

Impacts and benefits of Indoor Air Quality



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- On Health
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- On Health
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- On Process

Achieving IAQ

- Summary

Mumbai Air Quality Index (AQI) | India

Real-time PM2.5, PM10 air pollution level in Maharashtra

Last Updated: 25 Sep 2024, 03:52pm

GOOD

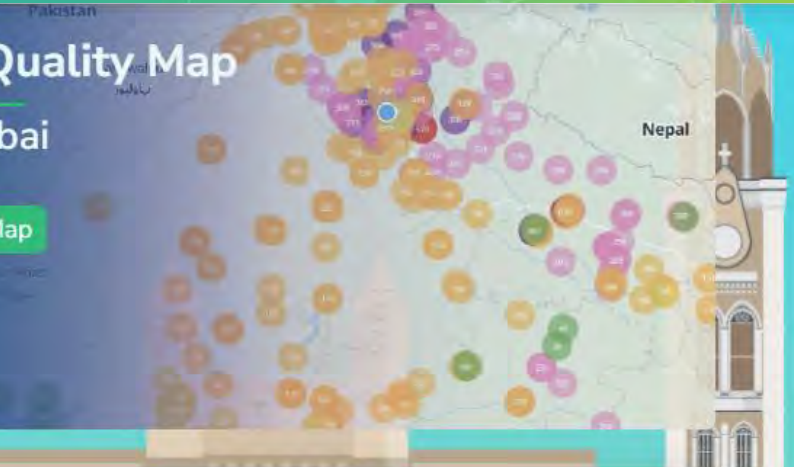
44
(AQI-IN)



Air Quality Map

Mumbai

[View Map](#)



Most Polluted Cities in India

Real-time worst city rankings

RANK CITY AQI-IN

1	Coimbatore, India	340
2	Palghat, India	201
3	Noida, India	168
4	Ghaziabad, India	144
5	New Delhi, India	143
6	Vadodara, India	142
7	Sonipat, India	134
8	Faridabad, India	130
9	Bhiwani, India	126
10	Hisar, India	126

Major Air Pollutants in Mumbai

17 (PM2.5)

252 (CO)

PM2.5
1.1X

The current PM2.5 concentration in **Mumbai** is **1.1 times above** the recommended limit given by the WHO 24 hrs air quality guidelines value.

40 (PM10)

7 (Ozone)

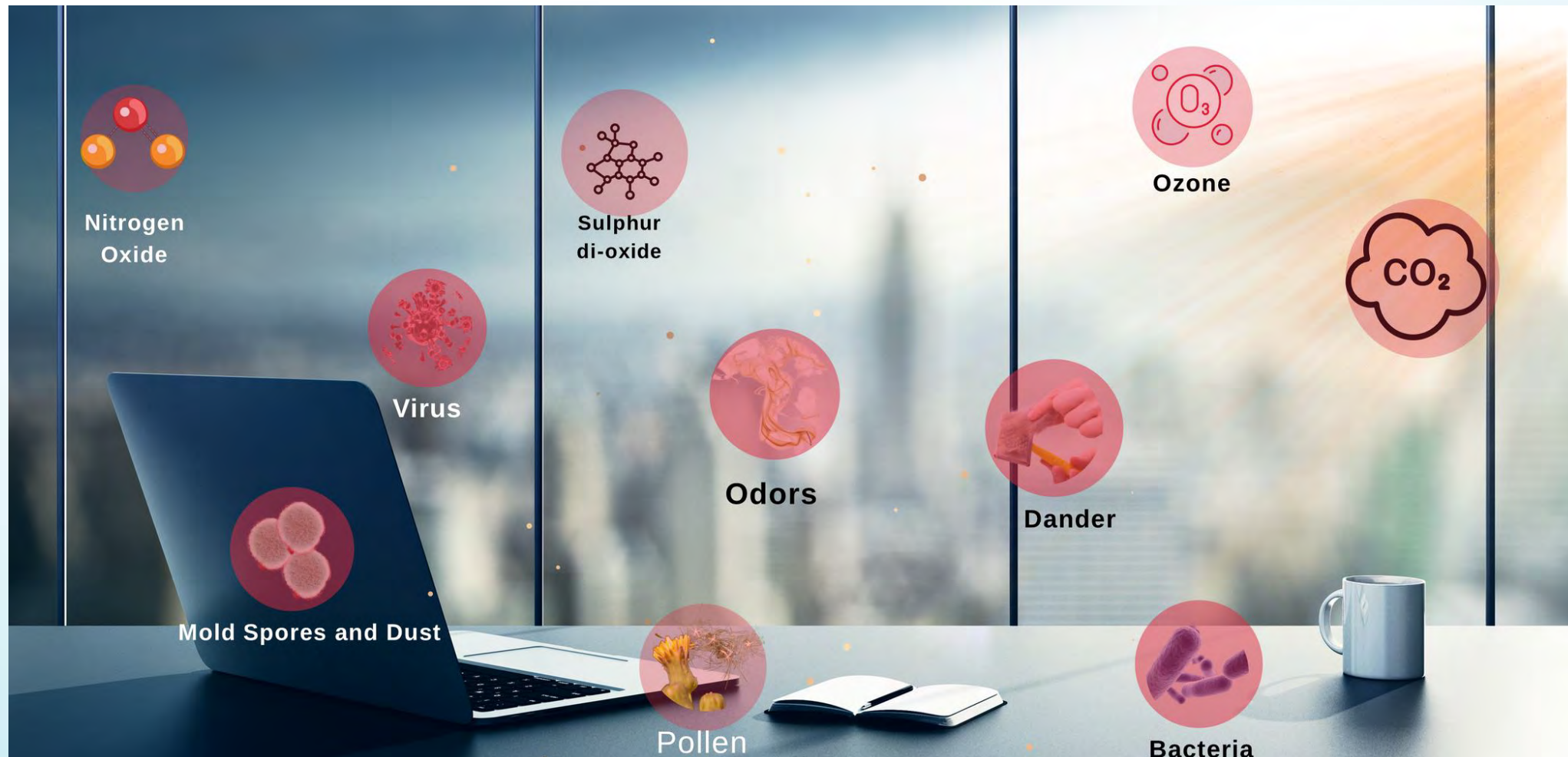
3 (SO2)

