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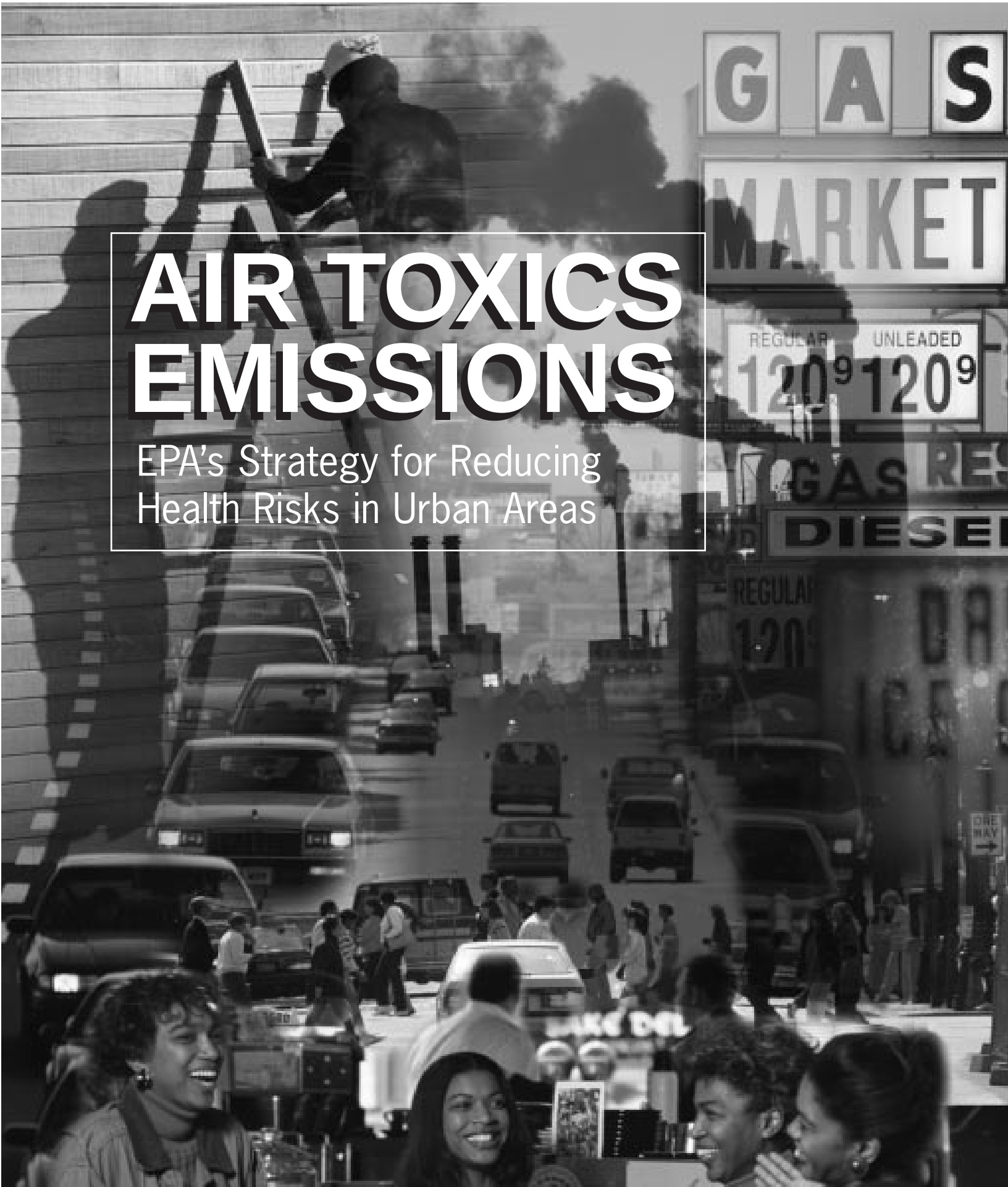



# AIR TOXICS EMISSIONS

## EPA's Strategy for Reducing Health Risks in Urban Areas

## Why is EPA concerned about air toxics?

Millions of people live in areas where toxic air pollutants can potentially pose serious health concerns. Since 1970, the Clean Air Act has provided the principal framework for protecting people and the environment from the harmful effects of air pollution. When Congress passed the Clean Air Act Amendments in 1990, they directed the Environmental Protection Agency (EPA) to address toxic air pollutants coming from sources such as chemical plants, steel mills, cars and trucks.

