

Appendix B

Test Stimuli

Attached are the list formats for smokeless tobacco. The same formats will be tested for cigarettes and roll-your own tobacco.



Tobacco Product: Brand X Smokeless Tobacco

Tobacco Amount Per Gram	CHEMICAL	CA	HB	RP	AD
0.97 – 72.3 µg	Acetaldehyde	■			■
0.1 – 3.5 µg	Arsenic	■	■	■	
1.1 – 57.3 ng	Benzo[a]pyrene	■			
0.1 – 3.1 µg	Cadmium	■		■	
0.5 – 19.4 µg	Crotonaldehyde	■			
0.2 -72.3 µg	Formaldehyde	■			
0.1 – 1.6 µg	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)	■			
11.3 – 26.7 mg	Nicotine			■	■
0.9 – 6.9 µg	N-Nitrosornicotine (NNN)	■			

There are many other chemicals that have been linked to the health problems on this list. The information on these chemicals is not currently available.

KEY
Chemicals have been linked to:

- CA Cancer
- HB Heart and Blood Vessel Problems
- RP Reproductive Problems
- AD Addiction

- ND Not Detected
- ◆ The information is not currently available

mg= milligram
µg = microgram
ng = nanogram
pg= picogram

A machine is used to test for these chemicals. The amount of chemical that gets into the body may be higher or lower depending on how a person uses the tobacco product. Companies may use different tests to measure these chemicals. Results may vary.



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0.5 – 19.4 µg	Crotonaldehyde	■			
0.2 -72.3 µg	Formaldehyde	■			
0.1 – 1.6 µg	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)	■			
11.3 – 26.7 mg	Nicotine			■	■
0.9 – 6.9 µg	N-Nitrosornicotine (NNN)	■			

The information is not currently available on the following chemicals.

Tobacco Amount Per Gram	CHEMICAL	CA	HB	RP	AD
◆	Aflatoxin B1	■			
◆	Ammonia				
◆	Anabasine				■
◆	Benz[a]anthracene	■	■		
◆	Benzo[b]fluoranthene	■	■		
◆	Benzo[k]fluoranthene	■	■		
◆	Beryllium	■			
◆	Chromium	■		■	
◆	Chrysene	■	■		
◆	Coumarin (banned in food)				
◆	Dibenz[a,h]anthracene	■			
◆	Ethyl carbamate (urethane)	■		■	
◆	Indeno[1,2,3-cd]pyrene	■			
◆	Lead	■	■	■	
◆	Mercury	■		■	
◆	Naphthalene	■			
◆	Nickel	■			
◆	N-Nitrosodiethanolamine (NDELA)	■			
◆	N-Nitrosodimethylamine (NDMA)	■			
◆	N-Nitrosomorpholine (NMOR)	■			
◆	N-Nitrosopiperidine (NPIP)	■			
◆	N-Nitrosopyrrolidine (NPYR)	■			
◆	N-Nitrososarcosine (NSAR)	■			
◆	Nornicotine				■
◆	Polonium-210	■			
◆	Selenium				
◆	Uranium-235	■			
◆	Uranium-238	■			

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◆	Ammonia				
◆	Anabasine				■
0.1 – 3.5 µg	Arsenic	■	■	■	
◆	Benz[a]anthracene	■	■		
◆	Benzo[b]fluoranthene	■	■		
◆	Benzo[k]fluoranthene	■	■		
1.1 – 57.3 ng	Benzo[a]pyrene	■			
◆	Beryllium	■			
0.1 – 3.1 µg	Cadmium	■		■	
◆	Chromium	■		■	
◆	Chrysene	■	■		
◆	Coumarin (banned in food)				
0.5 – 19.4 µg	Crotonaldehyde	■			
◆	Dibenz[a,h]anthracene	■			
◆	Ethyl carbamate (urethane)	■		■	
0.2 -72.3 µg	Formaldehyde	■			
◆	Indeno[1,2,3-cd]pyrene	■			
◆	Lead	■	■	■	
◆	Mercury	■		■	
0.1 – 1.6 µg	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)	■			
◆	Naphthalene	■			
◆	Nickel	■			
11.3 – 26.7 mg	Nicotine			■	■
◆	N-Nitrosodiethanolamine (NDELA)	■			
◆	N-Nitrosodimethylamine (NDMA)	■			
◆	N-Nitrosomorpholine (NMOR)	■			
0.9 – 6.9 µg	N-Nitrosonornicotine (NNN)	■			
◆	N-Nitrosopiperidine (NPIP)	■			
◆	N-Nitrosopyrrolidine (NPYR)	■			
◆	N-Nitrososarcosine (NSAR)	■			
◆	Nornicotine				■
◆	Polonium-210	■			
◆	Selenium				
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Tobacco Product: Brand X Smokeless Tobacco


All tobacco products contain chemicals.





The purpose of this list is to provide information about the chemicals in this tobacco product that researchers have linked to health problems. Research is on going to find out which chemicals in tobacco and tobacco smoke cause harm.

There may be other health problems and chemicals that have not been discovered yet.

Tobacco companies test their tobacco for these chemicals and report the amounts to the FDA.

Please note: There is no safe tobacco product. Based on what we currently know, you can not tell your chance of developing a health problem by the number of chemicals or the amount of a chemical in a tobacco product.







Amount Per Gram	CHEMICAL				
0.97 – 72.3 µg	Acetaldehyde	■			■
0.1 – 3.5 µg	Arsenic	■	■	■	
1.1 – 57.3 ng	Benzo[a]pyrene	■			
0.1 – 3.1 µg	Cadmium	■		■	
0.5 – 19.4 µg	Crotonaldehyde	■			
0.2 -72.3 µg	Formaldehyde	■			
0.1 – 1.6 µg	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)	■			
11.3 – 26.7 mg	Nicotine			■	■
0.9 – 6.9 µg	N-Nitrosornicotine (NNN)	■			

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KEY

Chemicals have been linked to:

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-  Heart and Blood Vessel Problems
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Where do these chemicals come from?

Many of these chemicals come from the tobacco leaf. The rest come from additives and the pouch if one is present.

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◆	Coumarin (banned in food)				
◆	Dibenz[a,h]anthracene	■			
◆	Ethyl carbamate (urethane)	■		■	
◆	Indeno[1,2,3-cd]pyrene	■			
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