

Table S3.a. Incremental lifetime cancer risk values ($ILCR_1^i$) based on CSF Set II for 13 carcinogens from seven brands of cigarettes categorized here as “regular” (“R”) according to the criterion “tar” \geq 15 mg, as based on FTC tar yield (not brand name).

Cigarette Brand:	Marlboro	Newport 100	Camel	Kool King	Basic	Marlboro	Newport
	King F HP	F HP Men	“R” NF SP	F SP Men	King NF SP	King F SP	King F SP Men
Acetaldehyde	7.E-05	9.E-05	7.E-05	7.E-05	7.E-05	7.E-05	8.E-05
Acrylonitrile	1.E-04	1.E-04	2.E-04	1.E-04	2.E-04	9.E-05	1.E-04
4-Aminobiphenyl	5.E-07	5.E-07	6.E-07	4.E-07	7.E-07	5.E-07	4.E-07
Arsenic	7.E-07	7.E-07	7.E-07	6.E-07	1.E-06	6.E-07	8.E-07
Benzene	3.E-05	3.E-05	3.E-05	4.E-05	4.E-05	4.E-05	3.E-05
Benzo[a]pyrene	4.E-07	5.E-07	6.E-07	5.E-07	7.E-07	5.E-07	5.E-07
1,3-Butadiene	2.E-04	2.E-04	2.E-04	3.E-04	3.E-04	2.E-04	2.E-04
Cadmium	1.E-05	1.E-05	1.E-05	1.E-05	1.E-05	9.E-06	1.E-05
Formaldehyde	6.E-06	8.E-06	9.E-06	6.E-06	8.E-06	5.E-06	8.E-06
Lead	1.E-08	1.E-08	1.E-08	1.E-08	2.E-08	1.E-08	1.E-08
NNK ^a –(CSF_oral ^b)	4.E-05	4.E-05	4.E-05	3.E-05	4.E-05	4.E-05	4.E-05
NNN ^a	2.E-06	1.E-06	2.E-06	1.E-06	2.E-06	2.E-06	1.E-06
Quinoline ^d	1.E-05	2.E-05	3.E-05	2.E-05	3.E-05	1.E-05	1.E-05
<i>Cancer Risk Sub-Totals</i>							
Human lung carcinogens ^{c,d}	1.E-04	1.E-04	2.E-04	2.E-04	2.E-04	1.E-04	1.E-04
$ILCR_1^{sub\Sigma-lung}$	1.E-04	1.E-04	2.E-04	2.E-04	2.E-04	1.E-04	1.E-04
All cancers: $ILCR_1^{sub\Sigma}$	5.E-04	5.E-04	6.E-04	6.E-04	6.E-04	4.E-04	5.E-04

Abbreviations: F = filtered; NF = nonfiltered; HP = hard pack; Men = menthol; SP = soft pack; and “R” = “regular”.

^a NNK = 4-(N'-nitrosomethylamino)- 1-(3-pyridyl)-1-butanone; NNN = N'-nitrososonornicotine.

^b CSF_oral indicates that the cancer slope factor was determined from an oral exposure study.

^c According to Integrated Risk Information System, U.S. Environmental Protection Agency.

^d $ILCR_1^{sub\Sigma-lung}$ = sum of $ILCR_1^i$ for human lung carcinogens considered here: acrylonitrile, arsenic, cadmium, and formaldehyde.

Table S3.b. Incremental lifetime cancer risk values ($ILCR_1^i$) based on CSF Set II for 13 carcinogens from nine brands of cigarettes and one reference cigarette categorized here as “light” (“Lt”) according to the criterion $6 \leq \text{“tar”} < 15$ mg, as based on FTC tar yield (not brand name).

