# Kids and Chemicals


'Are We Making Our Children Sick?'

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# PBS Special Report Asks 'Are We Making Our Children Sick?'

***Kids and Chemicals***, a special Bill Moyers report to air on PBS this week, explores a disturbing medical mystery: More and more children across the United States are suffering from asthma, childhood cancers, and learning and behavioral disabilities. Are everyday environmental toxins - what kids eat, drink and breathe - putting them at risk?

The program tracks the latest research on links between childhood illness and environmental contamination and looks at families around the country who are coping with the consequences to their children of potentially toxic exposures. Children and developing fetuses can be significantly more vulnerable than adults to the harmful effects caused by exposure to toxins. But so few of the ever-increasing number of chemicals in our environment have been thoroughly tested for their impact on children's health and development, that there are more questions than answers.

"The disturbing increases in childhood illness in America cannot be ignored," says Bill Moyers. "How does the exposure affect children's health? The new research is studying how chemicals enter the human body, and posing questions that they could never ask before: Do chemicals affect children, babies and unborn fetuses more than adults? What factors increase toxicity, and how can we protect children from harm?"

# Explore the Issues Raised by Kids and Chemicals

Concerns highlighted in the PBS show Kids and Chemicals include

- Community contamination with lead
- Increasing rates of certain childhood cancers, and
- Increasing rates of developmental disabilities.

## *Environmental Lead Contamination*

Until the use of lead in gasoline was phased out in the 1980's, children in virtually all urban communities had significant exposure due to lead in tailpipe emissions. Since the removal of lead from gasoline, the average lead level in children's blood has declined from over 10 micrograms per deciliter to about 3 mcg/dl. As the average exposure to lead has declined, however, new studies of lead's effects on the developing brain have shown toxic effects at lower levels of exposure. With the removal of lead gasoline, emissions from industrial sources like the Doe Run facility in Herculaneum, Missouri have become more important sources of air-borne lead. Even more important in most US communities is household contamination from deteriorated lead-based paint and lead-containing soil and dust.

Discover the lead pollution sources in your community.
Learn which companies release the largest amounts of lead to air in the US.

## *Environmental Causes of Leukemia*

There are four different common types of leukemia: acute and chronic myelogenous leukemia (AML and CML0, and acute and chronic lymphocytic leukemia (ALL and CLL). Of these, the two types of myelogenous leukemia have been most commonly associated with toxic chemical exposures. Benzene is the most frequently associated with leukemia. Other suspected leukemogens include styrene. 1.3 butadiene, trichloroethylene, and tetrachloorehylene. In addition, radiation and radioactive isotopes have also been noted to cause leukemia.

## Explore the Issues Raised by Kids and Chemicals

The Fallon, Nevada cluster consists of 15 cases of ALL, and one case of AML in children. ALL is the most common cancer in children, but its causes are poorly understood. Preliminary investigations into the Fallon, Nevada cluster have considered both toxic exposures and the possibility of an unknown infectious agent causing the cases of ALL and AML. The Centers for Disease Control has considered everything from jet fuel emissions to pesticides to naturally occurring arsenic in the water.

## Developmental Disabilities and Environmental Exposures

Children and developing fetuses can be significantly more vulnerable than adults to the harmful effects caused by exposure to toxins. But so few of the ever-increasing number of chemicals in our environment have been thoroughly tested for their impact on children's health and development, that there are more questions than answers. Several chemical exposures have been associated with impaired learning and behavioral abnormalities, including lead, mercury and polychlorinated biphenyls (PCBs).

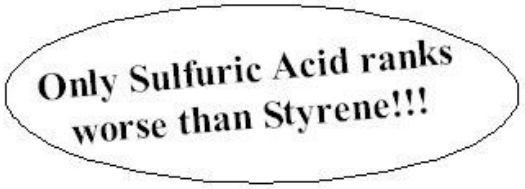
To date, no toxic chemicals have been convincingly associated with more severe behavioral abnormalities, such as autism, but increasing rates of autism have many people concerned that environmental exposures, most likely acting in conjunction with a genetic predisposition, play a role in their development.

Scorecard lists chemicals that are recognized or suspected of causing a range of developmental problems, including but not limited to neurologic or behavioral problems. You can then get detailed information on these chemicals (including where they are released in large quantities to the environment) by pursuing links from the individual chemical profiles.

