CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (PROPOSITION 65)

REQUEST FOR RELEVANT INFORMATION ON CHEMICALS BEING CONSIDERED FOR LISTING BY THE AUTHORITATIVE BODIES MECHANISM: BROMOCHLOROACETIC ACID AND CUMENE

October 16, 2009

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) is requesting information as to whether *bromochloroacetic acid* and *cumene* meet the criteria for listing under the Safe Drinking Water and Toxic Enforcement Act of 1986.[1] This action is being proposed under the authoritative bodies listing mechanism.[2]

Chemical	CAS No.	Endpoint	Reference	Chemical Use
Bromochloroacetic acid	5589-96-8	Cancer	NTP (2009a)	Water disinfection by-product
Cumene	98-82-8	Cancer	NTP (2009b)	Used in the production of numerous chemicals, especially phenol and acetone; used as a thinner, a solvent, and in some fuels; occurs naturally in petroleum and at trace amounts in some foods

Background on listing via the authoritative bodies mechanism: A chemical must be listed under the Proposition 65 regulations when two conditions are met:

1) An authoritative body formally identifies the chemical as causing cancer (Section 25306(d)[3]).
2) The evidence considered by the authoritative body meets the sufficiency criteria contained in the regulations (Section 25306(e)).

However, the chemical is not listed if scientifically valid data which were not considered by the authoritative body clearly establish that the sufficiency of evidence criteria were not met (Section 25306(f)).

[1] Commonly known as Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 is codified in Health and Safety Code section 25249.5 *et seq*.
[2] See Health and Safety Code section 25249.8(b) and Title 27, Cal. Code of Regs., Section 25306.
[3] All referenced sections are from Title 27 of the Cal. Code of Regulations.

The National Toxicology Program (NTP) is one of several institutions designated as an authoritative body for the identification of chemicals as causing cancer (Section 25306(m)).

OEHHA is the lead agency for Proposition 65 implementation. After an authoritative body has made a determination about a chemical, OEHHA evaluates whether listing under Proposition 65 is required using the criteria contained in the regulations.

OEHHA's determination: *Bromochloroacetic acid* and *cumene* each appear to meet the criteria for listing as known to the State to cause cancer under Proposition 65, based on findings of the National Toxicology Program (NTP, 2009a; NTP, 2009b).

Formal identification and sufficiency of evidence for bromochloroacetic acid: In 2009, the NTP published a report on bromochloroacetic acid, entitled *Toxicology and Carcinogenesis Studies of Bromochloroacetic Acid (CAS No. 5589-96-8) in F344/N Rats and B6C3F1 Mice (Drinking Water Studies)*. This report concludes that the chemical causes cancer, which appears to satisfy the formal identification and sufficiency of evidence criteria in the Proposition 65 regulations.

OEHHA is relying on the NTP's discussion of data and conclusions in the report that bromochloroacetic acid causes cancer. The NTP (2009a) report concludes:

> "Under the conditions of these 2-year studies, there was *clear evidence of carcinogenic activity* of bromochloroacetic acid in male F344/N rats based on increased incidences of malignant mesotheliomas and adenomas of the large intestine. There was *clear evidence of carcinogenic activity* of bromochloroacetic acid in female F344/N rats based on increased incidences of adenomas of the large intestine; increased incidences of multiple fibroadenomas of the mammary gland in female rats were also considered to be exposure related. Increased incidences of pancreatic islet adenomas in male rats and of hepatocellular adenomas in male and female rats may have been related to bromochloroacetic acid exposure. There was *clear evidence of carcinogenic activity* of bromochloroacetic acid in male and female B6C3F1 mice based on increased incidences of hepatocellular neoplasms and hepatoblastoma (males only)." (Emphasis in original)

Thus, the NTP (2009a) has found that bromochloroacetic acid causes increased incidences of malignant mesotheliomas in male rats, and malignant liver tumors in male and female mice.

Formal identification and sufficiency of evidence for cumene: In 2009, the NTP published a report, entitled *Toxicology and Carcinogenesis Studies of Cumene (CAS No. 98-82-8) in F344/N Rats and B6C3F1 Mice (Inhalation Studies)*. The report concludes that cumene causes cancer, which appears to satisfy the formal identification and sufficiency of evidence criteria in the Proposition 65 regulations.

