

Prioritization of Proposition 65 DART Candidate Chemicals

Developmental and Reproductive
Toxicant Identification Committee
Meeting
July 12-13, 2011

Prioritization Process

Tracking Database



Candidate Chemicals



Screens: Focused Literature Review

Chemicals Proposed for Committee Consideration



Consultation with the Committee on Chemicals for Review



**OEHHA Selection of Chemicals for
Preparation of Hazard Identification Materials**

Office of Environmental Health Hazard Assessment
DART IC Meeting July 12-13, 2011

Initial Steps

From the tracking database, candidate chemicals are identified as having:

- some relevant DART data
- some potential for exposure in California

Recommended Screens

Exposure Screen – to identify chemicals that have been found in humans

Toxicity Screen – to identify chemicals that have a substantial amount of DART data

Exposure Screen

The exposure screen will select chemicals that are identified from various sources as having been detected in humans.

- Begin with compiled databases of information such as NHANES
- Proceed if necessary to studies published in the scientific literature

Toxicity Screen

The number of relevant studies of apical DART endpoints will be identified for candidate chemicals that have passed the exposure screen.

- A specific number of available studies (probably in the range of 6-10) will be selected as the cut-off for chemicals being identified as potential candidates.
- This number will be chosen to yield 8-15 potential candidates.

Application of the Toxicity and Exposure Screens

- ~1040 chemicals were screened for relevant DART data (using TOXNET keyword searches).
 - **~730 were found to have DART evidence.**
 - ~175 (of ~730) chemicals had ≥ 30 references.
- ~175 chemicals were screened for having been detected in humans (using NHANES).
 - **~133 chemicals with DART evidence were identified in NHANES .**
- **19 chemicals are NHANES chemicals with ≥ 60 DART references.**

Chemicals in NHANES with ≥ 60 DART References

Chemical	Number of TOXNET hits
benzo-a-pyrene	641
cotinine	444
cobalt	395
genistein	372
naphthalene	228
cesium	227
styrene	205
xylene	178
mono-2-ethylhexyl phthalate	150
methyl parathion	128
platinum	127
dichloromethane (methylene chloride)	122
tetrachloroethene	108
uranium	102
daidzein	89
deltamethrin	78
heptachlor epoxide	66
tetrachlorodibenzofuran, 2,3,7,8-	63
diethylmetatoluamide, n,n- (DEET)	60

Criteria for Number of Reports of DART Endpoints in Animals

- A total of ≥ 15 reports of relevant DART endpoints
- A total of ≥ 10 reports of any single relevant DART endpoint (i.e., developmental or female reproductive or male reproductive)

Candidate Chemicals Selected

Chemical	Animal developmental	Animal female	Animal male	Total animal	Human developmental	Human female	Human male	Total Human
benzo[a]pyrene	19	11	7	37	4	2	2	9
platinum	9	2	14	25	0	0	0	0
uranium	7	5	11	23	1	1	2	4
methyl parathion	5	7	9	21	0	0	2	2
naphthalene	14	0	5	19	2	1	5	8
styrene	14	0	4	18	1	0	3	4
deltamethrin	9	0	6	15	0	0	0	0
xylene	10	0	2	12	7	8	4	19
daidzein	5	3	4	12	1	0	0	1
cobalt	4	0	7	11	0	0	0	0
cesium	5	5	1	11	0	0	0	0
2,3,7,8-tetrachlorodibenzo-furan	8	1	0	9	1	2	0	3
tetrachloroethene	4	1	0	5	18	13	3	34
diethylmetatoluamide , n,n- (DEET)	3	0	1	4	1	0	1	2
dichloromethane (methylene chloride)	2	0	0	2	0	0	0	0
heptachlor epoxide	1	1	0	2	1	0	1	2

Prioritization Materials

Only abstracts and/or titles of relevant studies were compiled and provided to the DART IC for:

- **benzo[a]pyrene**
- **uranium**
- **methyl parathion**
- **deltamethrin**
- **Xylene**

[evaluation of the complete studies will occur only if a chemical is selected for hazard identification material preparation]

Questions?

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