Progress has been made by EPA, state and local air pollution agencies, and industry in reducing air toxics, but more needs to be done. One component of EPA's efforts focuses on toxic air pollutants in urban areas. Toxic air pollutant emissions in and around urban areas are usually caused by the heavy concentration of factories, the large number of vehicles and other commercial activities in these areas. EPA has developed an urban strategy to target air toxics emissions that potentially pose the greatest health threat.

## What are toxic air pollutants?

Under the 1990 Amendments to the Clean Air Act, EPA is required to regulate sources emitting major amounts of 188 toxic air pollutants. Toxic air pollutants include heavy metals (like mercury and lead), volatile chemicals (like benzene), combustion byproducts (like dioxin), and solvents (like carbon tetrachloride and methylene chloride). Exposure to these pollutants under certain conditions causes a wide range of potential human health and environmental effects. For example, benzene is known to cause cancer, while lead is known to cause developmental delays.

## Where do toxic air pollutants come from?

There are literally millions of sources, ranging from cars to industrial facilities, that emit toxic air pollutants. Air toxics emissions come from mobile sources, and large and small commercial and industrial sources. Air toxics emissions occur throughout the United States, but the highest concentrations of sources occur primarily in urban areas.

### Potential Effects of Toxic Air Pollutants

**Human Health**

- Cancer
- Birth defects
- Developmental delays
- Reduced immunity
- Difficulty in breathing and respiratory damage
- Headache, dizziness, and nausea

**Environmental**

- Reproductive effects and developmental delays in wildlife
- Toxicity to aquatic plants and animals
- Accumulation of pollutants in the food chain

## What has EPA done about air toxics emissions so far?

As of June 1999, EPA has issued 43 air toxics regulations for many of the larger industrial sources, including chemical plants, steel mills, and lead smelters, as well as some categories of smaller commercial and industrial sources, like dry cleaners. When fully implemented, these regulations will reduce air toxics emissions by more than 1 million tons per year.

- ***Mobile sources*** can include cars, trucks, buses, and non-road vehicles like ships or construction equipment.
- ***Small commercial and industrial sources*** can include dry cleaners, gas stations, and landfills.
- ***Large commercial and industrial sources*** can include chemical plants, oil refineries, and steel mills.

Other regulatory programs targeting mobile sources and large and small commercial and industrial sources have also indirectly helped reduce air toxics emissions. For example:

- Controls to reduce volatile organic compounds (VOC) emissions and small particle emissions from all types of sources (both mobile and stationary) have resulted in reductions of air toxics emissions.
- Eliminating leaded gasoline has resulted in a sharp decline in airborne lead.
- Vehicles designed to meet the next generation of emission standards ("Tier 2" emission levels) will emit approximately 99% less VOC (many of which are toxic pollutants).

## What is EPA's Integrated Urban Air Toxics Strategy?

EPA's Integrated Urban Air Toxics Strategy focuses on reducing the human health threats of air toxics in urban areas. Toxic air pollutants are of special concern in urban areas because large concentrations of people live and work near a variety of pollution sources. In this Strategy, EPA outlines future actions that it will take to reduce emissions of air toxics and improve its understanding of the health threats posed by air toxics in urban areas.

### Goals

EPA's goals for the Strategy include reduction of cancer and noncancer risks associated with air toxics in urban areas (see Goals). In urban areas, air toxics may threaten the health of some people more than others, depending on factors such as where they live in relation to toxic sources. EPA also has a specific goal to prevent this type of unfair or disproportionate exposure to air toxics.

### Pollutants Posing the Greatest Health Threat

As a first step, EPA identified 33 of the 188 toxic air pollutants posing the greatest threat to public health in urban areas (see List). This list is based on the quantity of pollutants released to the air, the harm (or toxicity) caused by these pollutants, and the estimated concentration in the air.

### Goals of the Integrated Urban Air Toxics Strategy

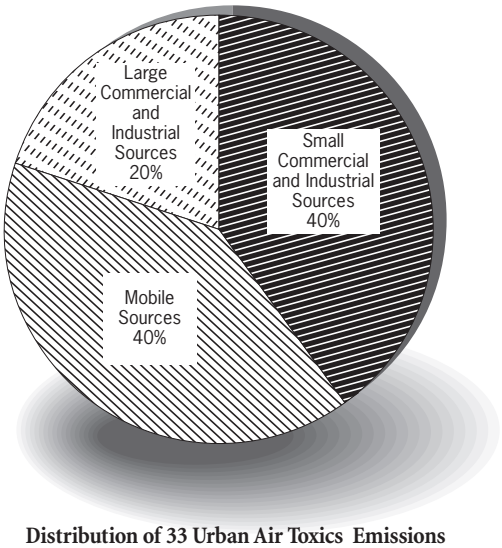
- Reduce by 75% the risk of cancer associated with air toxics from both large and small commercial and industrial sources.
- Substantially reduce noncancer health risks (e.g. birth defects and reproductive effects) associated with air toxics from small commercial and industrial sources.
- Address and prevent disproportionate impacts of air toxics hazards, such as those in areas known as "hot spots," and on sensitive populations in urban areas, including: children, the elderly, minority and low-income communities.

