

Air Quality Monitoring and Noise Control Unit Annual Report 2014



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Table of Contents	Page
List of Figures	3
List of Tables	3
Introduction	4
Air Pollution Complaints	5
Noise Complaints	7
Outdoor Events in Dublin during 2014	9
Enforcement Proceedings in 2014	10
Fuel Regulations	11
Air Quality Monitoring	12
• Sulphur Dioxide (SO ₂)	13
• Nitrogen Dioxide (NO ₂)	14
• Carbon Monoxide (CO)	15
• Particulate Matter (PM _{2.5} & PM ₁₀)	16
Control of Volatile Organic Compounds (VOC's)	18
Ambient Atmospheric Ammonia in Ireland	19
Reference material and Internet addresses	20

List of Figures		Page
Fig 1	Air complaints by type 2014	5
Fig 2	Air Pollution complaints by postal district 2014	6
Fig 3	Noise complaints by postal district 2014	7
Fig 4	Noise complaints by type 2014	8

List of Tables		Page
Table 1	Outdoor Events Dublin 2014	9
Table 2	Fuel Regulations inspections 2014	11
Table 3	Limit values for Sulphur Dioxide	13
Table 4	SO ₂ results for Dublin 2014	13
Table 5	Limit values for Nitrogen Dioxide	14
Table 6	NO ₂ results for Dublin 2014	14
Table 7	Limit value for Carbon Monoxide for the protection of human health	15
Table 8	CO results for Dublin City 2014	15
Table 9	Target value for PM _{2.5}	16
Table 10	Limit value for PM ₁₀	16
Table 11	PM ₁₀ results for Dublin 2014	17
Table 12	PM _{2.5} results for Dublin City 2014	17

Introduction

This annual report deals with the activities of the Air Quality Monitoring and Noise Control Unit of Dublin City Council during 2014. These activities include:

- Enforcement of air pollution control legislation
- Monitoring of environmental noise and enforcement of noise control legislation
- Environmental air quality monitoring
- Enforcement of legislation relating to control of Volatile Organic Compounds (VOC's)
- Research
- Provision of expertise on an ongoing basis to other services and departments in Dublin City Council

The areas of enforcement of air pollution and noise control legislation continued to be a challenge during 2014. The number of complaints for air pollution increased while complaints for noise pollution decreased slightly.

Air quality during 2014 continued to be generally good. Levels of nitrogen dioxide, sulphur dioxide and carbon monoxide are well below EU limit values.

Investigation of complaints made by the public in relation to air quality and noise is a major element of the Unit's work. In 2014, 145 air pollution complaints and 418 noise complaints were investigated.

In addition to completing noise monitoring at some outdoor events, 125 Fuel Regulation inspections were carried out and 34 Certificates were issued to premises under solvents' legislation.

Air Pollution complaints

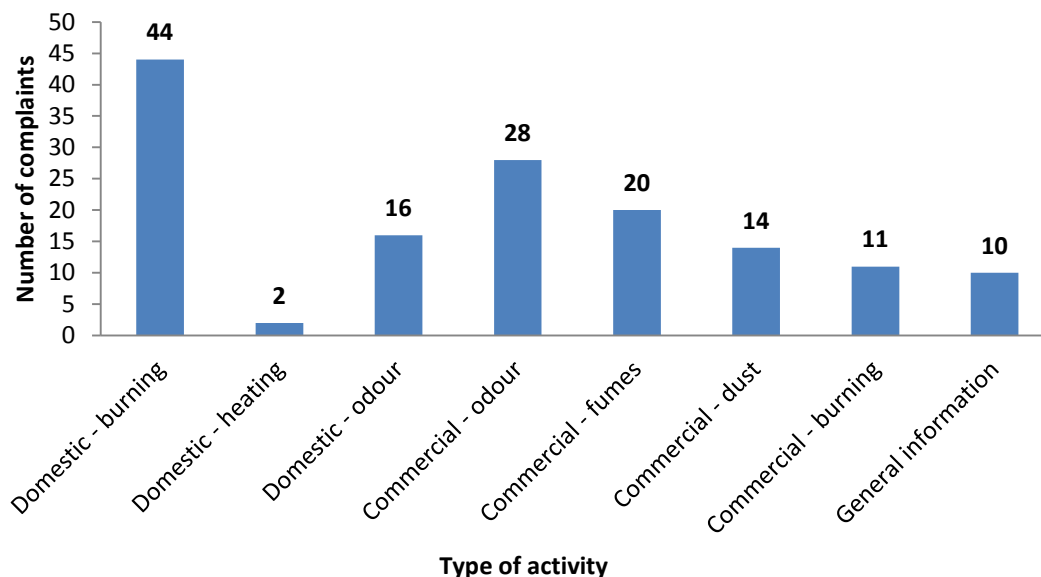
The Unit investigates complaints made by members of the public aggrieved by ongoing air pollution issues or once-off air pollution incidents. Common sources of complaint include odours emissions e.g. from commercial kitchen extraction systems, dust emissions from commercial premises and neighbours carrying out backyard burning.

