CANCER

IARC Classification

Group 1	Sufficient evidence in humans or sufficient evidence in animals and strong mechanistic data in humans
Group 2A	Limited evidence in humans and sufficient evidence in animals
Group 2B	Limited evidence in humans and less than sufficient evidence in animals
Group 3	Inadequate in humans and inadequate or limited in animals
Group 4	Lack of carcinogenicity in humans and in animals

		Category on IARC 2010 list	Not on IARC 2010 list; On Following Lists
Acetaldehyde	include	Group 2B	
Acrylonitrile	include	Group 2B	
Aflatoxin			Yes in smokeless
1-Aminonaphthalene	include		NIOSH (2010) : potential occupational carcinogen
2-Aminonaphthalene	include	Group 1	
4-Aminobiphenyl	include	Group 1	
Arsenic	include	Group 1	
Benzene	include	Group 1	
Benzo[a]pyrene	include	Group 1	
1,3-Butadiene	include	Group 2A	
Cadmium	include	Group 1	
Catechol	include	Group 2B	
Chlorinated dioxins/furans	Include - Is there a method of measurement?	Group 2B	Chlorinated dioxins: NTP (11th report): human carcinogen

CANCER (continued)

		Category on IARC 2010 list	Not on IARC 2010 list; On Following Lists
Chromium	include	Group 1	
Cresols	include		EPA (2010): o-cresol, m-cresol, p-cresol: possible human carcinogens
Crotonaldehyde	include		EPA (2010): possible human carcinogen
Formaldehyde	include	Group 1	
Hydroquinone	include		None: possible tumor promoter
Isoprene	include	Group 2B	
Lead	include	Group 2A	
Mercury	include		IARC 1993: methyl mercury: possibly carcinogenic to humans
N-nitrosoanabasine	include		IARC (2007): limited evidence of carcinogenicity in experimental animals; no classifiable in humans
N-nitrosodimethylamine	include	Group 2A	Yes in smokeless
Nickel	include	Group 1	
4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone	include	Group 1	
N-nitrosonornicotine	include	Group 1	
N-nitrosopyrrolidine	include	Group 2B	Yes in smokeless

CANCER (continued)

		Category on IARC 2010 list	Not on IARC 2010 list; On Following Lists
Phenol	DO NOT INCLUDE		
Quinoline	include		EPA (2010): likely to be carcinogenic in humans
Tar	include		Produces carcinoma when painted on mouse skin
Styrene	include	Group 2B	
3-Aminobiphenyl	DO NOT INCLUDE		
N-nitrosoanatabine	DO NOT INCLUDE		

Shaded rows added during the 6/8/10 meeting		
Polycyclic aromatic hydrocarbons (PAH)	propose to include all / representative sample / include all for now, until we discuss methods	On IARC List
Benz[j]aceanthrylene		Group 2B
Benz[a]anthracene		Group 2B, smokeless
Benz[b]fluoroanthene		Group 2B, smokeless
Benz[j]fluoroanthene		Group 2B, smokeless
Benz[k]fluoroanthene		Group 2B, smokeless
Benzo[c]phenanthrene		Group 2B

CANCER (continued)

Chrysene		Group 2B, smokeless
Cyclopenta[c,d]pyrene		Group 2A
Dibenz[a,h]anthracene		Group 2°, smokeless
Dibenzo[a,e]pyrene		Group 2B
Dibenzo[a,i]pyrene		Group 2B
Dibenzo[a,h]pyrene		Group 2B
Dibenzo[a,l]pyrene		Group 2A
Indeno[1,2,3-cd]pyrene		Group 2B, smokeless
5-Methylchrysene		Group 2B
Naphthalene		Group 2B, smokeless
Aromatic Amines		
2-Toluidine		Group 2A
2,6-Dimethylaniline		Group 2B
0-Anisidine		Group 2B

CANCER (continued)

Heterocyclic aromatic amines	Include all?	
A-α-C		Group 2B
MeA- α-C		Group 2B
IQ		Group 2A
Trp-P-1		Group 2B
Trp-P-2		Group 2B
Glu-P-1		Group 2B
Glu-P-2		Group 2B
PhlP		Group 2B
Other heterocyclic compounds	Include all	
Furan		Group 2B
Dibenz(a,h)acridine		Group 2B
Dibenz(a,j)acridine		Group 2B
Dibenzo(c,g)carbazole		Group 2B
Benzo(b)furan		Group 2B
Nitrohydrocarbons	Include all	
Nitromethane		Group 2B
2-Nitropropane		Group 2B
Nitrobenzene		Group 2B

CANCER (continued)

Misc Organic cpds	Include all	
Acetamide		Group 2B
Acrylamide		Group 2A
Acrylonitrile		Group 2B
Vinyl Chloride		Group 1
Ethylene oxide		Group 1
Propylene oxide		Group 2B
Urethane		Group 2B
Vinyl acetate		Group 2B
Metals	Include all additional	
Beryllium		Group 1
Cobalt		Group 2B
Hydrazine		Group 2B
Radio-isotope Polonium-210		Group 1
Pyridine?	(respiratory)	

Non-Neoplastic Effects (respiratory, cardiovascular, developmental)

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Acetaldehyde	Included as carcinogen	
Acetone	Included as a respiratory toxicant	
Acrolein	Included as a respiratory toxicant	
Acrylonitrile	Included as carcinogen	
Ammonia	Included as a respiratory toxicant	
Arsenic	Included as carcinogen	
1,3-Butadiene	Included as carcinogen	
Benzene	Included as carcinogen	
Benzo[a]pyrene	Included as carcinogen	
Butyraldehyde	Included as a respiratory toxicant	
Cadmium	Included as carcinogen	
Carbon monoxide	Included as cardiovascular toxicant	CA EPA developmental toxicant
Chromium	Included as carcinogen	
Cresols	Included as carcinogen	
Crotonaldehyde	Included as carcinogen	
Eugenol	Included as a respiratory toxicant	
Formaldehyde	Included as carcinogen	
Glycerol	DO NOT INCLUDE	FOOTNOTE
Hydrogen cyanide	Included as a respiratory toxicant	

Non-Neoplastic Effects (continued)

Isoprene	Included as carcinogen	
Lead	Included as carcinogen	
Methyl ethyl ketone	Included as a respiratory toxicant	
Nickel	Included as carcinogen	
Nicotine	Included for addictive, reproductive, and cardiovascular effects	Addictive
Nitrate	DO NOT INCLUDE (FOR SMOKE)	
Nitric oxide/nitrogen oxides	Included as a respiratory and cardiovascular toxicant	
Phenol	Included as a respiratory and cardiovascular toxicant	
Propionaldehyde	Included as a respiratory and cardiovascular toxicant	
Propylene glycol	DO NOT INCLUDE	FOOTNOTE
Pyridine	Included as a respiratory toxicant	Canada and Brazil
Resorcinol	Included as a respiratory toxicant	
Selenium	Included as a respiratory toxicant	
Sodium propionate	DO NOT INCLUDE	
Sorbic acid	DO NOT INCLUDE	
Toluene	Included as a respiratory toxicant	CA EPA developmental

		toxicant
Triacetin	DO NOT INCLUDE	
Triethylene glycol	DO NOT INCLUDE	FOOTNOTE

Note: Anabasine, anatabine, myosmine, nornicotine will be discussed at next meeting after NIDA presentation
Note: Committee deferred menthol to the ongoing TPSAC consideration