



Environmental Assessment Dioxin

The Issue

The term "dioxin" is commonly used to refer to a family of toxic chemicals that share a similar chemical structure and induce harm through a similar mechanism. Dioxins have been characterized by EPA as likely human carcinogens and are anticipated to increase the risk of cancer at background levels of exposure.

Dioxin levels in the environment have been declining since the early seventies and have been the subject of a number of federal and state regulations and clean-up actions; however, current exposures levels still remain a concern. Examples of dioxins include polychlorinated biphenyls (PCBs), polychlorinated dibenzo dioxins (PCDDs), and polychlorinated dibenzo furans (PCDFs). PCBs were produced commercially in large quantities until production was stopped in 1977. PCDDs and PCDFs are not commercial chemical products, but are unintentional byproducts of most forms of combustion and several industrial chemical processes.

EPA Action

Scientists in EPA's National Center for Environmental Assessment are currently working on a comprehensive reassessment of dioxin exposure and human health effects. The latest draft assessment, *Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds* posted in Dec 2003, is still undergoing revisions in light of the review by the *National Academy of Sciences (NAS)* in November 2004. A Workshop in Feb 2008 was held to discuss EPA's response to the NAS reports.

History

Sep 1985 EPA released the *Health Assessment Document for Polychlorinated Dibenzo-P-Dioxins* report.

Jun-Aug 1994 EPA released the draft documents: *Health Assessment Document for 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (TCDD) and Related Compounds Volume (1 of 3)*, *Volume (2 of 3)*, and *Volume (3 of 3)*

Sep 1994 EPA launched the *Dioxin Exposure Initiative*, a research program to further evaluate the exposure of Americans to this class of compounds.

Sep 1995 EPA's Science Advisory Board (SAB) released the report, *A Second Look at Dioxin*. (PDF, 129 pp., 330,353 bytes)

Jul 2000 EPA released the *consolidated comments from the Peer Review of the Draft Dioxin Reassessment*

May 2001 EPA's SAB released the *Dioxin Reassessment - An SAB Review of the Office of Research and Development's Reassessment of Dioxin*. (PDF, 80 pp., 188,323 bytes)

Oct 2003 EPA requested the *NAS Review Draft of the Dioxin Assessment* with updates on the *Questions and Answers about Dioxin*.

Oct 2004 EPA released the *NAS External Review Draft of the Dioxin Assessment*, in preparation for the first NAS panel meeting (held 11/22 -23/2004), in Wash., DC. This is still the most current version of the *EPA Dioxin Assessment*.

Jul 2006 NAS released *Health Risks from Dioxin and Related Compounds: Evaluation of the EPA Reassessment*.

Sep 2008 The Interagency Dioxin Workgroup released an update to the *Questions and Answers about Dioxin 2008*.

Nov 2008 EPA released a *preliminary search list* to address EPA's Responses to the NAS comments on the 2003 Dioxin Reassessment report.

Feb 2009 EPA hosted a 3-day public, scientific workshop to assist EPA in responding to the NAS reports on Dioxin. [[Workshop Announcement and details](#)]

May 2009 EPA released the *2009 Science Plan for activities related to Dioxins in the environment*.

Jun 2009 EPA released the *Dioxin Workshop Summary report* containing discussions and conclusions from the Feb 18-20, 2009 workshop held in Cincinnati, Ohio.

Sep 2009 EPA released the *University of Michigan study of dioxin exposures in Midland, Michigan*.

Dec 2009 EPA released the *Review of State Soil Cleanup Levels for Dioxin*.

May 2010 EPA released *EPA's Reanalysis of Key Issues Related to Dioxin Toxicity and Response to NAS Comments* under the IRIS process, which includes the release of the *interagency comments and pre-release drafts*.

Related Links

- [EPA Analytical Method 1613](#) for analysis of dioxin and other related compounds.
- [Dioxin Overview](#): from EPA's Office of Chemical Safety and Pollution Prevention (OCSP)

Best Resources

U.S. EPA. [EPA's Reanalysis of Key Issues Related to Dioxin Toxicity and Response to NAS Comments \(External Review Draft\)](#). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/038A, 2010.

U.S. EPA. [2,3,7,8-Tetrachlorodibenzo-P-Dioxin \(TCDD\) Dose-Response Studies: Preliminary Literature Search Results and Request for Additional Studies](#). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/119, 2008.

U.S. EPA. [An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the U.S. for the Years 1987, 1995, and 2000 \(Final, Nov 2006\)](#). U.S. Environmental Protection Agency, Washington, DC, EPA/600/P-03/002F.

U.S. EPA. [User's Manual for the Database of Sources of Environmental Releases of Dioxin-Like Compounds in the U.S.: Reference Years 1987 and 1995](#). U.S. Environmental Protection Agency, Washington, D.C., EPA/600/R-01/012.

U.S. EPA. [Relative Congener Scaling of Polychlorinated Dibenzo-P-Dioxins and Dibenzofurans to Estimate Building Fire Contributions in Air, Surface Wipes, and Dust Samples](#). , Joachim D. Pleil and Matthew N. Lorber (ed.), Submitted to: ENVIRONMENTAL SCIENCE AND TECHNOLOGY. John Wiley & Sons, Ltd., Indianapolis, IN, 41

Superfund Records Center

SITE: Centredale <http://cfpub.epa.gov/ncea/CFM/nceaQFind.cfm?keyword=Dioxin>

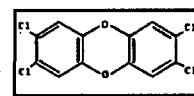
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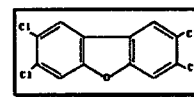
Recent Updates

- 8/11: [Dioxin Science Plan Update](#)
- 11/10: [Reports on Dioxin emitted during Deepwater Horizon BP Spill](#)
- 5/10: [Dioxin Reanalysis Report](#)
- 5/10: [Updated Questions and Answers about Dioxin](#)

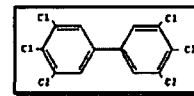
Dioxin and Related Compounds



2,3,7,8-Tetrachlorodibenzo-p-dioxin



2,3,7,8-Tetrachlorodibenzofuran



3,3',4,4',5,5'-Hexachlorobiphenyl



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(21): 7286 -7293, (2007).

U.S. EPA. An Exploratory Study: Assessment of Modeled Dioxin Exposure in Ceramic Art Studios (2008 Final). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-06/044F, 2008.

U.S. EPA. Pilot Survey of Levels of Polychlorinated Dibenzo-P-Dioxins (PCDDs), Polychlorinated Dibenzofurans (PCDFs), Polychlorinated Biphenyls (PCB) and Mercury in Rural Soils of the U.S. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-05/043F, 2007.

MUKERJEE, D., C. RIS, AND J. SCHAUM. Health Risk Assessment Approach for 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1985). U.S. Environmental Protection Agency, Washington, DC, EPA/600/8-85/013 (NTIS PB86-122546/AS), 1985.

U.S. EPA. Health Effects Assessment for 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1984). U.S. Environmental Protection Agency, Washington, D.C., EPA/540/1-86/044 (NTIS PB86134558), 1984.

U.S. EPA. EPA Regulations Related to Dioxin. U.S. Environmental Protection Agency, Washington, DC, 2003.

List additional resources associated with Dioxin