

# AIR QUALITY

Understanding the composition of the air we breathe, and how it affects our health

## THE AIR WE BREATHE



The atmosphere is composed of a **mixture of gases**, with the most abundant ones being nitrogen (78%) and oxygen (21%).

Argon (0.9%) is also present, along with other gases in trace concentrations, including ozone, water vapour, nitrogen oxides, sulfur dioxide, and greenhouse gases like carbon dioxide (~0.04%).

Some of these are essential for life, while others can be harmful to our health.

## AIR POLLUTANTS

Pollutants in the air are compounds that can be harmful to humans, animals and the environment.

- **gases**, like nitrogen dioxide, sulfur dioxide and ozone
- **particulate matter**, like mineral dust, black carbon (soot), smoke and liquid droplets (e.g. sulfates)

### DID YOU KNOW?

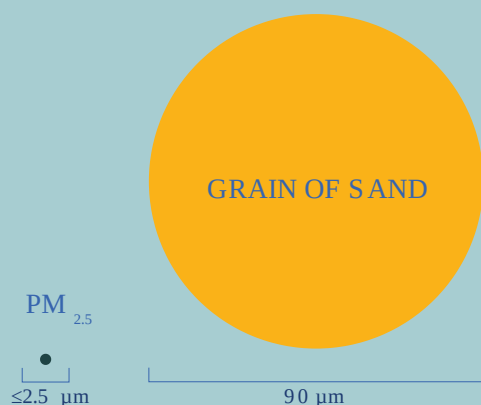


Air pollution kills **7 million** people per year!

## WHAT WE CAN'T SEE

Tiny particles, known as **particulate matter (PM)**, are found in the air. These come from human activities (e.g. cars) or natural sources (e.g. deserts).

Particulate matter is very small and cannot be seen with the naked eye, and comes in different sizes. It is known as **PM2.5** and **PM10** according to the particle diameter (under 2.5 or 10 micrometres, respectively).



## HEALTH EFFECTS OF AIR POLLUTION

Air pollution is a major cause of health problems and deaths in the world. When we breathe, particles enter our body. Larger particles generally come from natural sources and are easily stopped by our nose and throat.

However, smaller particles (like particulate matter) can reach the lungs and other organs, causing different health problems depending on the length of exposure.



### SHORT TERM

- eyes, nose, throat and skin irritation
- coughing, breathing difficulties
- headaches
- respiratory infections, pneumonia, bronchitis
- allergies

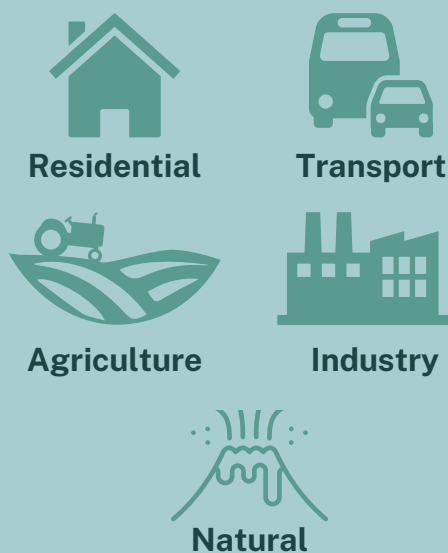
### LONG TERM

- respiratory diseases, like asthma and cancer
- cardiovascular diseases
- strokes
- central nervous system problems

*“Air pollution is now the world’s largest single environmental risk.”*

World Health Organization

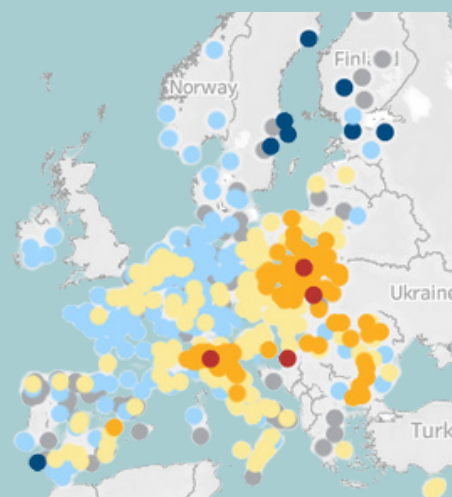
## MAIN SOURCES OF POLLUTANTS



## AIR QUALITY IN EUROPE

In 2021, about 97% of the urban population in the EU was exposed to PM2.5 levels above those set by the 2021 World Health Organisation guidelines (source: EEA).

The highest PM2.5 levels are found in central and eastern European countries (particularly Poland), and in northern Italy.



PM2.5 levels in 2021-2022. Source: EEA  
■ good ■ fair ■ moderate ■ poor ■ very poor