Each complaint is dealt with individually, and in many cases, working in tandem with the commercial premises allows the situation to be remedied to the satisfaction of the complainant.

Where nuisance has been established and persists, despite the involvement of this Unit, a notice may be served under Section 26 of the Air Pollution Act 1987. Non-compliance with the notice can lead to court proceedings but in the majority of cases this proves unnecessary.

There were 145 complaints recorded by the Unit in 2014, an increase of almost 19% on the number in 2013. Figure 1, below, shows that the most common types of complaint received by the Unit relate to domestic burning, commercial odour issues and commercial fumes.

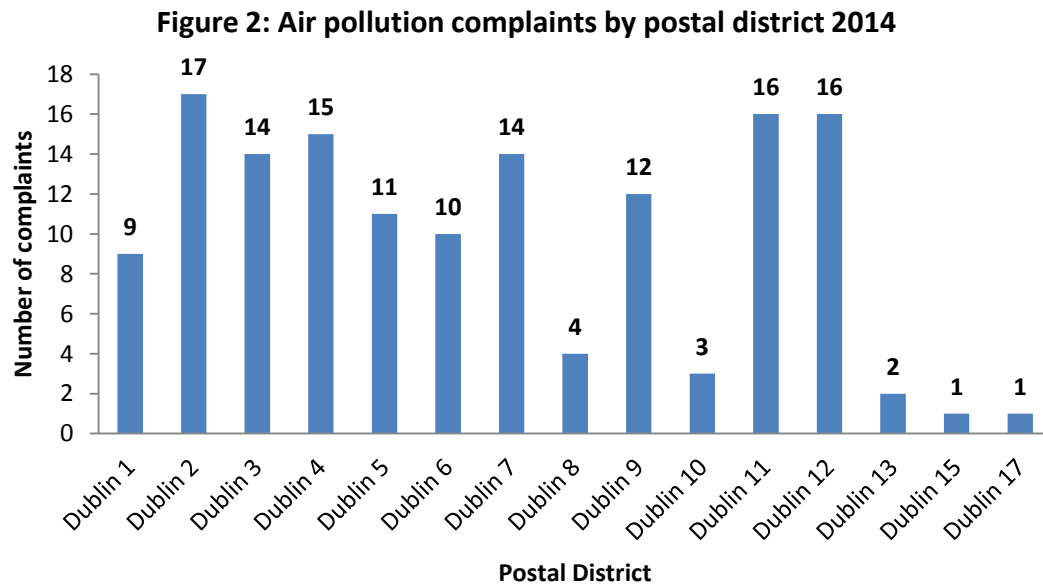
Figure 1: Air complaints by type 2014



Complaints about newly-installed flues on house extensions continue to be problematic, especially when the flues are emitting at ground floor level. Outdoor wood burning stoves in back gardens are also a popular source of complaint.

Commercial odours and fumes, predominantly from food premises dominate the complaints. Dust complaints are up slightly on 2013 figures as construction sites began to appear in Dublin again.

Figure 2 below shows that most complaints were received in Dublin 2, Dublin 11 and Dublin 12.

