

Air Quality in Grangeegorman

Air Quality in Dublin has a huge effect on the environment and public health. Different monitoring systems have been put in place to tackle this issue



Nitrogen Dioxide (NO₂)

NO₂ is a gaseous pollutant which is harmful to human health and the environment. NO₂ is primarily produced by burning fuel. In the cities the major source of NO₂ is traffic. Many areas in Dublin have high levels of NO₂ with, at times, some locations exceeding the EU limit. <http://www.epa.ie/newsandevents/news/pressreleases2019/name,66485,en.html>

The hourly limit for NO₂ is 200g/m³, this limit is set to protect against acute health effects. The yearly limit for NO₂ on an annual average is 40 g/m³, this limit is set to protect against the health effects from long term exposure.

<https://www.epa.ie/air/quality/reports/no2/>



UN GLOBE Project

TU Dublin and Dublin City Council are working with local schools participating in the EPA supported & An Taisce coordinated UN Globe project, where schools use their grounds to take NO₂ measurements, comparing the results with others in the area, nationally and internationally.



Pollen

Plants release pollen during their reproductive cycle. Pollen can produce allergic responses such as sneezing, congestion, runny nose, red, watery and itchy eyes. Pollen exposure is particularly important for people with asthma.

TU Dublin is the only institution monitoring pollen in Ireland and do so by using advanced real-time and traditional methods. This will be used to provide an Ireland specific pollen forecast, which will help hay fever sufferers.

Ground Level Ozone

Ozone is found in higher concentrations at ground level which can be harmful to human health, it affects the functioning of the respiratory system. It also causes adverse implications crops and vegetation.

Ozone is higher in urban areas around Ireland as the ozone is depleted through reactions with traffic-emitted pollutants.

<https://www.epa.ie/irelandsenvironment/air/>



National Smoky Coal Ban

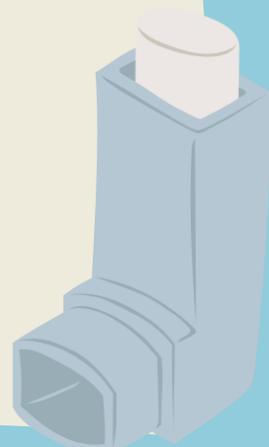
In September 1990 a smoky coal ban was introduced. The sale of smoky coal in Ireland has been banned in all cities and towns with a population over 10,000 people, and the new proposals would make this ban nationwide. The ban resulted in some local air pollution levels falling by 70 per cent and since then it has been estimated that 8,000 fewer people have died from heart and lung-related diseases.

<https://www.irishtimes.com/news/environment/thirty-years-on-ireland-s-smoky-coal-ban-remains-an-urgent-issue-1.4342272#:~:text=And%20so%20in%20September%201990,than%20the%20burning%20of%20it.>

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In 2013 a 9 year-old Londoner, Ella Kissi Debrah, died. In 2020 it was deemed her death was due to air pollutants mainly from car fumes. TU Dublin provided the equipment in the Air Monitoring Station which is being used to help monitor air pollutant levels so that impacts on human health can be minimized. This information will feed into the Dublin City Council system.

<https://www.theguardian.com/environment/2020/dec/16/girls-death-contributed-to-by-air-pollution-coroner-rules-in-landmark-case>



Particulate Matter

The Air Monitoring System located at Park House is linked to a city-wide network of Dublin City Council stations providing open access, real-time information on PM10 & PM2.5 levels. <https://dublincityairandnoise.ie/>

Polycyclic Aromatic Hydrocarbons (PAHs)

Polycyclic aromatic hydrocarbons (PHAs) are a class of chemicals that occur naturally in coal and gasoline. They are also produced when coal, oil, gas, wood and tobacco are burned.

A reduction in the use of solid fuel as a home- heating source across Ireland would mitigate PAH impact on air quality into the future.

<https://www.epa.ie/irelandsenvironment/air/>

Equipment descriptions

The **Osiris**, using a different method of measurement, provides real-time PM10 and PM2.5 readings that can be seen on <https://dublincityairandnoise.ie/>. It also collects other PM data.

The **LECKEL PM10 Gravimetric Analyser**, using a different method of measurement, provides daily PM10 data at the end of each month and filters for further chemical analysis (e.g. particles from wood or oil burning).

The **iGas** measures the concentration of a number of air-borne gases, e.g. Nitrogen Oxides (NOx) from diesel vehicles, Ozone, SO₂ and VOC. Commission completion is planned for August 2021.

The **Lanzoni Hirst Type Impactor** measures the ambient concentration levels of pollen particles and fungal spores. This research work is supported by the EPA and Met Éireann.

Smoking Ban

The smoking ban is the first national ban of its kind in the world. Levels of indoor air pollution has massively reduced since the introduction of the smoking ban in Ireland. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2688600/>

Indoor air quality tests revealed that PM 2.5 had decreased significantly when the smoking ban was introduced. This ban has improved respiratory health of workers and has also decreased airborne carcinogens by 80%.

<https://www.imt.ie/clinical/respiratory/smoking-ban-dramatically-reduces-air-pollution-and-airborne-carcinogens-27-04-2007/>



Aerosols

An aerosol is a suspension of fine solid particles or liquid droplets in air or another gas. Aerosols can be natural or anthropogenic. Examples of natural aerosols are fog and dust. Examples of anthropogenic aerosols are particulate air pollutants and smoke. Atmospheric aerosols from natural and anthropogenic sources can have an impact on the climate and on human health.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



11 SUSTAINABLE CITIES AND COMMUNITIES



13 CLIMATE ACTION



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