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## ***CDC's Third National Report on Human Exposure to Environmental Chemicals***

### **Spotlight on Dioxins, Furans, and Dioxin-Like Polychlorinated Biphenyls**

Dioxins, furans, and dioxin-like polychlorinated biphenyls (PCBs) are the abbreviated names for a family of chemicals that share a similar chemical structure. Most of these chemicals are not manufactured or produced intentionally but are created when other chemicals or products are made. These chemicals may be created during burning of forests or household trash; chlorine bleaching of pulp and paper; or manufacturing or processing of certain types of chemicals, such as pesticides. Most soil and water samples contain trace amounts of dioxins and furans.

#### **How People Are Exposed to Dioxins, Furans, and Dioxin-Like PCBs**

People can be exposed to dioxins, furans, and dioxin-like PCBs by

- Eating contaminated foods. The main dietary sources are dairy products, eggs, meat, and fish.
- Breathing air or drinking water contaminated with these chemicals or coming into contact with contaminated soil.
- Working in industries that produce certain pesticides containing dioxins, working at paper and pulp mills, or operating incinerators.

#### **How Dioxins, Furans, and Dioxin-Like PCBs Affect People's Health**

- The most well-known and well-studied chemical in the dioxin, furan, and dioxin-like PCBs family is 2,3,7,8-TCDD. The U.S. Environmental Protection Agency and the International Agency for Research on Cancer have classified 2,3,7,8-TCDD as likely to cause cancer in people.
- People exposed to high levels of dioxin have developed a skin condition called chloracne. Liver injury also may occur after heavy prolonged exposures.
- More research is needed to determine the health effects on people of all chemicals in the dioxin, furan, and dioxin-like PCBs family, but some studies suggest effects on hormonal balance and immune responses.

#### **Levels of Dioxins, Furans and Dioxin-Like PCBs in the U.S. Population**

- The *Third Report* provides data for 29 dioxins, furans, and dioxin-related PCBs.

- For the *Third Report*, scientists tested serum samples in people who took part in CDC's national study known as the National Health and Nutrition Examination Survey.
- Information about levels of specific dioxins, furans and dioxin-like PCBs in the U.S. population is available in the *Report* at <http://www.cdc.gov/exposurereport>.

### For More Information

- **Agency for Toxic Substances and Disease Registry**  
Public Health Statement for Chlorinated Dibenzo-p-Dioxins:  
<http://www.atsdr.cdc.gov/toxprofiles/phts104.html>  
ToxFAQs for Chlorinated Dibenzo-p-Dioxins:  
<http://www.atsdr.cdc.gov/tfacts104.html>  
Public Health Statement for Chlorodibenzofurans:  
<http://www.atsdr.cdc.gov/toxprofiles/phts32.html>  
ToxFAQs for Chlorodibenzofurans:  
<http://www.atsdr.cdc.gov/tfacts32.html>
- **U.S. Environmental Protection Agency**  
Dioxins and Furans:  
<http://www.epa.gov/pbt/dioxins.htm>
- **International Agency for Research on Cancer**  
Polychlorinated Dibenzo-para-dioxins:  
<http://www-cie.iarc.fr/htdocs/monographs/vol69/dioxin.html>
- **Food and Drug Administration**  
Questions and Answers About Dioxins:  
<http://www.cfsan.fda.gov/~lrd/dioxinqa.html>

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NCEH Pub 05-0664  
July 2005

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