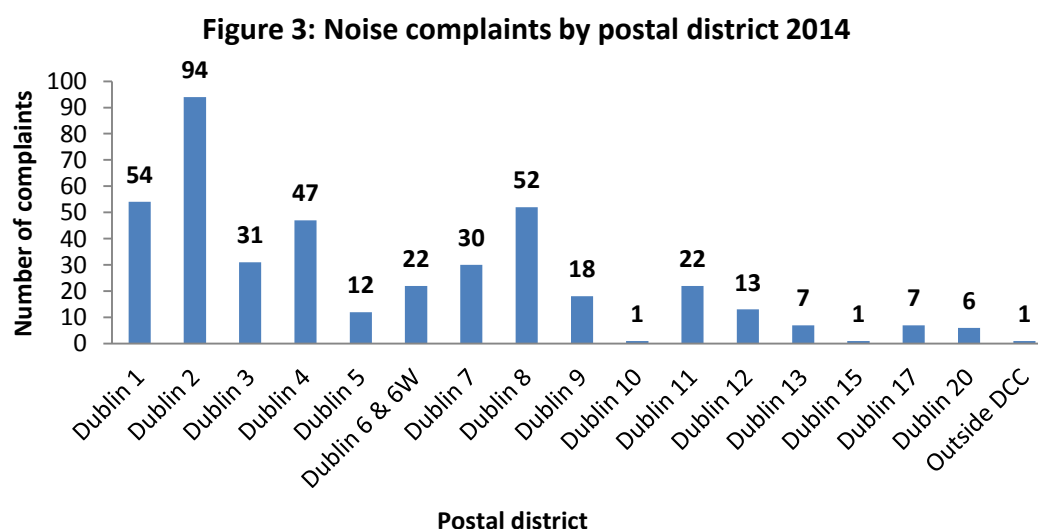


Noise complaints

The Unit deals with complaints in relation to noise pollution from commercial and industrial premises. The Unit does not deal with neighbour noise nuisance complaints as there is provision in the legislation for individuals to deal with this on their own behalf. Environmental Health Officers (E.H.O.s) give advice to the public about how they can take their own action. The information is also found on the Unit's webpage on the Dublin City Council website.

A notice can be served, by this Unit, in relation to any “*premises, processes or works*” causing a noise nuisance. Failure to comply with the terms of the notice within the time period specified can lead to the initiation of legal proceedings.

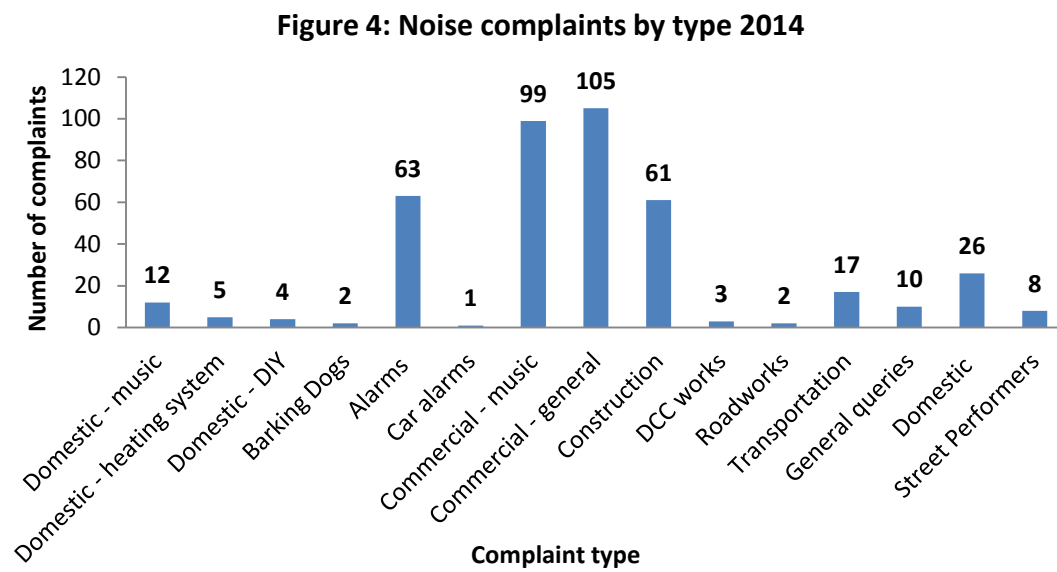
The number of complaints dealt with by the Unit in 2014 was 418 which is a decrease on 2013's complaint numbers (448). As can be seen from Figure 3, the city centre postal district of Dublin 2 was the busiest area of the city, followed by Dublin 1, 8 and 4. The huge disparity between Dublin 2 and the other city centre postal districts may be attributed to the large number of complaints about licenced premises and nightclubs. The practice of outdoor smoking areas being converted into outdoor entertainment spaces has led to an increase in complaints about these ‘smoking areas’.