8 (NO2)



PM2.5 air pollution in **Mumbai** is causing an estimated deaths of **14,000 lives** since January 1, 2021. It has cost the city's economy around **US \$2.1 billion** so far this year. (Source: Greenpeace)

Indoor Air Quality (IAQ) refers to the air quality within the buildings and structures, especially as it relates to the health and comfort of building occupants.



Impact of IAQ on HEALTH!

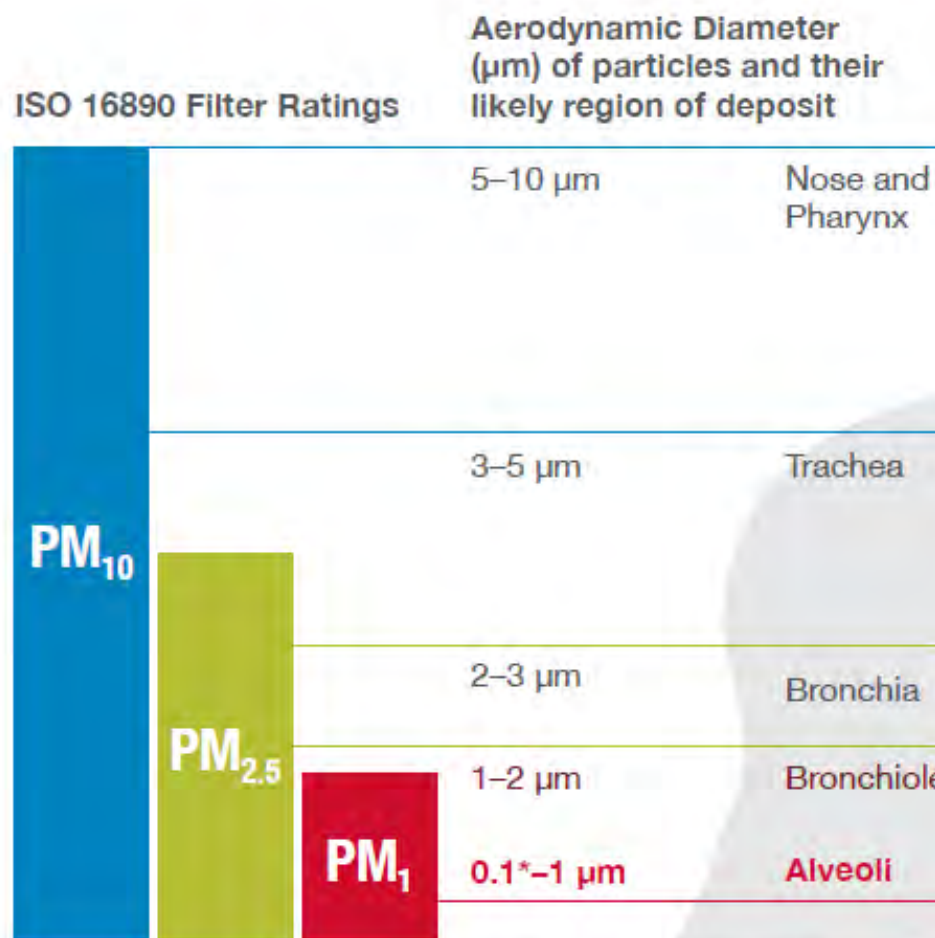
The world's leading health-related organizations consider **PM₁₀**, **PM_{2.5}**, and **PM₁** fine dust fractions as the most important and dangerous for humans.

