

# Potential Priority Chemicals

Rachel Roisman, M.D., M.P.H.

California Environmental Contaminant Biomonitoring Program  
Office of Environmental Health Hazard Assessment

*Presentation to Scientific Guidance Panel July 28, 2009*

# Criteria for recommending priority chemicals (SB 1379)

- ▶ The degree of potential *exposure* to the public or specific subgroups
- ▶ The *likelihood of a chemical being a carcinogen or toxicant* based on peer-reviewed health data, the chemical structure, or the toxicology of chemically related compounds
- ▶ The *limits of laboratory detection* for the chemical, including the ability to detect the chemical at low enough levels that could be expected in the general population
- ▶ *Other criteria* that the panel may agree to

# Overview of materials for priority chemical discussion

- ▶ Tables on potential priority chemicals
  - Perfluorinated compounds and cyclosiloxanes
  - Pesticides
- ▶ Background information
  - CDC biomonitoring results
  - CECBP designated chemical documents
  - Related articles

# Perfluorinated compounds

- ▶ Stain and grease repellents for fabrics, leather, rugs, carpets, packaging and paper products
- ▶ PFCs in food contact coatings of particular concern
  - Believed to migrate out of coatings and into food
  - Range of PFCs used in these products
- ▶ New PFCs are being developed
  - A recent paper studying PFCs in house dust found high levels of PFBU<sub>S</sub>, a degradate of a new PFC replacement product

# Cyclosiloxanes

- ▶ SGP recommending adding the chemical class “cyclosiloxanes” to the designated chemical list at March 2009 meeting
- ▶ Literature review since March 2009 revealed additional information, which was provided to the SGP
  - UK environmental risk assessments
  - Published article on dermal exposure

# Excerpt of information on potential priority chemicals

Chemical name	Lab	Biospecimen	Timeline for lab capability	Found in humans	Handout
<b>Perfluorinated compounds (already designated)</b>	DTSC	Serum	Not planned – soon (depending on specific PFC)	NHANES	CDC, and others
<b>Cyclosiloxanes (chemical class)</b>	DTSC	Serum	Later	Other biomonitoring studies	CECBP document

Soon = plan for near-term (< 12 month) capability  
 Later = plan for long-term (> 12 month) capability  
 Not planned = not currently developing capability

# Potential priority pesticides

- ▶ For this meeting, focused on high-use pesticides, or pesticides with household uses, *for which CDC biomonitoring results are currently available*
- ▶ For several pesticides, CDC biomonitoring results are expected to be published within the next 3–6 months
  - Captan, chlorothalonil, chlorthal-dimethyl, diuron, mancozeb, maneb, S-metolachlor, trifluralin, ziram
  - Plan to discuss these pesticides at a later SGP meeting after CDC biomonitoring results are available
- ▶ SGP feedback requested on pesticides for which CDC biomonitoring results are expected (2011) (e.g. glyphosate)

# Potential priority pesticides

- ▶ 2,4-Dichlorophenoxy acetic acid (2,4-D) salts and esters
  - DPR Top 100 (2007)
  - CDC biomonitoring results available
- ▶ DDT
  - Banned, but persistent
- ▶ DEET
  - Wide use by the general public
  - Significantly increased absorption when used in combination with sunscreen (oxybenzone)
- ▶ *para*-Dichlorobenzene
  - Household uses
  - Present in high concentrations in biomonitoring studies

# Excerpt of information on potential priority pesticides

Chemical name	Use and exposure	Lab	Biospecimen	Timeline for lab capability	Found in humans	Handout
<b>DDT (DDE)</b>	Banned but persistent	DTSC	Serum	Now	NHANES	CDC
<b>N,N-Diethyl-m-toluamide (DEET)</b>	Personal use (insect repellent)	CDPH	Urine	Soon	NHANES	CDC
<b>para-Dichlorobenzene (1,4-DCB)</b>	Insecticidal fumigant with household uses (moth repellent and space deodorant)	CDPH	Urine	Not planned	NHANES	CDC
<b>2,4-Dichlorophenoxy-acetic acid (2,4-D) salts and esters</b>	Herbicide, almost 400,000 lbs (dimethylamine salt) applied in 2007 mostly to almonds, wheat, and rights of way. Also used by consumers for landscape and yard maintenance.	CDPH	Urine	Not planned	NHANES	CDC

Now = current capability

Soon = plan for near-term (< 12 month) capability

Not planned = not currently developing capability

# Summary of potential priority chemicals for discussion today

- ▶ Perfluorinated compounds already designated
- ▶ Cyclosiloxanes as a chemical class
- ▶ Selected pesticides
  - 2,4-Dichlorophenoxy acetic acid (2,4-D) salts and esters
  - DDT
  - DEET
  - *para*-Dichlorobenzene