Complaints regarding commercial properties typically include noise emanating from music venues, noisy plant and equipment servicing buildings and early morning deliveries to retail units.

The construction industry continues to generate complaints, with a slight increase on 2013 figures. In 2014, work continued across the city on the new LUAS line without generating too many additional noise complaints during 2014.

See Figure 4 for more details on the types of complaints that caused nuisance in 2014.



Outdoor events in Dublin during 2014

The wide variety of outdoor events held in Dublin annually contributes to the vibrant social scene in the city. The Unit carries out noise monitoring at the larger outdoor music events.

Notice is served by the Air Quality Monitoring & Noise Control Unit on both the promoter and the owner of the venue where the concert is taking place detailing noise limits for the event. An independent noise consultant must be employed by the promoter to monitor levels of noise at the nearest noise sensitive dwelling(s). If there are breaches of the notice conditions, the Unit may take legal proceedings against both the promoter and/or venue.

The main talking point in relation to outdoor events in 2014 was the cancellation of the proposed 5 nights at Croke Park for Garth Brooks. This certainly made headline news around the world but the residents around Croke Park had less disruption and nuisance to endure as a result of the cancelled events. It will have an impact on future planning of outdoor events at the venue.

Table 1 details the outdoor events at which Notices were served and noise monitoring was carried out during 2014.

Table 1: Outdoor Events Dublin 2014

Date	Location	Artist
May 23 rd	Croke Park	One Direction
May 24 th	Croke Park	One Direction
May 25 th	Croke Park	One Direction
May 31 st	Royal Hospital Kilmainham	Forbidden Fruit
June 1 st	Royal Hospital Kilmainham	Forbidden Fruit
June 24 th	Royal Hospital Kilmainham	Paul Weller
June 25 th	Royal Hospital Kilmainham	Elbow
June 26 th	Royal Hospital Kilmainham	Jack White
June 27 th	Royal Hospital Kilmainham	The Coronas
June 28 th	Royal Hospital Kilmainham	Biffy Clyro
July 11 th	Iveagh Gardens	Christy Moore
July 12 th	Iveagh Gardens	Little Green Cars
August 16 th	Royal Hospital Kilmainham	Holi One Festival
Sept 13 th	Dublin Castle	The Script

Enforcement proceedings in 2014

During 2014 the Unit served notice under the Environmental Protection Agency Act 1992 on 4 premises and all of the promoters/premises hosting outdoor events in the city. Notices under the Air Pollution Act 1987 were served on 5 premises.

There were no court proceedings to report on in 2014.

Fuel Regulations

Enforcing the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuel) Regulations 1998 to 2012 involves targeted unannounced inspections of fuel depots, vehicles and retail outlets around the city. The legislation places the onus firmly on the coal merchants working in the industry to supply compliant fuel.

In August 2012, the Air Pollution Act, 1987 (Marketing, Sale, Distribution and Burning of Specified Fuels) Regulations 2012 introduced a prohibition on the burning of specified fuel in private dwellings in specified areas. Specified fuel is any bituminous fuel, or admixture of bituminous fuel. The legislation also extended the ban in Dublin to include all of the city and county areas for the first time.

