

ATSDR's Substance-Specific Priority Data Needs – Filled		
Substances	PDN Description	Status⁽¹⁾
Aldrin/Dieldrin	<ul style="list-style-type: none"> • Dose-response data in animals for intermediate⁽²⁾-duration oral exposure • Bioavailability from soil • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	Filled
Arsenic	<ul style="list-style-type: none"> • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Bioavailability from soil 	Filled
Asbestos	<ul style="list-style-type: none"> • Potential candidate for subregistry of exposed persons • Improved analytical methods for screening samples and determining the chemical structure of asbestos fibers. Also, techniques are needed to normalize studies in which different analytical methods were employed 	Filled
Benzene	<ul style="list-style-type: none"> • Epidemiologic studies on the health effects of benzene (Special emphasis end points include immunotoxicity) • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
Beryllium	<ul style="list-style-type: none"> • Analytical methods to determine environmental speciation • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	Filled
Cadmium	<ul style="list-style-type: none"> • Analytical methods for biological tissues and fluids and environmental media • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	Filled

Carbon tetrachloride	<ul style="list-style-type: none"> • Immunotoxicology battery of tests via oral exposure • Half-life in soil • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
Chlordane	<ul style="list-style-type: none"> • Oral multigenerational studies to evaluate reproductive toxicity • Exposure levels in humans (adults) living near hazardous waste sites and other populations potentially exposed to chlordane • Exposure levels in children 	Filled
Chlorinated dibenzo-p-dioxins (CDDs)	<ul style="list-style-type: none"> • Exposure levels in humans (adults) living near hazardous waste sites • Exposure levels in children 	Filled
Chloroform	<ul style="list-style-type: none"> • Dose-response data in animals for intermediate-duration oral exposure • Epidemiologic studies on the health effects of chloroform (Special emphasis end points include cancer, neurotoxicity, reproductive and developmental toxicity, hepatotoxicity, and renal toxicity) • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
Chromium	<ul style="list-style-type: none"> • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
Cyanide	<ul style="list-style-type: none"> • Evaluation of the environmental fate of cyanide in soil • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
1,1-Dichloroethene	<ul style="list-style-type: none"> • Dose-response data in animals for acute⁽³⁾-duration exposure by the inhalation route • Dose-response data in animals for chronic⁽⁴⁾-duration exposure by the inhalation route 	Filled
DDT	<ul style="list-style-type: none"> • Epidemiologic studies on the health effects of DDT, DDD, and DDE (Special emphasis end points include immunotoxicity, and reproductive and developmental toxicity) • Bioavailability and bioaccumulation from soil • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	Filled

<p>Di(2-ethylhexyl) phthalate</p>	<ul style="list-style-type: none"> • Comparative toxicokinetic studies (Studies designed to examine how primates metabolize and distribute DEHP as compared with rodents via oral exposure) • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Di-n-butyl phthalate</p>	<ul style="list-style-type: none"> • Dose-response data in animals for acute- duration exposure via the oral route • <i>In vivo</i> genotoxicity studies • Environmental fate of di-n-butyl phthalate in environmental media • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Disulfoton</p>	<ul style="list-style-type: none"> • Immunotoxicology testing battery following oral exposure 	<p>Filled</p>
<p>Endrin/endrin aldehyde</p>	<ul style="list-style-type: none"> • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Ethylbenzene</p>	<ul style="list-style-type: none"> • Dose-response data for acute-duration exposure by the inhalation route • Dose-response data for chronic-duration exposure by the inhalation route • Multigeneration toxicity study examining reproductive end points and indicators of endocrine disruption following inhalation exposure • Studies for comparative toxicokinetics • Exposure levels in humans living near hazardous waste sites • Exposure levels in children 	<p>Filled</p>
<p>Heptachlor/ heptachlor epoxide</p>	<ul style="list-style-type: none"> • Multigeneration reproductive toxicity studies via the oral route of exposure • Prenatal developmental toxicity studies via the oral route of exposure • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children • Dose-response animal data for acute- and intermediate-duration oral exposures, including immunopathology 	<p>Filled</p>

<p>Hexachloro-cyclohexane ($\alpha, \beta,$, and γ)</p>	<ul style="list-style-type: none"> • Dose-response data for chronic-duration oral exposure • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Lead</p>	<ul style="list-style-type: none"> • Mechanistic studies on the neurotoxic effects of lead • Analytical methods for tissue levels • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Manganese</p>	<ul style="list-style-type: none"> • Dose-response data for acute- and intermediate-duration oral exposures (the intermediate-duration study should include reproductive histopathology and an evaluation of immunologic parameters including manganese effects on plaque-forming cells (SRBC), surface markers (D4:D8 ratio), and delayed hypersensitivity reactions) • Toxicokinetic studies on animals to investigate uptake and absorption, relative uptake of differing manganese compounds, metabolism of manganese, and interaction of manganese with other substances following oral exposure • Epidemiological studies on the health effects of manganese (Special emphasis end points include neurologic, reproductive, developmental, immunologic, and cancer) 	<p>Filled</p>
<p>Mercury</p>	<ul style="list-style-type: none"> • Multigeneration reproductive toxicity study via oral exposure • Dose-response data in animals for chronic-duration oral exposure • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Methoxychlor</p>	<ul style="list-style-type: none"> • Evaluate neurologic effects after long-term, low-level oral exposure 	<p>Filled</p>