Particles with an aerodynamic diameter of:

10 micron (ePM₁₀)
deposit in the **nose and pharynx** of the human respiratory system

2.5 micron (ePM_{2.5})
are small enough to reach the **human lung** and deposit in the bronchia

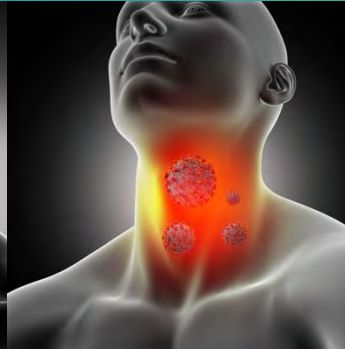
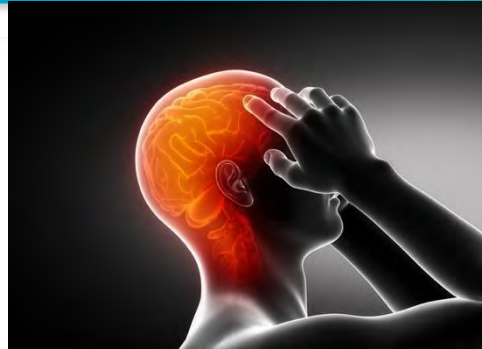
1 micron (ePM₁) or smaller
are small enough to find their way through the cell membranes of the alveoli into the **human blood stream** and cause life-threatening diseases



*Efficiency on particles smaller than 0.3 micron is not defined by ISO 16890.

AIR AND OUR BODY: AN UNSEEN CONNECTION





Building Related Illnesses

- Influenza
- Infections
- Allergies & Asthma
- Legionnaires' Disease
- Cancers
- Humidifier Fever
- Mold Related Illness
- Chemical Sensitivity

Sick Building Syndrome

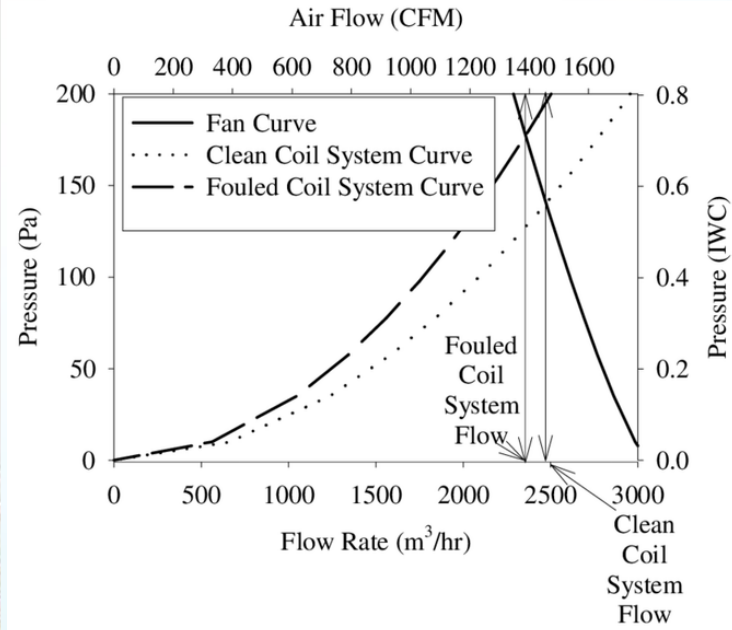
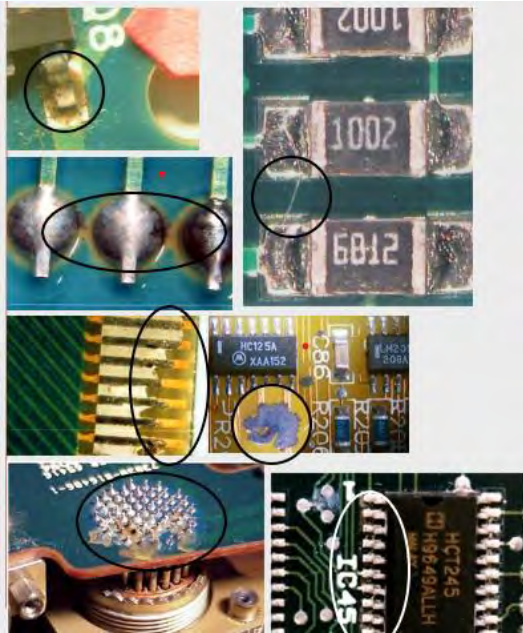
- Breathing Difficulty
- Eyes, Nose or Skin Irritation
- Nausea
- Fatigue
- Generally Unwell
- Weakens Immunity