The Unit carried out 134 inspections in the winter heating season between October 2014 to March 2015.

There was general compliance across the city in relation to fuel offered for sale. There were some incidences of new vendors selling coal that is prohibited in the city. These issues were swiftly resolved to the satisfaction of the Unit. The 2014 breakdown of inspections is shown in Table 2 below.

Table 2: Fuel Regulations Inspections 2014

Shops	84
Depots	8
Garages	29
Vehicles	13
Total	134

Air Quality Monitoring

There are a number of air monitoring sites around Dublin City that are operated and maintained by the Air Quality Monitoring and Noise Control Unit.

The Air Quality Standards Regulations 2011 (S.I. 180 of 2011) transposed the Clean Air for Europe (CAFÉ) Directive 2008 (2008/50/EC) into Irish law. The Regulations outline the requirements for monitoring pollutants, and the target values for each pollutant.

Several of these monitoring sites are deemed to be 'multi-pollutant', i.e., monitoring two or more pollutants at one location. The multi-pollutant sites at Winetavern Street and Coleraine Street provide a good picture of air quality in the city. The site at Ballyfermot is back in the network after renovations at the site location.

The analysers monitoring Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂) and Carbon Monoxide (CO) at the multi-pollutant sites run continuously while the Particulate Matter (PM) analysers use filters that are collected and weighed after two week periods.

Since November 2012, the Unit has operated 3 multi-pollutant sites in County Dublin on behalf of Fingal County Council, Dun Laoghaire/ Rathdown County Council and South Dublin County Council. The data for these sites is included in this report. The support of our colleagues in the three Councils is acknowledged and very much appreciated.

Sites

Along with the multi-pollutant sites, there are other individual sites operated by the Unit. All of the Dublin City Council sites are incorporated into the Quality Management System.

Multi-pollutant sites

Winetavern Street – PM₁₀, NO₂, CO, SO₂

Coleraine Street – PM_{2.5}, NO₂, CO, SO₂

Dun Laoghaire – PM₁₀, NO₂

Blanchardstown - PM₁₀, NO₂

Old Bawn - PM₁₀, SO₂

PM₁₀ only sites

Phoenix Park

Rathmines

St Anne's Park

Ballyfermot

Davitt Road

PM_{2.5} only

Marino

Finglas

Sulphur Dioxide (SO₂)

Sources

The main source of SO₂ in Dublin is space heating from residential and industrial premises.

Health and environmental effects

There are a number of health effects associated with exposure to high levels of SO₂, including breathing problems and worsening of respiratory and cardiovascular disease. People with asthma, or chronic lung disease or heart disease are the most sensitive to SO₂.

SO₂ along with NO₂, is a precursor of acid rain. It is therefore responsible for acidification of lakes and streams and accelerated corrosion of buildings.

Table 3: Limit values for Sulphur Dioxide

	Averaging period	Limit Value
Hourly limit for the protection of human health	1 hour	350µg/m ³ not to be exceeded more than 24 times a calendar year
Daily limit value for the protection of human health	24 hours	125µg/m ³ not to be exceeded more than 3 times a calendar year
Limit value for the protection of ecosystems	Calendar year	20µg/m ³

Results and discussion

Levels of SO₂ in Dublin are outlined below. The results are extremely low and well within the limits set out in the Standards. The result at Old Bawn is a slight increase on 2013, but well below the limit value. The hourly maximums occurred all within a number of hours of each other following Icelandic volcanic activity in September 2014. The hourly averages went to levels not seen in Dublin for many years. The maximum hourly levels still did not exceed the 350ug/m³ allowed in the Standards.

Table 4: SO₂ results for Dublin 2014

Site	Annual daily mean µg/m ³	Hourly max µg/m ³
Winetavern Street	1	171
Coleraine Street	1	217
Old Bawn	6	168

Overall, the SO₂ levels remain very low across the city and county.

Nitrogen Dioxide (NO₂)

Nature and Sources

Nitrogen Dioxide (NO₂) is a gas produced from the burning of fossil fuels in vehicles, industrial plant, power plants and other commercial and residential sources that burn fuel.

