Supplementary Table 1: Truth Tobacco Industry Document studies describing a discrimination threshold of noticeable sensory differences

#	Category	Noticeable difference/ Discrimination data	Study type	Participants	Cigarette/market	Characteristics	Notes	Year and company	Source (#id)
1	ventilation	SD 55 vs 69, 69 vs 74 % (see PD)	PC	CP	ULT smokers	vent 55, PD 5.0; vent 69, PD 3.9; vent 74, PD 2.8	ventilation and PD moved in parallel; "it appears it is possible to optimize a product by making various diluted/PD ratios available on the same blend"	1983/PM	mgvj0037
2	ventilation	SD 26 vs 39, 39 vs 56 % (see PD)	PC	CP	ULT smokers	vent 26, PD 7.9; vent 39, PD 5.3; vent 56, PD 3.5	ventilation and PD moved in parallel; "it appears it is possible to optimize a product by making various diluted/PD ratios available on the same blend"	1983/PM	mgvj0037
3	ventilation	SD 0 vs 12, 12 vs 21 % (FF only) NSD 12 vs 21 (LT only), 0 vs 12 %	PC	CP	10-15 mg smokers; 15+	vent 0, PD 4.3; vent 12, PD 3.4; vent 21, PD 3.1	(further analysis of prior study); PD more important for LT smokers	1983/PM	mgvj0037
4	ventilation	NSD across all pairs 18 vs 30, 30 vs 35, 18 vs 35 %	PC	CP	LT smokers	vent 18, PD 4.1; vent 30, PD 3.5; vent 35, PD 2.9	ventilation and PD moved in parallel	1982/PM	gsxd0122, mgvj0037
5	ventilation	SD 0 vs 12, 12 vs 21 % (Winston smokers only, NSD Marlb smokers)	PC	CP	FF smokers	vent 0, PD 4.3; vent 12, PD 3.4; vent 21, PD 3.1	ventilation and PD moved in parallel	1982/PM	trxd0122, mgvj0037
6	ventilation	SD 0 vs 25, 0 vs 35 % NSD 30 vs 40, 25 vs 30 %	PC	EP	FF smokers; LT smokers	vent 0, 25, 30, 35, 40		1994/RJR	ksld0224
7	ventilation	SD acceptance at 12, discrim at between 6-12 %	MC, FA	CP	5-7 mg tar (ULT) smokers	vent 36, 39, 44, 46, 49, 55, 59 (tar reduced from 7.3-4.5)	12% difference equivalent to 1.5 mg tar; recommend expanding control limits to at least 6%	1982/RJR	fgkc0094
8	ventilation	SD 35 vs 55 % NSD 40 vs 50 % (imputed)	MC, FA	CP	5-7 mg tar (ULT) smokers	vent 36, 39, 44, 46, 49, 55, 59 (tar reduced from 7.3-4.5)	new control limits set based on findings	1984/RJR	ktcp0018
9	ventilation	SD (small) 15 vs 30, 0 vs 15; SD (strong) 0 vs 30 %	MC, FA	EP	Winston FF prototypes	vent 0, 15, 30 (and fines 0-30)		1987/RJR	xjmw0011
10	ventilation	SD 29 vs 36, 36 vs 41, 31 vs 41 % NSD 31 vs 34, 34 vs 36 %	PC	EP	LT prototypes	vent 30, 32, 34, 36, 41; PD 110, 118	10% ventilation change = change perception PD	2000/RJR	lglw0186
11	ventilation	SD 12 vs 29, 11 vs 25 %	PC	EP	FF, LT prototypes	vent 0, 10, 30 (PD constant)	[other variables effect perception of ventilation]	1988/BW	fzgh0045
12	ventilation	NSD 0 vs 10 %	PC	CP	Marlb FF smokers, FF smokers	vent 0, 10		1977/PM	fxvx0124
13	ventilation	SD 0 vs 22 %	PC	CP	Marlb FF smokers, FF smokers	vent 0, 22; additional flavor (top dressing)	SD despite offset with increased flavor	1979/PM	fqwh0045
14	ventilation	SD 0 vs 12 % (reduces impact and irritation)	PC	EP	vent, PD, permeability paired high/low configs	vent 0, 12	"minimal change in impact and irritation... is best achieved by slight modifications in 2 or 3 design parameters as opposed to an extreme change in a single design feature"; ventilation and PD offset each other in perception	1980/BAT	hfnx0203
