

# Implementation of New Format and Other Issues on Designated & Priority Chemical Lists

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# Goals of this agenda item

- ▶ Discuss specific format issues
- ▶ Propose approach for including new parent compounds for metabolites already on priority list
- ▶ Propose footnotes for diesel exhaust and PAHs
- ▶ Obtain SGP input on all of the above

# Highlights of new format

- ▶ Aim is for lists to be readable and informative
- ▶ Generally adopts format used in CDC 4<sup>th</sup> Report with some variation
- ▶ Include parents & metabolites on both lists
- ▶ Some updates on the format based on Panel recommendations and additional research

# Specific format issues

- ▶ Generally group all stereoisomers
  - Explicitly list specific isomers only if informative (e.g., lindane)
- ▶ Full or common chemical names may be included as parentheticals, for example:
  - Triclosan (2,4,4'-Trichloro-2'-hydroxyphenyl ether)
  - Dichloromethane (Methylene chloride)
- ▶ Include widely used abbreviations (e.g., MTBE, PBDEs)

# Sample of designated list

## Polychlorinated Dibenzo-*p*-dioxins<sup>3</sup>

1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin  
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin  
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin  
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin  
1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin  
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin  
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD)

## Polychlorinated Dibenzofurans<sup>3</sup>

1,2,3,4,6,7,8-Heptachlorodibenzofuran  
1,2,3,4,7,8,9-Heptachlorodibenzofuran  
1,2,3,4,7,8-Hexachlorodibenzofuran  
1,2,3,6,7,8-Hexachlorodibenzofuran  
1,2,3,7,8,9-Hexachlorodibenzofuran  
2,3,4,6,7,8-Hexachlorodibenzofuran  
1,2,3,4,6,7,8,9-Octachlorodibenzofuran  
1,2,3,7,8-Pentachlorodibenzofuran  
2,3,4,7,8-Pentachlorodibenzofuran  
2,3,7,8-Tetrachlorodibenzofuran

## Polycyclic Aromatic Hydrocarbons (PAHs)<sup>3</sup>

Benz[a]anthracene  
1-Hydroxybenz[a]anthracene  
3-Hydroxybenz[a]anthracene  
9-Hydroxybenz[a]anthracene  
Benzo[a]pyrene  
3-Hydroxybenzo[a]pyrene  
Benzo[c]phenanthrene

4-Hydroxyphenanthrene  
9-Hydroxyphenanthrene  
Pyrene  
1-Hydroxypyrene

## Synthetic Hormones used in Food Production<sup>1</sup>

Melengestrol acetate  
Trenbolone acetate  
Zeranol

## Tobacco Smoke

Nicotine  
Cotinine

## Volatile Organic Compounds<sup>3</sup>

Benzene  
Carbon tetrachloride  
Chlorobenzene  
Dibromomethane  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dichlorobenzene (*o*-Dichlorobenzene)  
1,3-Dichlorobenzene (*m*-Dichlorobenzene)  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,1-Dichloroethene  
*cis*-1,2-Dichloroethene  
*trans*-1,2-Dichloroethene  
Dichloromethane (Methylene chloride)  
1,2-Dichloropropane

# Sample of priority list

## **Brominated and Chlorinated Organic Compounds used as Flame Retardants<sup>1</sup>**

2,2-Bis(bromomethyl)-1,3-propanediol  
2,2-Bis(chloromethyl)trimethylene bis[bis(2-chloroethyl)phosphate]  
Bis(2-ethyl-1-hexyl)tetrabromophthalate  
Bis(hexachlorocyclopentadieno)cyclooctane (Dechlorane Plus)  
1,2-Bis(2,4,6-tribromophenoxy)ethane  
1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane  
2,3-Dibromopropyl-2,4,6-tribromophenyl ether  
2-Ethyl-1-hexyl-2,3,4,5-tetrabromobenzoate  
Chlorendic acid  
Decabromodiphenylethane  
Hexabromobenzene  
2,2',4,4',5,5'-Hexabromobiphenyl (BB 153)  
Hexabromocyclododecane (HBCD)  
Hexachlorocyclopentadienyl-dibromocyclooctane  
N,N'-Ethylenebis(tetrabromophthalimide)  
Pentabromoethylbenzene  
Pentabromotoluene  
Short-chain chlorinated paraffins  
Tetrabromobisphenol A (TBBPA)  
Tetrabromobisphenol A bis(2,3-dibromopropyl) ether  
Tetrabromobisphenol A bis(2-hydroxyethyl) ether  
Tetrabromophthalic anhydride  
Tetrakis(2-chloroethyl)dichloroisopentyl diphosphate