About the Chemicals: By Chemical

## Suspected Carcinogens To Air

From the About Chemicals section of Scorecard




| Rank | Chemical Name | Pounds |
|---|---|---|
| 1. | sulfuric Acid | 148,795,976 |
| 2. | styrene | 57,162,866 |
| 3. | vinyl acetate | 3,151,687 |
| 4. | chloromethane | 1,910,923 |
| 5. | polycyclic aromatic compounds | 1,874,118 |
| 6. | Chromium compounds | 740,447 |
| 7. | n,n-dimethyylformamide | 730,330 |
| 8. | Chromium | 513,419 |
| 9. | diethanolamine | 291,055 |
| 10. | arsenic (organic or inorganic compounds) | 240,956 |
| 11. | acrolein | 208,108 |
| 12. | nitroglycerin | 154,372 |
| 13. | 1.1-dichloroethylene | 147,265 |
| 14. | allyl chloride | 146,743 |
| 15. | mercury compounds | 134,659 |
| 16. | decabromodiphenyl oxide | 106,219 |
| 17. | antimony compounds | 93,507 |
| 18. | cobalt compounds | 80,227 |
| 19. | p-cresol | 41,746 |
| 20. | m-cresol | 39,492 |
| 21. | atrazine | 33,807 |
| 22. | crotonaldehyde | 24,378 |

About the Chemicals: By Chemical

## Suspected Carcinogens To Air

From the About Chemicals section of Scorecard

**Maryland Rankings**

| Rank | Chemical Name | Pounds |
|---|---|---|
| 1. | sulfuric Acid | 2,835,617 |
| 2. | styrene | 777,673 |
| 3. | chloromethane | 33,000 |
| 4. | polycyclic aromatic compounds | 19,706 |
| 5. | vinyl acetate | 12,294 |
| 6. | carbaryl | 2,950 |
| 7. | chromium compounds | 1,868 |
| 8. | chromium | 1,784 |
| 9. | antimony compounds | 1,400 |
| 10. | mercury compounds | 1,212 |
| 11. | n,n-dimethylformamide | 683 |
| 12. | arsenic (organic or inorganic compounds) | 651 |
| 13. | cobalt compounds | 554 |
| 14. | diethanolamine | 70 |
| 15. | permthrin | 5 |
| 16. | catechol | 3 |
| 17. | nitroglycerin | 1 |

About the Chemicals: By Chemical

## Suspected Carcinogens To Water

From the About Chemicals section of Scorecard

**Maryland Rankings**

| Rank | Chemical Name | Pounds |
|---|---|---|
| 1. | chromium compounds | 227,431 |
| 2. | arsenic (organic or inorganic compounds) | 166,482 |
| 3. | diethanolamine | 150,275 |
| 4. | cobalt compounds | 77,083 |
| 5. | antimony compounds | 63,708 |
| 6. | crotonaldehyde | 36,838 |
| 7. | 2-mercaptobenzthiazole | 35,288 |
| 8. | n,n-dimethylformamide | 20,506 |
| 9. | sulfuric acid | 18,311 |
| 10. | catechol | 18,207 |
| 11. | polycyclic aromatic compounds | 17,606 |
| 12. | chromium | 13,865 |
| 13. | decabromodiphenyl oxide | 9,006 |
| 14. | polychlorinated alkanes (c10-c13) | 5,706 |
| 15. | 1.2-butylene oxide | 5,700 |
| 16. | hydroquinone | 4,170 |
| 17. | styrene | 3,366 |
| 18. | vinyl acetate | 2,377 |
| 19. | mercury compounds | 1,910 |
| 20. | 1.1-dichloroethylene | 1,634 |
| 21. | chloromethane | 1,187 |
| 22. | fomesafen | 1,176 |

All of this is the hazards of Styrene!!!

## Styrene (100-42-5)

Summary from the About Chemicals section of scorecard

Human Health Hazards Reference(s) Recognized:
Suspected: Carcinogen HAZMAP IARC P65-CAND
Cardiovascular or Blood Toxicant RTECS
Developmental Toxicant EPA-SARA JANK
Endocrine Toxicant BKH IL-EPA JNIHS KEIT WWF
Gastrointestinal or Liver Toxicant ATSDR DIPA EPA-HEN RTECS
Immunotoxicant HAZMAP
Kidney Toxicant STAC
Neurotoxicant ATSDR DAN EPA-HEN HAZMAP OEHHA-AREL RTECS
Reproductive Toxicant FRAZIER
Respiratory Toxicant EPA-HEN HAZMAP OEHHA-AREL RTECS
Skin or Sense Organ Toxicant EPA-HEN HAZMAP OEHHA-AREL RTECS

**Hazard Rankings** More hazardous than most chemicals in 6 out of 10 ranking systems.

**Chemical Use Profile** This is a high volume chemical with production exceeding 1 million pounds annually in the U.S.
Used in at least 3 industries.
Used in consumer products, building materials or furnishings that contribute to indoor air pollution.

**REGULATORY COVERAGE** On at least 5 federal regulatory lists.
**Basic Testing to identify Chemical Hazards** Eight basic tests to identify chemical hazards have been conducted and are publicly available for this chemical.