15	ventilation	SD perception 45 vs 75 and 30 vs 58 % control	PC	EP	Ares prototype, so no filtration	vent 30, 45, 58, 75	changes in perception include impact, body, irritation	1983/BW	mhjy0136
16	ventilation	SD in strength, impact, and harshness 16 and 35 % NSD acceptance 16, 23, 35 %	MC, FA	CP	LT smokers	vent 16, 23 35; filter PD 84, 97, 114	also paired effects of ventilation and filter PD	1991/RJR	yygp0097
17	ventilation	NSD 30 vs 40 %	PC	EP	LT prototypes	vent 30, 40, "benchmark" (unidentified)		1994/RJR	msld0224
18	ventilation	NSD 15 vs 20 % (isolated from other variables)	MC, FA	CP	FF Marlb smokers	vent 15, 20; filter PD 100, 115; Camel/Dakota blends	dilution paired with PD, blend	1990/RJR	fxyg0100
19	ventilation	SD in strength and impact 0 vs 15 % NSD 0 vs 10 %	PC	EP	LT prototypes	vent 0, 10, 15	other parameters apear to be constant	1995/RJR	qpby0231, mfvy0231
20	ventilation	SD 50 % ventilation/high PD (lowest preference) NSD 25 and 0 %	MC	EP	LT prototypes	vent 0, 25, 51; PD 4.7, 4.4, 1.6; tar ~10.5 mg	if tar is held constant, PD becomes important. NSD - minor differences… "very equal in taste and preference"	1974/PM	fyjy0042
21	ventilation	SD 0 vs 25 % in taste and acceptability (when PD held constant)	PC	EP	LT prototypes	vent 10, 25; PD 145 mm; tar ~12 mg		1990/BAT	zkdh0135, ygvj0037
22	ventilation	1% increase = 0.01 decrease acceptance and up to 0.05 decrease in sensory measures; noticeable around 0.5-0.7 (~10-12%)	MC, PC, FA	EP	Virg LT prototypes	vent <37.5 to >49.6%; PD 100 to 131 mm	estimates effect sizes of vent changes independent of other variables [implies around 10% threshold]	1983/BAT	msxx0203
23	ventilation	SD in impact emerge around 10 % (38 vs 48); strong differences above 12 % (>50 vs 38) NSD < 10 %	MC, PC, FA	EP	Virg LT prototypes	vent <37.5 to >49.6%; PD 100 to 131 mm	measured (paired) sensory effect differences	1983/BAT	msxx0203
24	ventilation	limited SD 35 vs 45, 0 vs 10 % NSD 15% vs 30%	MC, FA	CP	FF/ LT/ ULT prototypes	filter PD 83, 103, 123; vent 0, 15, 35, 50, 65; resulting in set of products with PD, tar, nic, and t/n at various levels	resulting in products with cigarette filter pd, tar, nicotine, and t/n at various levels; acceptance was mainly a function of air dilution	1985/RJR	hlky0097
1	pressure drop	SD discrimination dependent on behavioral differences	PC	EP	LT prototypes	vent 39, 51, 67, 73, 78; also varied filter efficiency (38-65); tar 4.9-7.7 mg	NSD for products with = tar when puff behaviors held constant; Smoker perception of a cigarette influenced by PD more than by difference in delivery	1981/RJR	mjvf0098
2	pressure drop	NSD 100 vs 115 mm (isolated from other variables)	MC, FA	CP	FF Marlb smokers	vent 15, 20; filter PD 100, 115; Camel/Dakota blends	dilution paired with PD, blend	1990/RJR	fxyg0100
3	pressure drop	NSD perception 7.8 vs 12.6 mm (but increased effort)	MC	CP	FF smokers	PD 7.8, 8.8, 10.6, 12.6	(also evidence for compensation)	1987/BAT	pnlj0213, ygvj0037
4	pressure drop	SD draw perception at 113 mm NSD 73 vs 53 mm	MC	CP	random recruitment	PD 113, 73, 53 (closed filter PD 86, 54, 29); tar constant ~10 mg		1984/BAT	ygvj0037
