



## SUBJECT : AIR POLLUTION IN CHINA & INDIA - UPDATE

**This bulletin is being revised with reference to sensitive groups and respiratory protection.**

### **What is the issue?**

Air pollution is a problem in most major cities, specifically in China and India, as a result of a very large population, rapid industrialization, increased vehicles and coal burning for heat and power. Irregular weather patterns have also had an effect, resulting in several smog warning alerts in these countries.

As a result, there is a potential for exacerbation of respiratory conditions, including asthma and chronic obstructive pulmonary disease (COPD), and a heightened risk for respiratory infections.

### **What is air pollution?**

There are many different types of air pollutants from a wide range of sources. The pollutants of greatest importance to health are the gases and particles that have been found to contribute to cardiovascular and respiratory disease. These pollutants are often lumped together under the term smog.

### **Who is most sensitive to air pollution?**

- People with diabetes, lung disease (such as chronic bronchitis, asthma, emphysema, lung cancer) or heart disease (such as angina, a history of heart attacks, congestive heart failure, arrhythmia or irregular heartbeat) are more sensitive to air pollution.
- Seniors are at higher risk because of weakening of the heart, lungs and immune system and increased likelihood of health problems such as heart and lung disease.
- Children are also more vulnerable to air pollution: they have less-developed respiratory and defence systems. Because of their size, they inhale more air per kilogram of body weight than adults. Children also spend more time outdoors being physically active, which can increase their exposure to air pollution.
- People participating in sports or strenuous work outdoors breathe more deeply and rapidly, allowing more air pollution to enter their lungs. They may experience symptoms like eye, nose or throat irritation, cough or difficulty breathing when air pollution levels are high.

People with medically sensitive health conditions should discuss their travel plans with their medical practitioner. Employees who have concerns about work-related travel to severe air pollution-affected destinations should discuss them with their local manager.

## What is the Air Pollution Index (API)?

The API is an index for reporting daily air quality. It tells you how clean or polluted the air is, and what associated guidelines should be observed to protect one's health.

## How is the API calculated?

The country Ministry of Environmental Protection (MEP) is responsible for measuring the level of air pollution. The Air Pollution Index (API) level is based on the level of five atmospheric pollutants, namely sulfur dioxide, nitrogen dioxide, suspended particulate, carbon monoxide and ozone.

These are measured at the monitoring stations throughout each city and the raw measurements are converted into a separate API value for each pollutant using standard formulas. The highest of these values is reported as the API value for that day.

## What are the API Guidelines?

| API     | Air Pollution Level   | Health Implications  |
|---------|-----------------------|--|
| 0 - 50  | Good                  | No health implications   |
| 51 -100 | Slightly Polluted     | Slight irritations may occur for individuals with breathing or heart problems.   |
| 101-150 | Lightly Polluted      | Minor irritations may occur. Individuals with breathing or heart problems should reduce outdoor exercise.  |
| 151-200 | Moderately Polluted   | Irritations may occur, individuals with breathing or heart problems should reduce outdoor exercise.  |
| 201-250 | Considerably Polluted | Healthy people may be noticeably affected. People with breathing or heart problems may experience reduced endurance in activities.   |
| 251-300 | Heavily Polluted      | Healthy people may be noticeably affected. People with breathing or heart problems may experience reduced endurance in activities. These individuals and elders should remain indoors and restrict activities.   |
| 300+    | Severely Polluted     | Healthy people may experience reduced endurance in activities. There may be strong irritations and symptoms which may trigger other illnesses. People with breathing or heart problems and elders should remain indoors and avoid exercise. <b>Healthy individuals should avoid outdoor activities and remain indoors as much as possible.</b> |

## What can I do to protect myself from air pollution?

Cut back on strenuous activities (any activity that significantly increases lung capacity inhalation intake – such as fitness activities) or reschedule strenuous activities for times when air quality is expected to be better. You can reduce your exposure by using API forecasts to help you plan your day. When the forecast calls for elevated levels of pollution, protect your health by reducing your exposure – especially if you are in a sensitive group. It's a small change that can help you protect your lungs and heart.

## Should I wear a mask?

The CDC and Health Canada do not make any recommendations regarding the use of a mask.

Comfort masks may reduce exposure to nuisance particulate but are not certified as respiratory protection equipment.

N95 respirators are considered respiratory protection equipment, however, require specific fit testing, seal checks, training and maintenance protocols to validate efficiency and effectiveness.

## Where can I get daily air quality forecasts for Chinese and Indian cities?

The daily forecasts can be reviewed via the country specific environmental protection website:

China: <http://english.mep.gov.cn/>

India: <http://164.100.160.234:9000/>

A more intuitive model can also be referenced at:

China: <http://www.stateair.net/web/post/1/1.html>

India: <http://newdelhi.usembassy.gov/airqualitydataemb.html>



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