



[Home](#) → [Environment and natural resources](#) → [Weather, climate and hazards](#) → [Air quality](#)  
→ [Air pollution](#) → [Air pollutants](#) → [Common air contaminants](#)

## Particulate matter 2.5 and 10

Particulate matter (PM) consists of airborne particles in solid or liquid form. [PM \(Particulate Matter\)](#) may be classified as primary or secondary, depending on the compounds and processes involved during its formation. Primary [PM \(Particulate Matter\)](#) is emitted at the emissions source in particle form, for example, the smokestack of an electrical power plant or a recently tilled field subject to wind erosion. Secondary [PM \(Particulate Matter\)](#) formation results from a series of chemical and physical reactions involving different precursor gases, such as [sulphur oxides](#) and nitrogen oxides, and [ammonia](#) reacting to form sulphate, nitrate and ammonium particulate matter.

The size of [PM \(Particulate Matter\)](#) particles largely determines the extent of environmental and health damage caused. For this reason, Environment Canada identifies different sizes of [PM \(Particulate Matter\)](#):

**Total Particulate Matter (TPM)** -airborne particulate matter with an upper size limit of approximately 100 micro metre ( $\mu\text{m}$ ) in aerodynamic equivalent diameter

**Particulate Matter <10 microns ( $\text{PM}_{10}$ )** - airborne particulate matter with a mass median diameter less than 10  $\mu\text{m}$

**Particulate Matter < 2.5 microns ( $\text{PM}_{2.5}$ )** - airborne particulate matter with a mass median diameter less than 2.5  $\mu\text{m}$

Numerous studies have linked [PM \(Particulate Matter\)](#) to aggravated cardiac and respiratory diseases such as asthma, bronchitis and emphysema and to various forms of heart disease. [PM \(Particulate Matter\)](#) can also have adverse effects on [vegetation](#) and structures, and contributes to visibility deterioration and regional haze.

Efforts to address particulate matter (PM) levels in the air are important in both the United States and Canada. Canada and the United States have completed a joint [transboundary particulate matter science assessment report](#) in support of the [Canada-U.S. Air Quality Agreement](#).

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