5	pressure drop	NSD perception 135 vs 95 mm irritation/impact	MC	CP	random recruitment	PD 135, 95; vent 43, 66; tar constant ~9 mg		1990/BAT	ygvj0037
6	pressure drop	1mm increase= 0.01 decrease acceptance and up to 0.02 decrease in other sensory; noticeable is around 0.5-0.7 (~25-35 mm)	MC, PC, FA	EP	Virg LT prototypes	vent <37.5 to >49.6%; PD 100 to 131	estimates effect sizes of PD changes independent of other variables [implies around 25mm threshold]	1983/BAT	msxx0203
7	pressure drop	SD 25 mm (95-120) flavor and mouthfeel; 30 mm (125-95)mouthfeel and impact; SD 20 mm (110-130) mouthfeel and effort NSD 15 mm (100-115)	MC, PC, FA	EP	Virg LT prototypes	vent <37.5 to >49.6%; PD 100 to 131	measured (paired) sensory effect differences	1983/BAT	msxx0203
8	pressure drop	SD perception 3.9-4.6 mm NSD 4.6-4.8 mm	R	EP	Viceroy and Marlb prototypes	PD 3.9, 4.6, 4.8	findings from 1977 BW study; pressure drop main source of discrimination	1981/BAT	rglj0199
9	pressure drop	SD perception and behavior 16-23 mm change (from 123 control) NSD for 11 mm change	PC	EP	FF prototypes	PD 100, 113, 123, 140 (modified by tobacco tob wt/dens); tar 15-17 mg	sensory changes in impact and not flavor	1991/BAT	khpy0194
10	pressure drop	SD 124 to 141 perceived draw but no other sensory; SD perceived draw 124 to 101 mm NSD PD 124 to 113 mm	PC	EP	FF prototypes	PD 114, 124, 125, 138 (modified by tobacco tob wt/dens); tar 15-17 mg	PD changes influenced smoking mechanics but had little effect on sensory intensities	1994/BAT	grdb0172
11	pressure drop	SD with increase of 16 or decrease of 23 mm from control NSD perception when PD reduced 11 mm	PC, FA	EP	FF prototypes	PD 101, 113, 124, 141 (modified by tobacco tob wt/dens); tar 15-17 mg	PD changes influenced smoking mechanics but had little effect on sensory intensities	1992/BAT	gncp0213, grdb0172
12	pressure drop	-	R	-			sensory effects of PD are variable; lower PD reduces acceptance in LT but increases acceptance in ULT products	1992/BAT	ygvj0037
13	pressure drop	-	TA	CP	Marlb FF/ Marlb LT smokers	PD 4.3, vent 68; PD 6.3, vent 50	PD changes smoking behavior, altering perceptions; 0.5 in reduction in PD = volume increase of 6-8%; ET necessary to offset dilution	1975/PM	txkj0191
1	cigarette length	No outcomes measured (99.5, 99, 98.5 all standardized to 98; 84 standardized to 83 mm)	IM		all products	circ 99.5, 99, 98.5, 98; circ 84, 83; modeling indicates tob wt from 0.859 to 0.846; from 0.751 to 0.739	cost control measure (allows weight reduction)	2000/PM	nldx0219, xmwn0152
2	cigarette length	production control limits 1 mm for both 99.5, 98.5	IM		all products	circ 99.5, 99, 98.5, 98	[no concerns re: perception]; cost control measure (allows weight reduction)	1999/PM	jqxl0162
3	cigarette length	100 to 99 mm considered	IM		all products	circ 100, 99	[no concerns re: perception]; cost control measure	1992/Ame	fgpn0145
1	filter length	NSD 1-3 mm filter length increase	R	EP	FF and LTS	Flength (only change identified: 1 mm (for King), 3 mm (for 100s, paired to tipping increases))	Flength increase instituted across all brands (cost reduction); "will not have a significant impact on taste/smoking qualities as long as the relative draft remains the same"	1980/RJR	nrpm0095
