

California Environmental Contaminant Biomonitoring Program (CECBP) Priority Chemicals
September 2009

Chemical Name ¹	Laboratory Considerations			Found in Humans ³	References	
	Lab undertaking analysis	Biospecimen	Timeline for CECBP lab capability ²			
Metals⁴						
Cadmium	CDPH	Whole Blood	Now	NHANES	CDC 3rd Report p.26-30	
Lead	CDPH	Whole Blood	Now	NHANES	CDC 3rd Report p.38-44	
Mercury	CDPH	Whole Blood	Now	NHANES	CDC 3rd Report p.45-51	
Arsenic	CDPH	Urine	Soon	NHANES	Caldwell et al. 2008	
Diesel Exhaust	CDPH	Urine	Later	Other	CECBP Document Diesel Exhaust 2008	
Tobacco Smoke (cotinine)	CDPH	Blood	Not planned	NHANES	CDC 3rd Report p.71-75	
Pyrethroid pesticides⁴						
Allethrin	CDPH	Urine	Later	NHANES	CDC 3rd Report p.405-415	
Cyfluthrin	CDPH	Urine	Later	NHANES		
Cypermethrin	CDPH	Urine	Now	NHANES		
<i>cis</i> -Cypermethrin	CDPH	Urine	Later	NHANES		
<i>trans</i> -Cypermethrin	CDPH	Urine	Later	NHANES		
Deltamethrin	CDPH	Urine	Now	NHANES		
Permethrin	CDPH	Urine	Now	NHANES		
<i>cis</i> -Permethrin	CDPH	Urine	Later	NHANES		
<i>trans</i> -Permethrin	CDPH	Urine	Later	NHANES		
Natural Pyrethrin 1	CDPH	Urine	Later	NHANES		
Resmethrin	CDPH	Urine	Later	NHANES		
Organophosphate Pesticides⁴						
Acephate	CDPH	Urine	Soon	NHANES		CDC 3rd Report p.349-384
Azinphos Methyl	CDPH	Urine	Soon	NHANES		
Chlorethoxyphos	CDPH	Urine	Soon	NHANES		
Chlorpyrifos	CDPH	Urine	Now	NHANES		
Chlorpyrifos Methyl	CDPH	Urine	Soon	NHANES		
Coumaphos	CDPH	Urine	Soon	NHANES		
Diazinon	CDPH	Urine	Soon	NHANES		
Dichlorvos (DDVP)	CDPH	Urine	Soon	NHANES		
Dicrotophos	CDPH	Urine	Soon	NHANES		
Dimethoate	CDPH	Urine	Soon	NHANES		
Disulfoton	CDPH	Urine	Soon	NHANES		
Ethion	CDPH	Urine	Soon	NHANES		
Fenitrothion	CDPH	Urine	Soon	NHANES		
Fenthion	CDPH	Urine	Soon	NHANES		
Isazophos-methyl	CDPH	Urine	Soon	NHANES		