Cigarette Brand:	Marlboro	Kool King F	Marlboro				Benson &			
	KingF HP	SP Mild	King F SP	Kent 100 F	Winston	Parliament	More 120 F	Hedges	Camel King	
	“Lt”	Men	“Lt”	SP	King F SP	“Lt”	SP Men	“Lt” Men	F HP“Lt”	1R4F
Acetaldehyde	7.E-05	7.E-05	6.E-05	8.E-05	8.E-05	6.E-05	8.E-05	8.E-05	6.E-05	7.E-05
Acrylonitrile	9.E-05	9.E-05	1.E-04	2.E-04	2.E-04	9.E-05	1.E-04	9.E-05	1.E-04	1.E-04
4-Aminobiphenyl	4.E-07	4.E-07	4.E-07	4.E-07	4.E-07	5.E-07	4.E-07	4.E-07	4.E-07	3.E-07
Arsenic	5.E-07	3.E-07	5.E-07	6.E-07	9.E-07	7.E-07	7.E-07	6.E-07	5.E-07	7.E-07
Benzene	3.E-05	3.E-05	3.E-05	4.E-05	3.E-05	3.E-05	4.E-05	4.E-05	4.E-05	4.E-05
Benzo[a]pyrene	3.E-07	4.E-07	3.E-07	4.E-07	4.E-07	4.E-07	5.E-07	4.E-07	4.E-07	3.E-07
1,3-Butadiene	2.E-04	2.E-04	2.E-04	2.E-04	2.E-04	2.E-04	3.E-04	2.E-04	2.E-04	2.E-04
Cadmium	8.E-06	7.E-06	9.E-06	9.E-06	1.E-05	5.E-06	9.E-06	9.E-06	8.E-06	9.E-06
Formaldehyde	4.E-06	5.E-06	4.E-06	6.E-06	9.E-06	4.E-06	5.E-06	4.E-06	5.E-06	5.E-06
Lead	9.E-09	9.E-09	9.E-09	1.E-08	1.E-08	1.E-08	1.E-08	1.E-08	7.E-09	2.E-08
NNK ^a (uses CSF_oral ^b)	3.E-05	3.E-05	3.E-05	4.E-05	4.E-05	4.E-05	3.E-05	3.E-05	3.E-05	3.E-05
NNN ^a	1.E-06	9.E-07	1.E-06	2.E-06	2.E-06	2.E-06	1.E-06	1.E-06	1.E-06	9.E-07
Quinoline ^d	9.E-06	9.E-06	1.E-05	2.E-05	2.E-05	1.E-05	2.E-05	1.E-05	2.E-05	8.E-06
<i>Cancer Risk Sub-Totals</i>										
Human lung carcinogens ^{c,d}										
$ILCR_1^{\text{sub}\Sigma\text{-lung}}$	1.E-04	1.E-04	2.E-04	2.E-04	2.E-04	1.E-04	2.E-04	1.E-04	1.E-04	1.E-04
All cancers: $ILCR_1^{\text{sub}\Sigma}$	4.E-04	4.E-04	5.E-04	6.E-04	6.E-04	5.E-04	6.E-04	5.E-04	4.E-04	5.E-04

Abbreviations: F = filtered; NF = nonfiltered; HP = hard pack; Men = menthol; SP = soft pack; and “Lt” = “light”.

^a NNK = 4-(N-nitrosomethylamino)-1-(3-pyridyl)-1-butanone; NNN = N-nitrosornicotine.

^b CSF_oral indicates that the cancer slope factor was determined from an oral exposure study

^c According to Integrated Risk Information System, U.S. Environmental Protection Agency

^d $ILCR_1^{\text{sub}\Sigma\text{-lung}}$ = sum of $ILCR_1^i$ for human lung carcinogens considered here: acrylonitrile, arsenic, cadmium, and formaldehyde.

Table S3.c. Incremental lifetime cancer risk values ($ILCR_1^i$) based on CSF Set II for 13 carcinogens from ten brands of cigarettes categorized here as “ultralight” (“ULt”) according to the criterion “tar” < 6 mg, as based on FTC tar yields (not brand name).

Cigarette Brand:	Virginia				Virginia Slims					
	Merit King F SP Ultima	True King F SP	Slims100 F HP Sup-Slim	Now King F SP	100 F HP “ULt” Slim	Capri 100 F HP “ULt”	Carlton 100 F HP “Lt”	Doral 100 F SP “ULt”	Carlton 100 F SP “Lt”	GPC King F SP “ULt”
Acetaldehyde	3.E-05	5.E-05	3.E-05	3.E-05	5.E-05	3.E-05	2.E-05	7.E-05	3.E-05	6.E-05
Acrylonitrile	4.E-05	6.E-05	3.E-05	8.E-05	1.E-04	7.E-05	4.E-05	1.E-04	3.E-05	8.E-05
4-Aminobiphenyl	2.E-07	3.E-07	2.E-07	2.E-07	3.E-07	2.E-07	2.E-07	2.E-07	2.E-07	3.E-07
Arsenic	8.E-08	4.E-07	3.E-07	3.E-07	5.E-07	5.E-07	1.E-07	4.E-07	1.E-07	3.E-07
Benzene	1.E-05	2.E-05	1.E-05	2.E-05	2.E-05	1.E-05	2.E-05	4.E-05	2.E-05	3.E-05
Benzo[a]pyrene	9.E-08	2.E-07	2.E-07	1.E-07	2.E-07	2.E-07	1.E-07	2.E-07	1.E-07	2.E-07
1,3-Butadiene	8.E-05	1.E-04	6.E-05	1.E-04	2.E-04	8.E-05	1.E-04	2.E-04	1.E-04	1.E-04
Cadmium	2.E-06	6.E-06	3.E-06	5.E-06	6.E-06	5.E-06	2.E-06	5.E-06	2.E-06	5.E-06
Formaldehyde	1.E-06	3.E-06	3.E-06	1.E-06	2.E-06	3.E-06	1.E-06	4.E-06	1.E-06	4.E-06
Lead	2.E-09	6.E-09	5.E-09	4.E-09	7.E-09	6.E-09	3.E-09	8.E-09	2.E-09	5.E-09
NNK ^a (uses CSF_oral ^b)	1.E-05	2.E-05	2.E-05	1.E-05	3.E-05	2.E-05	1.E-05	2.E-05	1.E-05	2.E-05
NNN ^a	6.E-07	1.E-06	1.E-06	6.E-07	1.E-06	9.E-07	6.E-07	8.E-07	6.E-07	8.E-07
Quinoline ^d	4.E-06	8.E-06	8.E-06	5.E-06	9.E-06	1.E-05	4.E-06	1.E-05	4.E-06	7.E-06
<i>Cancer Risk Sub-Totals</i>										
Human lung carcinogens ^{c,d} $ILCR_{1\text{sub}\Sigma\text{-lung}}$	4.E-05	7.E-05	4.E-05	8.E-05	1.E-04	8.E-05	4.E-05	1.E-04	4.E-05	9.E-05
All cancers: $ILCR_{1\text{sub}\Sigma}$	2.E-04	3.E-04	2.E-04	2.E-04	4.E-04	2.E-04	2.E-04	4.E-04	2.E-04	3.E-04