2	filter length	SD sensory 2 mm increase NSD perception 25 vs 26, 27.5 to 31, acceptance 23 to 27 mm	R, MC, TD	CP	FF, LT, ULT products	Flength 31, 27.5; Flength 26, 25; Flength 27, 23	Flength "minimal effect on overall acceptability"	1997/RJR	lqmd0230
3	filter length	NSD increase 27.5 vs 31 mm (some sensory (taste) difference in LT in specific subsets of smokers)	PC, TD	CP	4 LT/ULT 100 products	Flength 31, 27.5	Flengths can be increased without affecting consumer acceptance	1984/RJR	ntpy0093, fyvj0149
4	filter length	NSD acceptance 25 vs 27 mm, but SD in perception (taste/ satisfaction)	PC	CP	Merit M and FF	Flength 25, 27; (wt/other changes not specified)	recommend increase in length	1981/PM	hlyj0119
5	filter length	NSD 13 vs 15, 13 vs 17, 15 vs 17 mm	PC	CP	Viceroy	Flength 13, 15, 17	very early study; smokers could not discriminate across lengths	1957/BW	mhgg0138
6	filter length	NSD 25 vs 26 mm	TD	CP	LT/ UL	Flength 25, 26	cost savings measure; "the consumer is not able to discriminate"	1982/RJR	kspl0184
7	filter length	NSD 25 vs 27 mm	PC	CP	Bright (LT)	Flength 25, 27		1983/RJR	lxkk0096, fxdb0019
8	filter length	NSD 25 vs 27.5 mm (LT smokers)	PC	CP	Merit/ LT smokers	Flength 25 and 27.5; tob wt 0.713, 0.678 g	no preference differences; possible sensory differences (spicy, sweet) among Merit smokers	1979/PM	jkkd0122
9	filter length	NSD 25 vs 27 mm (FF and LT smokers)	PC	CP	Marlb LT/ FF/ LT smokers	Flength 25 and 27; tob wt and dens differences	no preference or sensory differences, FF or LT smokers	1979/PM	njyv0119
1	circumference	SD 23 vs 25 mm (visual and touch + sensory) NSD 24 vs 25, 25 vs 26 mm	PC	MI	85 mm, white tipped, 9 mg,	circ 22, 23, 24, 25, 26	circ study	1983/PM	sknj0045
2	circumference	NSD perception circ reduced 25 to 24.75/24.8 mm	R	CP, EP	FF and LTS	circ 25, 24.75, 24.8	circ reduction instituted across all brands (cost reduction); "change will not have a significant impact on the taste of smoking qualities of RJR products"	1980/RJR	nrpm0095
3	circumference	NSD perception 24.8 vs 24.5 mm	MC, FA	EP	Salem FF 100	circ 24.8 vs 24.5	"minor perceptual difference", recommends implementation	1997/RJR	kldv0186
4	circumference	no outcomes measured (24.8 to either 24.7 or 24.6 mm considered)	IM		all products	circ 24.8, 24.7, 24.6	[implementation and outcomes?]; cost control measure (allows weight reduction)	2000/PM	nldx0219
1	tobacco weight	SD (enhanced smoothness) at 0.1 g (16% increase) NSD at 0.05 g (8%);	-	FP	Camel Light prototypes	tob wt 0.64, 0.69, 0.74, 0.81 g (modified by RT)	[limited details]	1992/RJR	qrpd0095
2	tobacco weight	SD 8% increase for firmness, burn rate NSD 4% reduction (30 mg)	PC	EP	LT prototypes	tob wt 0.73 g control, 0.70, 0.67, 0.62	Tob wt decreases of 8% (or more)= perceptual rod firmness and lit resistance decrease, and perceptual smoke concentration and burn rate increase	1992/RJR	kkmx0084