Impact of IAQ on EQUIPMENT!

Issues due to Particles & Corrosive Gases

- Reduced Efficiencies – HVAC systems
- Corrosion on Electronic Parts
- Frequent Breakdowns – HVAC , Electrical and Electronic equipment



Impact of IAQ on PROCESS!

Issues due to Particles & Contamination

- Pharmaceutical – Lot rejections
- F&B – Contamination affecting products
- Micro-electronics – Product failures
- Healthcare – Cross infection in Hospitals



Benefits of Good IAQ on HEALTH!

AT WORK PLACE

- Higher Productivity
- Lower Absenteeism



BETTER LIFE

- Reduced Airborne Illnesses
- Healthy Body



Benefits of Good IAQ on EQUIPMENT!

RELIABILITY

Lesser Breakdowns
Better end Products



EXTENDED LIFE

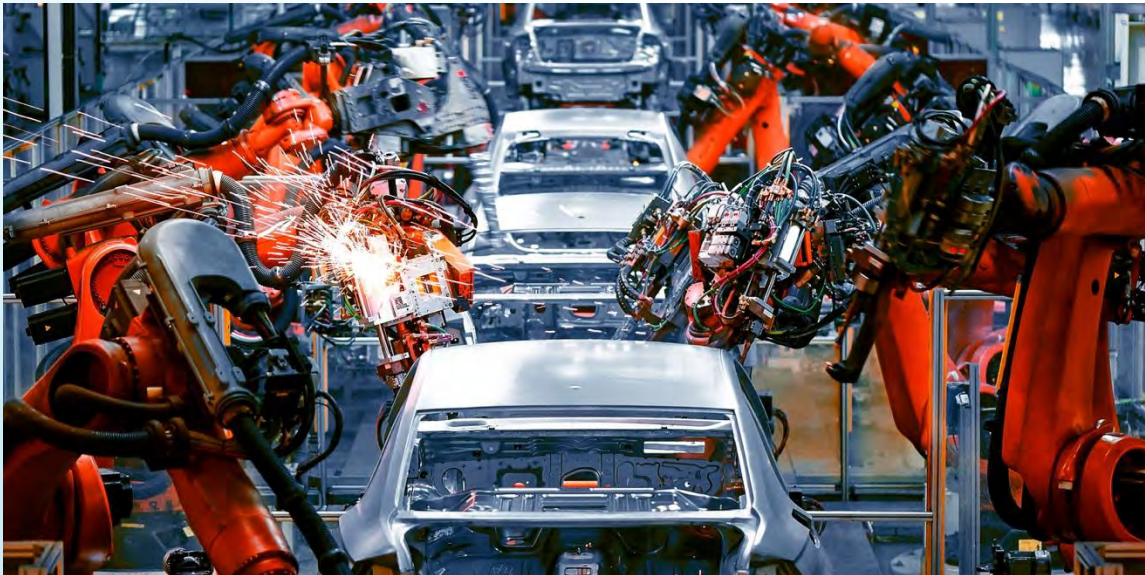
Costly equipment like servers,
Gas turbines
Manufacturing CNC Machines



Benefits of Good IAQ on PROCESSES!

- Improved Productivity
- Higher Production
- Lesser Downtime
- Lesser Costs
- Higher Profits

- Better Quality End Products
- Lesser Rejections



How to achieve the desired IAQ ?



- **Start following ISO 16890 guidelines** in design stage for Air Filtration in any project.
- **Governmental regulations** on Filter manufacturers for following certifications.
- **Select certified products** to ensure the standards.
- **Maintain the filter conditions as per the standards.** Disposable filters to be used instead of the washable filters which are commonly used in India.



BRANDED
or
UNBRANDED



Thank You!

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