Abbreviations: F = filtered; NF = nonfiltered; HP, hard pack; Men = menthol; SP = soft pack; “Lt” = “light”; and “ULt” = “ultralight”.

^a NNK = 4-(N'-nitrosomethylamino)-1-(3-pyridyl)-1-butanone; NNN = N'-nitrososornicotine.

^b CSF_oral indicates that the cancer slope factor was determined from an oral exposure study

^c According to Integrated Risk Information System, U.S. Environmental Protection Agency

^d $ILCR_{1\text{sub}\Sigma\text{-lung}}$ = sum of $ILCR_1^i$ for human lung carcinogens considered here: acrylonitrile, arsenic, cadmium, and formaldehyde.

Table S3.d. Incremental lifetime cancer risk values ($ILCR_1^i$) based on CSF Set II for 13 carcinogens from six potentially reduced exposure product (PREP) cigarettes.

Cigarette Brand:	Advance "Lt" Advance "Lt"							
	Premier	XDU 2-104	XDU 740	TOB-HT	EHC	Eclipse	100's	Kings
Acetaldehyde	7.E-07	1.E-06	2.E-06	3.E-06	8.E-06	3.E-06	1.E-05	1.E-05
Acrylonitrile	NA	NA	NA	5.E-06	3.E-06	5.E-06	3.E-05	3.E-05
4-Aminobiphenyl	NA	NA	NA	NA	NA	7.E-08	2.E-07	2.E-07
Arsenic	NA	NA	NA	NA	2.E-08	NA	NA	NA
Benzene	4.E-07	2.E-06	3.E-06	3.E-06	4.E-07	2.E-06	8.E-06	1.E-05
Benzo[a]pyrene	NA	3.E-09	7.E-09	1.E-08	NA	1.E-08	1.E-07	1.E-07
1,3-Butadiene	NA	NA	NA	4.E-06	8.E-06	5.E-06	5.E-05	6.E-05
Cadmium	NA	NA	NA	NA	4.E-08	NA	8.E-07	1.E-06
Formaldehyde	8.E-07	4.E-07	2.E-07	1.E-07	3.E-06	7.E-08	1.E-06	1.E-06
Lead	NA	NA	NA	NA	NA	NA	3.E-09	2.E-09
NNK ^a (uses CSF_oral ^b)	NA	NA	NA	3.E-06	3.E-06	5.E-06	4.E-06	4.E-06
NNN ^a	NA	NA	NA	6.E-08	1.E-07	1.E-07	2.E-07	2.E-07
Quinoline ^d	NA	NA	NA	NA	NA	1.E-07	2.E-06	2.E-06
<i>Cancer Risk Sub-Totals</i>								
Human lung carcinogens ^{c,d} $ILCR_1^{sub\Sigma-lung}$	8.E-07	4.E-07	2.E-07	5.E-06	7.E-06	5.E-06	3.E-05	3.E-05
All cancers: $ILCR_1^{sub\Sigma}$	2.E-06	3.E-06	5.E-06	2.E-05	3.E-05	2.E-05	1.E-04	1.E-04

Abbreviations: TOB-HT = heated tobacco; EHC = electrically heated cigarette; Lt = "light"; and NA = not available.

^a NNK = 4-(*N*'-nitrosomethylamino)-1-(3-pyridyl)-1-butanone; NNN = *N*'-nitrosonornicotine.

^b CSF_oral indicates that the cancer slope factor was determined from an oral exposure study

^c According to Integrated Risk Information System, U.S. Environmental Protection Agency

^d $ILCR_1^{sub\Sigma-lung}$ = sum of $ILCR_1^i$ for human lung carcinogens considered here: acrylonitrile, arsenic, cadmium, and formaldehyde.