3	tobacco weight	SD control-50, control-30 mg in harshness/impact NSD control+50 mg	MC, FA	AP	Marlb, FF, LT smokers	tob wt 750 control, 850, 800, 720, 700, 650	"results suggest that panelists are able to discriminate subjective differences beginning at a Tob wt reduction of 30 mg"	1995/PM	jmgy0082
4	tobacco weight	SD at 50 mg 6 of 10 sensory attributes NSD at 25 mg	PC	EP	FF prototypes	tob wt 720, 745, 770, 795, 820 mg; tar ~15-16	linear difference, not tipping point; also find sequence effects; "hesitant to recommend 25 mg weight reduction in single step"	1995/PM	mqnp0217
5	tobacco weight	strong SD by puff 6 NSD in earlier puffs for -30 or +50 mg	MC, FA	EP	Marlb prototypes	tob wt 750 control, 850, 800, 720, 700, 650	assess individual puffs rather than whole cigarette	1995/PM	shml0055
6	tobacco weight	SD sensory at 30 mg and above including harshness, character, liking	MC, PC, FA	EP	Marlb prototypes	tob wt 750 control, 850, 800, 720, 700, 650	"A weight reduction of 30 mg was sufficient to produce statistically significant differences ($p < 0.05$) relative to the control weight cigarette for ratings of hot, harsh, peppery and liking."	1995/PM	msmp0043
7	tobacco weight	SD across various other weights NSD 0.95 vs 0.976, 0.882 vs 0.848	MC, FA	EP	FF M prototypes	tob wt 0.848, 0.882, 0.926, 0.976, 1.031 g (control 0.95 g)	more perceptual differences in NM study; possible that menthol masked perceptual differences	1992/RJR	xtlw0011
8	tobacco weight	NSD 1.33 vs all other configurations = NSD +-0.04 g or 3% wt	MC, PC, FA	EP	FF prototypes	cig wt 1.29, 1.31, 1.33, 1.35, 1.37 g	"what difference from target weight elicits perceptual difference"	1995/RJR	rmfb0227
9	tobacco weight	NSD perception tob weight 0.734 to 0.715 g	PC	CP	Marlb FF	tob wt 0.715, 0.734 (through changes in RT)	reduced weight achieved through changes in blend	1986/PM	gnck0022
10	tobacco weight	SD weight reduction 12% NSD weight reduction 6%	MC	CP	all products	exp tob for weight reduction	cost reduction initiatives	1994/RJR	fxvc0089
1	density	SD perception at 7% difference/0.02 g/cc (smallest unit measured); (strong difference at 0.04)	MC, FA	EP	Camel Light, 8 mg tar	dens 0.23, 0.25, 0.27, 0.29, 0.31; tob wt 0.64, 0.7, 0.75, 0.81, 0.87; vent 29, 31, 33, 36, 39; tar ~8	air dilution rose from 29-39%	1985/RJR	qjlc0087, qlyx0095
2	density	SD ~15 mg (in most cases) NSD sensory measures 230 vs 243 mg	MC, FA	EP	FF prototypes	dens 217, 232, 247, 262, 277 mg; variable tob wt	shared draw, differences in taste, impact, irritation	1985/BW	jjlg0135
1	tobacco blend	SD perception	MC, PC	CP	LT/ ULT	leaf quality changes (e.g. lugs vs tips) up to 10%	inconsistent effects of moderate blend changes; in blind studies "smoker do recognize their own brand and tend to rate that product more favorably"	1995/IMP	hsjk0138
2	tobacco blend	SD interactions NSD perception ammoniated vs non-ammoniated RT, denicotinized vs regular tobacco	MC, FA	EP	FF prototypes	regular and denic flue-cured, burley; ammoniated and non-ammoniated RT	Perceptual differences are not found between G-7 and G-7A. Perceptual differences are not found between regular and denicotinized tobaccos	1984/RJR	mjdj0095