Although diesel emissions are not included as a specific pollutant in this list, many of the hazardous constituents of diesel emissions are included among the 33 urban air toxics. EPA will address diesel emissions specifically as part of an upcoming regulation addressing air toxics emitted from mobile sources. In addition, within the next year, EPA expects to propose a rule lowering sulfur in diesel fuel, which will significantly reduce levels of diesel emissions.

### List of 33 Urban Air Toxics

- acetaldehyde
- acrolein
- acrylonitrile
- arsenic compounds
- benzene
- beryllium compounds
- 1,3-butadiene
- cadmium compounds
- carbon tetrachloride
- chloroform
- chromium compounds
- coke oven emissions
- dioxin
- 1,2-dibromoethane
- propylene dichloride
- 1,3-dichloropropene
- ethylene dichloride
- ethylene oxide
- formaldehyde
- hexachlorobenzene
- hydrazine
- lead compounds
- manganese compounds
- mercury compounds
- methylene chloride
- nickel compounds
- polychlorinated biphenyls (PCBs)
- polycyclic organic matter (POM)
- quinoline
- 1,1,2,2-tetrachloroethane
- perchloroethylene
- trichloroethylene
- vinyl chloride

Although these 33 air toxics are estimated to represent approximately 20 percent of national air toxics emissions, they are believed to be the most important air toxics contributing to potential health risks in urban areas. Distribution of the emissions of the 33 urban air toxics among the various source types is shown below.




**Distribution of 33 Urban Air Toxics Emissions (represents 1990 baseline)**

## How will EPA reduce urban air toxics and address risk?

EPA's Strategy outlines the following steps that EPA will take to reduce urban air toxics and address risk:

**Achieve reductions through regulatory actions and related projects.** As one of the first steps in implementing the Strategy, EPA will focus on reducing emissions from several smaller commercial and industrial operations (referred to as "area" source categories). Collectively, these types of sources can emit large quantities of toxics in urban areas. By 2004, EPA plans to complete regulations to address 13 such sources (see Categories). These are in addition to 16 area source categories for which regulation development is completed or ongoing. EPA will also add to the list of categories in the future as information about air toxics improves.

EPA will also continue to address emissions from all sources. This includes an evaluation of the remaining health and environmental risks from sources subject to existing air toxics standards to determine if further controls are needed. For mobile sources, EPA intends to propose additional regulations addressing toxic emissions from motor vehicles and fuels. EPA will continue efforts that target specific pollutants (e.g., mercury) and expects to initiate a number of pilot projects in the year 2000 to identify and address specific community risks.

### New Area Source Categories

- Cyclic Crude and Intermediate Production
- Municipal Landfills
- Flexible Polyurethane Foam Fabrication Operations
- Oil and Natural Gas Production
- Hospital Sterilizers
- Paint Stripping Operations
- Industrial Inorganic Chemical Manufacturing
- Plastic Materials and Resins Manufacturing
- Industrial Organic Chemical Manufacturing
- Publicly Owned Treatment Works
- Mercury Cell Chlor-Alkali Plants
- Synthetic Rubber Manufacturing
- Gasoline Distribution (Stage I)

**Collaborate with interested groups.** EPA intends to work with state, local, and tribal agencies, environmental groups, environmental justice communities, and affected industries, including small businesses, to assure that any actions under the Strategy are responsive to health concerns while promoting fairness, encouraging urban redevelopment, and minimizing regulatory burden.

**Expand knowledge about air toxics emissions and risks.** EPA recognizes that people want additional information about air toxics in their community and the potential risk from these emissions. In addition, EPA and state and local air agencies would like this type of information to identify areas of concern, set priorities, communicate risks to communities, and track progress in reducing risks. EPA plans to do several assessments of available air toxics emissions information that will be refined over time as better information becomes available. The information EPA provides to everyone will not only include facts about exposure to air toxics, but also information on the link between water quality and the deposition of air toxics.

As information about risks from air toxics emissions in urban areas continues to improve, EPA will update the Integrated Urban Air Toxics Strategy.

## Where can I get more information on urban air toxics?

Visit EPA's Website at www.epa.gov/ttn/uatw/urban/urbanpg.html
or call the U.S. EPA Office of Air Quality Planning and Standards at (919) 541-4487