OEHHA is relying on the NTP's discussion of data and conclusions in the report that cumene causes cancer. The NTP (2009b) report concludes:

> "Under the conditions of these 2-year inhalation studies, there was *clear evidence of carcinogenic activity* of cumene in male F344/N rats based on increased incidences of respiratory epithelial adenoma in the nose and renal tubule adenoma or carcinoma (combined). Increased incidences of interstitial cell adenoma of the testis may have been related to exposure to cumene. There was *some evidence of carcinogenic activity* of cumene in female F344/N rats based on the incidences of respiratory epithelium adenoma in the nose. There was *clear evidence of carcinogenic activity* of cumene in male B6C3F1 mice based on

increased incidences of alveolar/bronchiolar neoplasms. The increased incidences of hemangiosarcoma in the spleen and follicular cell adenoma in the thyroid gland in male mice may have been related to cumene exposure. There was *clear evidence of carcinogenic activity* of cumene in female B6C3F1 mice based on increased incidences of alveolar/bronchiolar neoplasms. Increased incidences of hepatocellular adenoma or carcinoma (combined) in female mice were also considered to be related to exposure to cumene." (Emphasis in original)

Thus, the NTP (2009b) has found that cumene causes increased incidences of combined benign and malignant kidney tumors in male rats, and malignant lung tumors in mice of both sexes.

Request for relevant information: OEHHA is committed to public participation in its implementation of Proposition 65. OEHHA wants to ensure that its regulatory decisions are based on a thorough consideration of all relevant information. OEHHA is requesting public comment concerning whether these two chemicals meet the criteria set forth in the Proposition 65 regulations for authoritative bodies listings.

After reviewing all comments received, OEHHA will determine whether the identified chemicals meet the regulatory criteria for administrative listing and proceed with listing. If either or both of the chemicals meet the listing criteria, OEHHA will publish a Notice of Intent to List.

In order to be considered, **OEHHA must receive comments by 5:00 p.m. on Tuesday, December 15, 2009.** We encourage you to submit comments in electronic form, rather than in paper form. Comments transmitted by e-mail should be addressed to coshita@oehha.ca.gov. Comments submitted in paper form may be mailed, faxed, or delivered in person to the addresses below:

Mailing Address:	Ms. Cynthia Oshita Office of Environmental Health Hazard Assessment P.O. Box 4010, MS-19B Sacramento, California 95812-4010
Fax:	(916) 323-8803
Street Address:	1001 I Street Sacramento, California 95814

Optional public forum: Upon request, OEHHA will schedule a public forum to provide individuals an opportunity to present oral comments on the possible listing of these chemicals. At the forum, the public may discuss the scientific data and other relevant information on whether either chemical meets the criteria for listing in the regulations.

Requests for a public forum must be submitted in writing no later than November 13, 2009. The written request must be sent to OEHHA at the mailing address above. If a public forum is requested, a notice will be posted on the OEHHA web site at least ten days before the forum date. The notice will provide the date, time, location and subject matter to be heard. Notices will also be sent to those individuals requesting such notification.

If you have any questions, please contact Ms. Oshita at coshita@oehha.ca.gov or at (916) 445-6900.

References

National Toxicology Program (NTP, 2009a). *Toxicology and Carcinogenesis Studies of Bromochloroacetic Acid (CAS No. 5589-96-8) in F344/N Rats and B6C3F1 Mice (Drinking Water Studies).* NTP Technical Report Series No. 549. NIH Publication No. 09-5890. U.S. Department of Health and Human Services, NTP, Research Triangle Park, NC.

National Toxicology Program (NTP, 2009b). *Toxicology and Carcinogenesis Studies of Cumene (CAS No. 98-82-8) in F344/N Rats and B6C3F1 Mice (Inhalation Studies).* NTP Technical Report Series No. 542. NIH Publication No. 09-5885. U.S. Department of Health and Human Services, NTP, Research Triangle Park, NC.