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Malathion	CDPH	Urine	Soon	NHANES	
Methamidophos	CDPH	Urine	Soon	NHANES	
Methodathion	CDPH	Urine	Soon	NHANES	
Methyl parathion	CDPH	Urine	Soon	NHANES	
Naled	CDPH	Urine	Soon	NHANES	
Oxydemeton-methyl	CDPH	Urine	Soon	NHANES	
Parathion	CDPH	Urine	Soon	NHANES	
Phorate	CDPH	Urine	Soon	NHANES	
Phosmet (Imidan)	CDPH	Urine	Soon	NHANES	
Pirimiphos-methyl	CDPH	Urine	Soon	NHANES	
Sulfotepp	CDPH	Urine	Soon	NHANES	
Temephos	CDPH	Urine	Soon	NHANES	
Terbufos	CDPH	Urine	Soon	NHANES	
Tetrachlorvinphos	CDPH	Urine	Soon	NHANES	
Other Pesticides					
DDT (DDE)	DTSC	Blood	Now	NHANES	CDC 3rd Report p.324-330; Kannan et al. 2008
<i>para</i> -Dichlorobenzene (1,4-DCB)	CDPH	Urine	Not planned	NHANES	CDC 3rd Report p.423-424
2,4-Dichlorophenoxy-acetic acid (2,4-D) salts and esters	CDPH	Urine	Not planned	NHANES	CDC 3rd Report p.390-394; CDPR PUR 2007
Environmental phenols⁴					
2,4,4'-Trichloro-2'-hydroxyphenyl ether (Triclosan)	CDPH	Urine	Soon	NHANES	Calafat et al. 2008a
Bisphenol A	CDPH	Urine	Soon	NHANES	Calafat et al. 2008b
Brominated and Chlorinated Organic Chemical Compounds used as Flame Retardants⁵					
<u>Polybrominated Diphenyl Ethers (PBDEs)</u>					Sjödin et al. 2008
2,2',4'-Tribromodiphenyl ether (BDE 17)	DTSC	Serum	Now	NHANES	
2,4,4'-Tribromodiphenyl ether (BDE 28)	DTSC	Serum	Now	NHANES	
2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)	DTSC	Serum	Now	NHANES	
2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)	DTSC	Serum	Now	NHANES	
2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)	DTSC	Serum	Now	NHANES	
2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)	DTSC	Serum	Now	NHANES	
2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)	DTSC	Serum	Now	NHANES	
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)	DTSC	Serum	Now	NHANES	
2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)	DTSC	Serum	Now	NHANES	
2,2',3,4,4',5,6'-Heptabromodiphenyl ether (BDE 183)	DTSC	Serum	Now	NHANES	
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)	DTSC	Serum	Now	NHANES	
2,2',4,4',5,5'-Hexabromobiphenyl (PBB 153)	DTSC	Serum	Not Planned	NHANES	

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Other					CECBP Documents Flame Retardants 2008, 2009
Bis(2-ethyl-1-hexyl) tetrabromophthalate (TBPH)	DTSC	Serum	Soon	Not yet known	
Bis(hexachlorocyclopentadieno)cyclooctane (Dechlorane Plus)	DTSC	Serum	Not planned	Not yet known	
1,2-Bis(2,4,6-tribromophenoxy)ethane (BTBPE)	DTSC	Serum	Soon	Not yet known	
Decabromodiphenylethane (DBDPE)	DTSC	Serum	Soon	Not yet known	
1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane (TBECH)	DTSC	Serum	Soon	Not yet known	
2-Ethyl-1-hexyl-2,3,4,5-tetrabromobenzoate (TBB)	DTSC	Serum	Soon	Not yet known	
Hexabromocyclododecane (HBCD)	DTSC	Serum	Later	Not yet known	
Hexachlorocyclopentadienyl-dibromocyclooctane	DTSC	Serum	Not planned	Not yet known	
Pentabromoethylbenzene (PBEB)	DTSC	Serum	Soon	Not yet known	
Short-chain chlorinated paraffins	DTSC	Serum	Not planned	Not yet known	
Tetrabromobisphenol A (TBBPA)	DTSC	Serum	Soon	Not yet known	
Tris(1,3-dichloro-2-propyl)phosphate	DTSC	Serum	Not planned	Not yet known	
Tris(2-chloroethyl)phosphate	DTSC	Serum	Not planned	Not yet known	
2,3-Dibromopropyl-2,4,6-tribromophenyl ether (DPTE)	DTSC	Serum	Soon	Not yet known	
Hexabromobenzene (HBB)	DTSC	Serum	Soon	Not yet known	
Pentabromotoluene (PBT)	DTSC	Serum	Soon	Not yet known	
Tris(1-chloro-2-propyl)phosphate (TCPP)	DTSC	Serum	Not planned	Not yet known	
Tris(2,3-dichloro-1-propyl)phosphate	DTSC	Serum	Not planned	Not yet known	
Tetrakis(2-chloroethyl)dichloroisopentylidiphosphate	DTSC	Serum	Not planned	Not yet known	
Tetrabromophthalic anhydride	DTSC	Serum	Not planned	Not yet known	
Tetrabromobisphenol A bis(2,3)dibromopropyl ether	DTSC	Serum	Not planned	Not yet known	
N-N-Ethylene-bis(tetrabromophthalimide)	DTSC	Serum	Not planned	Not yet known	
Chlorendic acid	DTSC	Serum	Not planned	Not yet known	
Bis(2-hydroxyethyl ether) TBBPA	DTSC	Serum	Not planned	Not yet known	
2,2-Bis(bromomethyl)-1,3-propanediol	DTSC	Serum	Not planned	Not yet known	
2,2-Bis(chloromethyl)trimethylene bis[bis(2-chloroethyl)phosphate]	DTSC	Serum	Not planned	Not yet known	
2, 4, 6-Tribromophenol	DTSC	Serum	Not planned	Not yet known	
Perchlorate	CDPH	Urine	Soon	NHANES	Blount et al. 2006, 2006a
Phthalates⁴					CDC 3rd Report p.253-282
Dimethyl phthalate (DMP)	CDPH	Urine	Not planned	NHANES	
Diethyl phthalate (DEP)	CDPH	Urine	Soon	NHANES	
Dibutyl phthalate (DBP)	CDPH	Urine	Soon	NHANES	
Benzylbutyl phthalate (BzBP)	CDPH	Urine	Soon	NHANES	
Dicyclohexyl phthalate (DCHP)	CDPH	Urine	Not planned	NHANES	
Di-2-ethylhexyl phthalate (DEHP)	CDPH	Urine	Later	NHANES	
Di-n-octyl phthalate (DOP)	CDPH	Urine	Soon	NHANES	
Di-isononyl phthalate (DiNP)	CDPH	Urine	Later	NHANES	