Methylene chloride	<ul style="list-style-type: none"> • Dose-response data in animals for acute- and intermediate-duration oral exposure. The intermediate-duration study should include extended reproductive organ histopathology, neuropathology, and immunopathology • Prenatal developmental toxicity study via the oral route • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled ⁽⁵⁾
Nickel	<ul style="list-style-type: none"> • Epidemiologic studies on the health effects of nickel (Special emphasis end points include reproductive toxicity) • Prenatal developmental toxicity study via the oral route • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
Pentachlorophenol	<ul style="list-style-type: none"> • Exposure levels in humans (adults) living near hazardous waste sites • Exposure levels in children through play activities near contaminated environmental media 	Filled
Polychlorinated biphenyls (PCBs)	<ul style="list-style-type: none"> • Epidemiologic studies on the health effects of PCBs (Special emphasis end points include immunotoxicity, gastrointestinal toxicity, liver toxicity, kidney toxicity, thyroid toxicity, and reproductive/developmental toxicity) • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children • Chronic toxicity and oncogenicity via oral exposure⁽⁶⁾ • Aerobic PCB biodegradation in sediment⁽⁶⁾ • PCB congener analysis⁽⁶⁾ 	Filled

<p>Polycyclic aromatic hydrocarbons (PAHs) (Includes 15 substances)</p>	<ul style="list-style-type: none"> • Dose-response data in animals for intermediate-duration oral exposures. The intermediate-duration study should include extended reproductive organ histopathology and immunopathology • Prenatal developmental toxicity study via inhalation or oral exposure • Mechanistic studies on PAHs, on how mixtures of PAHs can influence the ultimate activation of PAHs, and on how PAHs affect rapidly proliferating tissues • Dose-response data in animals for acute- and intermediate-duration inhalation exposures. The intermediate-duration study should include extended reproductive organ histopathology and immunopathology • Epidemiologic studies on the health effects of PAHs (Special emphasis end points include cancer, dermal, hemolymphatic, and hepatic toxicity) • Exposure levels in humans (adults) living near hazardous waste sites and other populations, such as exposed workers • Exposure levels in children 	<p>Filled</p>
<p>Selenium</p>	<ul style="list-style-type: none"> • Epidemiologic studies on the health effects of selenium (Special emphasis end points include cancer, reproductive and developmental toxicity, hepatotoxicity, and adverse skin effects) • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	<p>Filled</p>
<p>Tetrachloroethylene</p>	<ul style="list-style-type: none"> • Dose-response data in animals for acute-duration oral exposure, including neuropathology and demeanor, and immunopathology • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	<p>Filled</p>
<p>Toluene</p>	<ul style="list-style-type: none"> • Dose-response data in animals for acute- and intermediate-duration oral exposures. The intermediate-duration study should include an extended histopathologic evaluation of the immune system • Comparative toxicokinetic studies (Characterization of absorption, distribution, and excretion via oral exposure) • Mechanism of toluene-induced neurotoxicity • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	<p>Filled</p>

Trichloroethylene	<ul style="list-style-type: none"> • Dose-response data in animals for acute-duration oral exposure • Epidemiologic studies on the health effects of trichloroethylene (Special emphasis end points include cancer, hepatotoxicity, renal toxicity, developmental toxicity, and neurotoxicity) • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers 	Filled
Vinyl chloride	<ul style="list-style-type: none"> • Dose-response data in animals for acute-duration inhalation exposure • Multigeneration reproductive toxicity study via inhalation • Prenatal developmental toxicity study via inhalation 	Filled
Xylenes	<ul style="list-style-type: none"> • Dose-response data for chronic-duration exposure by the oral route. This study should be done in conjunction with the neurotoxicology battery of tests • Prenatal developmental toxicity study that includes neurodevelopmental end points following oral exposure • Exposure levels in children 	Filled
Zinc	<ul style="list-style-type: none"> • Dose-response data in animals for acute- and intermediate-duration oral exposures. The intermediate-duration study should include an extended histopathologic evaluation of the immunologic and neurologic systems • Multigeneration reproductive toxicity study via oral exposure 	Filled

⁽¹⁾ Filled: A priority data need is filled:

- If it has been referred to one of the implementation mechanisms and research has been initiated, or
- If an updated ATSDR toxicological profile contains relevant new studies, or if other relevant, peer-reviewed, and publicly available new studies (not included in the toxicological profile) have been identified since the finalization of the priority data needs document; and it is generally agreed that a priority data need no longer exists.

Furthermore, in the event a priority data need is considered *filled*, it does not necessarily mean that the study has been completed and that ATSDR has accepted the data. It does, however, indicate that the agency no longer considers it a priority to initiate additional studies at this time.

⁽²⁾ Intermediate-duration exposure = 15 – 364 days.

⁽³⁾ Acute-duration exposure = 14 days or less.

- (4) Chronic-duration exposure = 365 days or more.
- (5) Neurotoxicity testing remains a priority data need in the EPA/ATSDR test rule.
- (6) Data need, not priority data need.