2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)  
2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)  
2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)  
2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)  
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)  
2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)  
2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)  
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)

## **Cyclosiloxanes<sup>1</sup>**

Decamethylcyclopentasiloxane (D5)  
Dodecamethylcyclohexasiloxane (D6)  
Octamethylcyclotetrasiloxane (D4)

## **Diesel Exhaust<sup>2</sup>**

## **Environmental Phenols<sup>3</sup>**

Bisphenol A (2,2-Bis[4-hydroxyphenyl]propane)  
Triclosan (2,4,4'-Trichloro-2'-hydroxyphenyl ether)

## **Metals<sup>3</sup>**

Arsenic  
Arsenic (V) acid  
Arsenobetaine  
Arsenocholine  
Arsenous (III) acid

# Stereoisomer example

Permethrin

3-Phenoxybenzoic acid

*cis*-Permethrin

*cis*-3-(2,2-Dichlorovinyl)-2,2-  
dimethylcyclopropane carboxylic acid

*trans*-Permethrin

*trans*-3-(2,2-Dichlorovinyl)-2,2-  
dimethylcyclopropane carboxylic acid

Current

Permethrin

*cis*-3-(2,2-Dichlorovinyl)-2,2-  
dimethylcyclopropane carboxylic acid

*trans*-3-(2,2-Dichlorovinyl)-2,2-  
dimethylcyclopropane carboxylic acid

3-Phenoxybenzoic acid

Proposed

# Proposed approach to add new parent compounds to priority list

- ▶ Certain categories on the priority list include only those chemicals designated via CDC
- ▶ Parent compounds identified for specific metabolites based on information available at the time
- ▶ Additional parent compounds may be identified (pyrethroid example)
- ▶ Parent compounds newly identified by CDC for specific metabolites on the priority list will be automatically added

# Pyrethroid example

- ▶ Metabolite: 3-phenoxybenzoic acid
- ▶ Parent compounds identified in CDC 3<sup>rd</sup> Report:
  - Cypermethrin, deltamethrin, permethrin
  - “and possibly other pyrethroid insecticides”
- ▶ Additional three parent compounds identified in CDC 4<sup>th</sup> Report:
  - Cyhalothrin, fenpropathrin, tralomethrin

# Proposed footnote for PAHs

- ▶ SGP listed three hydroxy-PAHs as priority chemicals based on laboratory capability
  - CDC will no longer analyze for two of the three
  - CDPH has a method for one of the three and is developing methods for other PAHs
- ▶ Priority PAHs can be revisited at a future meeting
- ▶ Proposed explanatory footnote:
  - “The SGP recommended the three hydroxy-PAHs listed as priority chemicals. The corresponding parent chemicals are benzo[a]pyrene, chrysene and phenanthrene, respectively.”

# Proposed revised footnote for diesel exhaust

- ▶ Current footnote:
  - “All components of diesel exhaust are designated chemicals.”
- ▶ Panel member raised concerns about current wording
- ▶ Proposed revision:
  - “Diesel exhaust is a complex mixture that contains many components, one or more of which may be useful as an indicator for biomonitoring.”

# Next steps

- ▶ Finalize format following Panel and public input
- ▶ Post updated lists by July 2010
- ▶ Priority PAHs to be addressed at a future meeting

# Discussion points

- ▶ Specific format issues
  - Grouping of stereoisomers
  - Inclusion of full/common names
  - Use of abbreviations
- ▶ Proposed approach for adding newly identified parent compounds
- ▶ Proposed footnotes
  - PAHs
  - Diesel exhaust