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Perfluorinated compounds⁴					Calafat et al. 2007, 2007a; Begley et al. 2005; Kannan et al. 2006
Perfluorooctanoic acid	DTSC	Serum	Soon	NHANES	
Perfluorooctane sulfonic acid	DTSC	Serum	Soon	NHANES	
Perfluorohexane sulfonic acid	DTSC	Serum	Soon	NHANES	
N-Ethyl-perfluorooctane sulfonamide	DTSC	Serum	Soon	NHANES	
N-Methyl-perfluorooctane sulfonamide	DTSC	Serum	Soon	NHANES	
Perfluorodecanoic acid	DTSC	Serum	Soon	NHANES	
Perfluorobutane sulfonic acid	DTSC	Serum	Not planned	NHANES	
Perfluoroheptanoic acid	DTSC	Serum	Soon	NHANES	
Perfluorononanoic acid	DTSC	Serum	Soon	NHANES	
Perfluorooctane sulfonamide	DTSC	Serum	Not planned	NHANES	
Perfluoroundecanoic acid	DTSC	Serum	Soon	NHANES	
Perfluorododecanoic acid	DTSC	Serum	Soon	NHANES	
Cyclosiloxanes⁵	DTSC	Serum	Later	Other	CECBP Document Cyclosiloxanes 2008
Octamethylcyclotetrasiloxane (D4)	DTSC	Serum	Later	Other	
Decamethylcyclopentasiloxane (D5)	DTSC	Serum	Later	Other	
Dodecamethylcyclohexasiloxane (D6)	DTSC	Serum	Later	Other	
Polycyclic Aromatic Hydrocarbons⁴					CDC 3rd Report p.79-80
6-Hydroxychrysene	CDPH	Urine	Later	NHANES	CDC 3rd Report p.99-100
3-Hydroxyphenanthrene	CDPH	Urine	Soon	NHANES	CDC 3rd Report p.117-119
3-Hydroxybenzo[a]pyrene	CDPH	Urine	Later	NHANES	CDC 3rd Report p.127-128

Notes:

¹ Target chemical for measurement may be parent chemical, metabolite, or related compound and may change as method development proceeds.

² Now = current capability; Soon = plan for near-term (< 12 month) capability; Later = plan for long-term (>12 month) capability; Not planned = not currently developing capability. This represents the anticipated timeline by which the labs will be technically capable of measuring the chemical, but does not take the resources required to routinely biomonitor the chemical into account.

³ NHANES = detected in NHANES participants; Other = detected in a biomonitoring study other than NHANES

⁴ All members of the chemical class are not priority chemicals; only the specific chemicals listed are priority chemicals.

⁵ All members of the chemical class are priority chemicals, including but not limited to, the chemicals shown.

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