3	tobacco blend	NSD 0 vs 10 RT (various pairs), up to 35% RT inclusion (expert panel)	PC	CP, EP	filter cig	recon ("blended leaf") 5,7.5, 10; and 10-60%	Marlb vs experimental Marlb with the BL in the blend constituting 25, 35, 55 and 75% of the total blend. One out of 7 smokers could detect differnces between the Marlb and the experimental Marlb with 75% of its blend consisting of BL	1964/PM	kzbg0189
4	tobacco blend	SD perception across most other pairs NSD 14-17, but SD perception across most other pairs	MC, FA	EP	Winston Light	stem content 11, 14, 17, 19, 21, 25	Perceptual differences (27 characteristics) but no linear relationship established	1999/RJR	gfwx0186
5	tobacco blend	shorts SD sensory 0 vs 8%; stems SD sensory 0 vs 2% NSD sensory 0 vs 5, 5 vs 8 %	PC	EP	Winston FF/ FF prototypes	shorts 0, 5, 8; stem 0, 2	remove stems from products; shorts control limit plus/minus 1%	1985/RJR	llpd0098
6	tobacco blend	SD perception 0 vs 11, 0 vs 15, 0 vs 30, 30 vs 50 NSD 0 vs 6 (duo-trio);	R	CP, EP	FF/ LT/ ULT prototypes	expanded tobacco 0-50% across range of studies	SD sensory identified in most studies	1989/RJR	jhwm0230
7	tobacco blend	NSD burley 13 vs 21, bright 16 vs 48 %	MC, FA	EP	Winston LT prototypes	burley/bright 17/32% (control), 21/16%, 13/48%	50% decrease or increase in the Burley or Flue-cured sub-blend did not change the perception of the current product	1990/RJR	sjwd0152
8	tobacco blend	NSD blend changes (increased ET/stem)	TD	CP	FF and LTS	blend changes for cost reduction	increased expanded tobacco, rolled stem, lower grade tobacco, other changes for cost reduction	1982/RJR	kgfb0085
9	tobacco blend	NSD blend changes ET 10 vs 20 + oriental 15 vs 5 %, new RT	PC	CP	Marlb FF	blend changes: increase ET 10 to 20%, oriental 15% to 5%, RL/RCB shift	multiple simultaneous blend changes considered	1983/PM	tlpd0013
10	tobacco blend	NSD RT 0 vs 5%	PC	CP	Marlb FF	recon "BL" 0, 5	early study; some sensory differences but not consistent	1957/PM	lydh0106
11	tobacco blend	NSD change in RT type (cooked flavor RLTC vs 150B)	PC	CP	Marlb FF	recon type	NSD changes in processing and ingredients of reconstituted tobacco even when used at levels of ~20%	1984/PM	lgwh0106
12	tobacco blend	NSD consolidation of sub-blends	TD	CP	Camel other major brands	20 subgrades burly reduced to 4, 20 subgrades bright reduced to 4	common group blending = consolidation of products blends and sub-grades used	1983/RJR	klym0184, fghk0088
13	tobacco blend	NSD RT "dust sheet" used in place of G7-1(inclusion level and supplier held constant)	MC, FA	EP	Doral FF	RT "dust sheet" 22, 32%; RT g7-1 22, 32%	[some differences when inclusion or supplier changed]	1990/RJR	njwd0152
14	tobacco blend	SD 12% expanded tobacco	PC, TD	CP	Alpine/ FF M smokers	12% ET	sensory/ taste differences identified; discrimination in duo-trio	1979/PM	gtml0038
15	tobacco blend	NSD burley and bright ratio reversed (35/15 vs 15/35 %)	PC	CP	Merit M/ FF M/ LT M smokers	bur/bri 35/15		1980/PM	znjd0122, pxnc0035, rhhl0033
16	tobacco blend	NSD expanded tobacco 12%/ recon tob 24% vs ET 6%/RT 20%/ expanded stems 5%	PC	CP	Marlb FF	ET 12/6; RT 24/20	no sensory or preference differences	1980/PM	khvw0107