Health and Environmental effects

NO₂ irritates the lungs and lowers resistance to respiratory infection, especially for those already suffering with breathing difficulties e.g. asthma, bronchitis. NO₂ along with SO₂ is a precursor of acid rain. It is therefore responsible for acidification of lakes and streams and accelerated corrosion of buildings.

Table 5: Limit values for Nitrogen Dioxide

	Averaging period	Limit Value
Hourly limit value for the protection of human health	1 hour	200µg/m ³ not to be exceeded more than 18 times in a calendar year
Annual limit value for the protection of human health	Calendar year	40µg/m ³

Results and discussion

There are 4 Dublin City Council sites monitoring NO₂ continuously – Winetavern Street and Coleraine Street are situated adjacent to heavily trafficked roads and Ballyfermot is situated in a predominantly residential area. St Anne's Park site provides a background site. Two other county sites at Blanchardstown and Dun Laoghaire are operated and maintained by the Unit.

Table 6: NO₂ results for Dublin 2014

Site	Annual mean (µg/m ³)	No. of times NO ₂ hourly level >200µg/m ³
Winetavern St	31	0
Coleraine Street	25	0
Ballyfermot	16	0
St. Anne's Park	12	0
Dun Laoghaire	16	0
Blanchardstown	28	2

The NO₂ levels at all of the sites were similar to the 2013 results and all remain well within the EU limit values.

Carbon Monoxide (CO)

Nature and sources

Carbon monoxide (CO) is colourless, odourless gas produced during the incomplete combustion of fuels. The main source of environmental CO is traffic.

Health and environmental effects

CO interferes with the distribution of oxygen in the blood to the rest of the body. Depending on the level of exposure, the symptoms include fatigue, headache, disorientation, nausea and dizziness. These symptoms are similar to that of flu or food poisoning so it may prove difficult to diagnose. However, it has the potential to kill or poison in high levels, especially in poorly ventilated premises.

Table 7: Limit value for Carbon Monoxide for the protection of human health

Averaging Period	Limit Value
Maximum Daily 8-hr mean	10mg/m ³

Results and discussion

There are two sites monitoring CO in the city, at Winetavern Street and Coleraine Street. As can be seen from below, the results remain very low in comparison with the limit set out in the legislation. There was no change in the results from 2013.

Table 8: CO results for Dublin City 2014

Site	8 hour rolling mean (mg/m ³)
Winetavern Street	0.0
Coleraine Street	0.4

Particulate Matter (PM_{2.5} & PM₁₀)

Nature and sources

The main sources of particulate matter (PM) are vehicular traffic, dust from construction sites, construction equipment and any crushing and grinding operations. Indoors, the main sources are tobacco smoke, wood burning stoves, fireplaces and other home heating sources.

Health and environmental effects

When inhaled, the particles can evade the body's natural defence system and lodge in the lungs. Symptoms of exposure include a sore throat, persistent cough, wheezing, shortness of breath and chest pain. PM can increase the number of asthma attacks, or aggravate bronchitis depending on the exposure. However, those already susceptible are a greater cause for concern. This includes children, the elderly and those already suffering with breathing difficulties.

There are different types of PM, but the coarse particles known as PM₁₀ are monitored at 10 sites and the finer PM_{2.5} are monitored at 2 sites. The CAFÉ directive provides the legal requirements for monitoring PM.

Table 9: Limit value for PM_{2.5}

	Averaging period	Target value
Annual target value for the protection of human health	Calendar year	25µg/m ³

Table 10: Limit value for PM₁₀

	Averaging period	Limit value
24 hour limit value for the protection of human health	24 hours	50µg/m ³ not to be exceeded more than 35 times in a calendar year
Annual limit value for the protection of human health	Calendar year	40µg/m ³

Results and discussion

The annual PM₁₀ mean value for all sites was below the 40µg/m³ limit value. The addition of Davitt Road, Finglas and St Anne's Park into the network gives better coverage of the city. The inclusion of the results from the county sites indicates trends across the county and not just localised issues.

