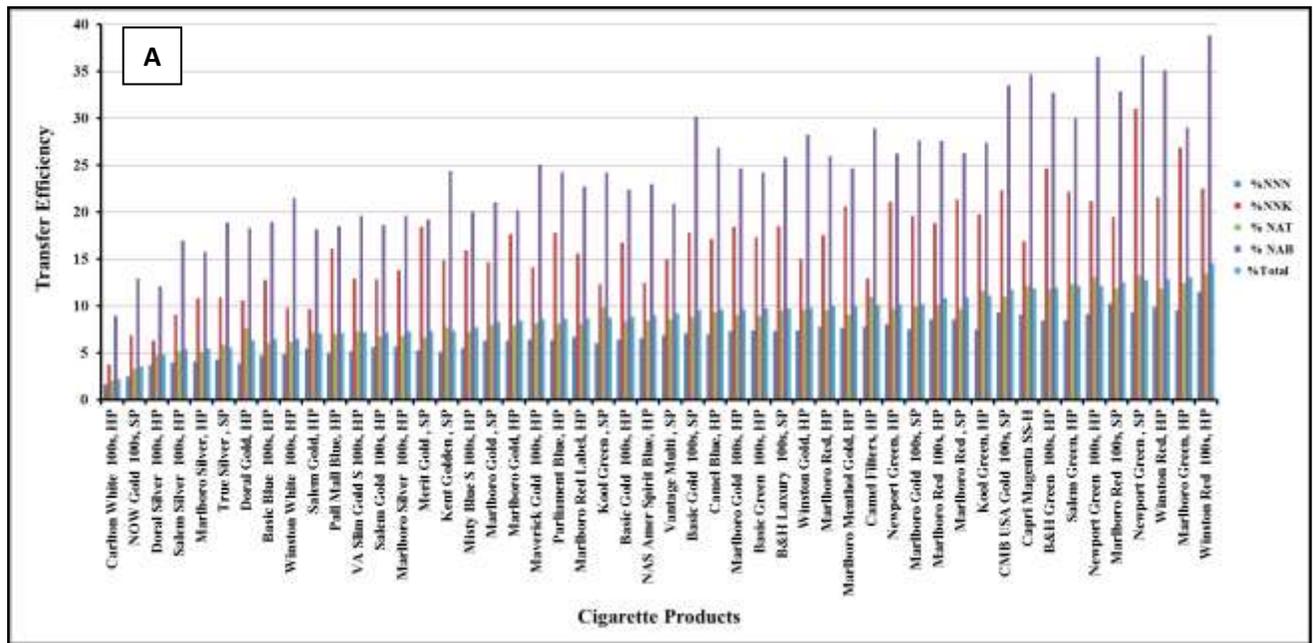
TSNAs	NNK	NAB	NAT	NNN	Total
NNK	1				
NAB	**0.88** (0.77, 0.94)				
NAT	**0.86** (0.73, 0.92)	**0.933** (0.87, 0.96)			
NNN	**0.87** (0.94, 0.94)	**0.956** (0.91, 0.97)	**0.949** (0.89, 0.97)		
Total	**0.928** (0.84, 0.96)	**0.968** (0.93, 0.98)	**0.965** (0.92, 0.98)	**0.987** (0.97, 0.99)	1

Where, NNK, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone; NAB, N-nitrosoanabasine; NAT, N-nitrosoanatabine; and NNN, N-nitrosonornicotine; Total, (Sum of NNK, NAB, NAT, and NNN) (ng/cigarette)

Supporting information Table S-4: Correlation matrix showing Spearman Correlation Coefficients (r) and 95% confidence intervals for r in parenthesis between individual and total TSNAs in smoke produced by the Canadian intense smoking regimen

TSNAs	NNK	NAB	NAT	NNN	Total
NNK	1				
NAB	**0.647** (0.41, 0.82)				
NAT	**0.614** (0.38, 0.78)	**0.926** (0.85, 0.96)			
NNN	**0.592** (0.36, 0.79)	**0.936** (0.88, 0.96)	**0.920** (0.84, 0.95)		
Total	**0.748** (0.54, 0.87)	**0.955** (0.91, 0.98)	**0.956** (0.91, 0.97)	**0.958** (0.92, 0.98)	1

NNK, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone; NAB, N-nitrosoanabasine; NAT, N-nitrosoanatabine; and NNN, N-nitrosonornicotine; Total TSNAs, (Sum of NNK, NAB, NAT, and NNN) (ng/cigarette)

Supporting information Figure S-1. Transfer efficiency (%) of TSNAs from tobacco filler to mainstream smoke under (A) ISO and (B) CI machine-smoking regimens. All cigarette products are rank ordered from lowest to highest total TSNA transfer Efficiency (%). Transfer Efficiency (%) =100 x [Smoke TSNA amounts (ng/cigarette)/Filler TSNA amounts (ng/cigarette)]