1	nicotine	SD high (2.95, 3.28) vs low (1.74, 2.15 mg) NSD 2.95 vs 2.15 mg	PC	EP	Camel 70 prototypes	tobacco nic 1.74, 2.15, 2.31, 2.95, 3.28, 4.07%	even the NSD group shows some evidence of discrimination	1986/RJR	lkyw0095
2	nicotine	NSD perception 1.72 vs 2.06 mg	PC	EP	unfiltered prototypes	tobacco nic 1.72, 2.06	nicotine range not great enough to be detected perceptually	1986/RJR	xlfc0087
3	nicotine	JND tobacco nicotine (>10% of pop) ~0.4 mg/cig; smoke nicotine ~0.2 mg/cig	PC, FA	EP	FF/ LT/ ULT prototypes	tob nic 1.7-2.6 mg; smoke nic levels 0.3-.75 mg	[published]	1988/RJR	jmkk0114
4	nicotine	JND tobacco nicotine (>10% pop) ~0.2-.3 mg/cig; smoke nicotine ~0.2 mg/cig	PC, FA	EP	FF NM prototypes	tob nic 1.3-2.4 mg; smoke nic levels ~1-2 mg	applies to FF prototypes only	1985/RJR	ysdg0100
5	nicotine	NSD nicotine 1.06 vs 1.28 mg (t/n from 14 to 12)	MC, FA	CP	Winston and Camel FF	tob nic 1.06, 1.28; casing as well as blend differences	NSD Camel vs composite (Winston SD, too many factors to isolate)	1992/RJR	qnvf0055, tjxp0013
6	nicotine	threshold value for detection of smoke nicotine 6%	R		all products	tobacco nic, other blend changes	masking effect of tar: smokers can distinguish a cigarette with 11.1 mg "tar" and 1.4 mg nicotine (T/N = 7.9) from a control cigarette with the same blend without nicotine, but surprisingly cannot distinguish a cigarette with higher tar (26.5 mg) and nicotine (1.76 mg) (T/N = 15 .1) from a control cigarette without nicotine, due to an apparent masking effect	1978/RJR	jtpd0040
7	nicotine	NSD 1.59 vs. 1.98 mg	PC	CP	Marlb FF	tob nic 1.59, 1.98 (PD 5.0, 4.6 in)		1984/PM	kpfb0040, tqwk0113
1	tar	SD acceptance at 1.5 mg tar; JND (harshness 0.7 mg)	MC, FA	CP	5-7 mg tar (ULT) smokers	tar 7.3, 7.1, 6.4, 6.0, 5.6, 4.9, 4.5 mg (vent 36-59)	recommend expanding control limits to at least 1.5 mg tar	1982/RJR	fgkc0094
2	tar	-	-	CP	low tar smokers	tar levels 1 - 7 mg	1 mg change in tar = 7% change in acceptance; "Changes in tar level change consumers' perception of taste and acceptance of our products."	1983/RJR	qjgg0003
3	tar	tar control limit plus/minus 1.5 mg	MC, FA	CP	FF/ LT/ ULT prototypes	PD 83, 103, 123 mm and ven 0, 15, 35, 50, 65) resulting in different PD, tar, nic, and t/n at various levels	tar control limit "well within range of consumer acceptability"	1985/RJR	hlky0097

Abbreviations: SD; significant difference. NSD; no significant difference. JND; just noticeable difference. PC; paired comparison. MC; monadic comparison. FA; factorial analysis. R; review (multiple studies). TD; triangle discrimination. IM; implementation, TA; topagraphy analysis. CP; consumer panel. EP; expert panel. FG; focus group. AP; ad hoc panel. MI; mall interview. Marlb; Marlboro. Virg; Virginia. ULT; ultralight. FF; full flavor. FFLT; full flavor light. LT; light. Vent, ventilation. PD; pressure drop. Circ; circumference in mm. FL; Flength; filter length. Tob wt; tobacco weight. Cig wt; cigarette weight. Dens; density. Rec tob; reconstituted tobacco. Exp tob; expanded tobacco. Tobnic; tobacco nicotine level. Smoke nic; smoke nicotine level. PM; Philip Morris International. RJR; R.J. Reynolds Tobacco Company. BW; Brown & Williamson Tobacco Corporation. BAT; British American Tobacco. IMP; Imperial Tobacco.