The Blanchardstown site is close to the N3 slip road from the M50 so there were quite a number of days in excess of 50µg/m³ at this site due to the volume of traffic nearby.

Table 11: PM ₁₀ results for Dublin 2014		
Site	2014 Annual Mean µg/m ³	No. of days >50µg/m ³
Phoenix Park	12	0
Rathmines	14	3
Wintavern Street	14	1
Ballyfermot	11	2
Davitt Road	13	1
St Anne's Park, Raheny	17	1
Dun Laoghaire	14	2
Old Bawn	15	2
Blanchardstown	18	5

The number of days in excess of 50µg/m³ at all sites is well below the legislative requirements.

As can be seen from Table 12, PM_{2.5} levels are within the annual target value as set down in the CAFÉ Directive (detailed in Table 9). As yet, no daily limit value exists for PM_{2.5}. The maximum daily value in 2014 for PM_{2.5} was 43µg/m³ at Coleraine Street, 50µg/m³ at Marino and 35µg/m³ at Finglas.

Table 12: PM _{2.5} results for Dublin City 2014	
Site	Annual mean (µg/m ³)
Marino	8
Coleraine St	9
Finglas*	7

*Finglas results from February 24th – December 31st 2014

Control of Volatile Organic Compounds (VOC's)

VOC's are air pollutants which can have detrimental effects on human health by contributing to respiratory illnesses. Some VOC's are mutagenic or toxic to reproduction and harmful to the unborn. They also have harmful environmental effects (e.g. crop, vegetation and materials damage, reduced visibility etc.) when they chemically react with oxides of nitrogen and sunlight to form ground-level ozone. Potential sources include vehicle emissions, fuel combustion and domestic solvent usage.

Role of Dublin City Council

Solvents Regulations

The European Union (Installations and Activities using Organic Solvents) Regulations 2012 replaced the 2002 Regulations covering dry cleaning, pharmaceutical industries etc. A panel of Approved Assessors was appointed by the EPA for the purposes of carrying out the inspections. The Regulations allow Dublin City Council to issue Certificates of Compliance for up to 3 years. The fines for uncertified operators have increased from €3,000 to €5,000 or imprisonment, or both.

In 2014, 9 Certificates of Compliance were issued to Dry Cleaners.

Decorative Paints Regulations

The European Union (Paints, Varnishes, Vehicle Refinishing Products and Activities) Regulations 2014 replaced the 2007 Regulations. A panel of Approved Assessors was appointed by the EPA for the purposes of carrying out the inspections. Any premises spraying or refinishing vehicles must apply for a Certificate of Compliance from the Council. The Regulations allow Dublin City Council to issue Certificates of Compliance for up to 3 years. The fines for uncertified operators have increased from €3,000 to €5,000 or imprisonment, or both.

In 2014, 36 Certificates of Compliance were issued to vehicle refinishing premises.

Ambient Atmospheric Ammonia in Ireland

In 2014, the Air Quality Monitoring and Noise Control Unit of Dublin City Council assisted a University College Dublin (UCD) research project in relation to atmospheric ammonia levels in Ireland.

The project was an all-Ireland project and the Unit assisted by providing two monitoring locations, one at Winetavern Street and one at Phoenix Park and changing ammonia sampling badges at the required intervals.

The sampling program finished in mid-2014.

Further information is available at www.ucd.ie/ammonia/

Reference Material and Internet Addresses

For information on services provided by the Air Quality Monitoring & Noise Control Unit of Dublin City Council:

<http://www.dublincity.ie/main-menu-services-water-waste-and-environment/air-quality-monitoring-and-noise-control>

For Information on real-time air quality monitoring:

<http://www.epa.ie/air/quality/data/>

For updates on developments at European Union level on air quality:

<http://ec.europa.eu/environment/air/index.htm>

For information on developments at European Level on noise control:

<http://ec.europa.eu/environment/noise/home.htm>

For information on national environmental issues:

<http://www.environ.ie/en/>

For information on VOCs and Solvents

<http://www.environ.ie/en/Environment/Atmosphere/AirQuality/VolatileOrganicCompounds/>